

p-ISSN : 2303 - 355X I e-ISSN : 2685 - 2217 PUBLISHED BY : LPPM of UNIVERSITAS LABUHANBATU



Jurnal Eduscience (JES)

Volume 10 , No. 1 April 2023 Submit : 14 Januari 2023 Accepted : 20 Maret2023

IMPROVING STUDENTS' EARLY READING ABILITIES THROUGH PAIKEM APPROACH IN SECOND GRADE OF SDN WOWONG

GAMAR ABDUL NASIR¹, RAMADHAN JAMHR²

 ¹ Indonesian Language and Literature Education, Faculty of Teacher Training and Education, University of Muhammadiyah Kupang gamarabdul63@gmail.com
² Indonesian Language and Literature Education, Faculty of Teacher Training

and Education, University of Muhammadiyah Kupang ramadhanjamhar31@gmail.com

Abstract

This Classroom Action Research (CAR) aims to improve students' learning process and learning outcomes on their reading skills using PAIKEM approach at Second Grade Students of SDN Wowong. The study is done in 2 (two) cycles, through 4 stages, namely: planning, implementing, observing, and reflecting. The research data are obtained through interviews, observations, tests, and documentation. The data are analyzed descriptive qualitatively and quantitatively. The study shows that PAIKEM approach is effective in improving the learning process and outcomes on the students' reading skills. This can be seen from the students' attitudes during the learning process; students are active, enthusiastic and enjoy the class. Besides, there is an increase on students' learning outcomes in cycle II; each student with a score above the KKM (Minimum Criteria of Success) with an average score of 78.09. It is hoped that this study will provide theoretical benefits, namely adding insight into knowledge about how to apply PAIKEM approach. While practically, this study can contribute ideas and information for schools, teachers and students.

Keywords: Skills; Early Reading; PAIKEM Approach.

Abstract

Pendidikan dasar merupakan fondasi awal bagi anak-anak dalam mempersiapkan diri melanjutkan pendidikan pada tingkat selanjutnya. Salah satunya adalah menyiapkan siswa memiliki kemampuan membaca yang mumpuni. Hasil pengamatan di SDN Wowong, Kecamatan Omesuri, Kabupaten Lembata menunjukkan bahwa banyak siswa di kelas-kelas awal bahkan kelas atas belum mampu membaca dengan baik dan lancar. Siswa masih mengeja kata saat membaca dan terbata-bata. Penelitian Tindakan Kelas (PTK) ini bertujuan untuk meningkatkan proses dan hasil pembelajaran keterampilan membaca permulaan menggunakan pendekatan PAIKEM pada siswa kelas II SDN Wowong. Penelitian telah dilalui dalam 2 (dua) siklus pembelajaran dengan tiap siklus memiliki 4 tahapan, yaitu perencanaan, pelaksanaan, pengamatan, dan refleksi. Data penelitian diperoleh melalui wawancara, pengamatan, tes, dan dokumentasi dengan prosedur analisis data secara deskriptif kualitatif dan kuantitatif. Hasil penelitian menunjukkan bahwa pendekatan PAIKEM efektif memberikan peningkatan proses dan peningkatan hasil pembelajaran membaca permulaan siswa kelas II SDN Wowong. Hal ini terlihat dari adanya peningkatan sikap siswa saat proses pembelajaran; siswa begitu aktif, antusias dan menyenangkan saat proses pembelajaran. Selain itu, adanya peningkatan hasil belajar siswa pada siklus II; masing-masing siswa dengan nilai di atas KKM (Kriteria Ketuntasan Minimal) dengan rata-rata nilai 78.09.

Kata Kunci: Keterampilan; Membaca_Permulaan; Pendekatan_PAIKEM

p-ISSN : 2303 - 355X I e-ISSN : 2685 - 2217 PUBLISHED BY : LPPM of UNIVERSITAS LABUHANBATU



INTRODUCTION

A primary school is an educational setting that coordinates children's fundamental education and serves as a foundation for secondary education. Students will learn foundational skills at the elementary school level that are helpful for their developmental stage and will get them ready for the next level of education. As stated by Ali (2009), one of the major purposes of primary education is to equip students with fundamental abilities such as the capacity to read, write, count, understand the fundamentals of science and technology, and basic communication abilities.

One of the fundamental skills that elementary school students should be able to master is reading. In daily living, reading is extremely useful. Reading is the key to learning; through reading, people gain new information and insights. Any person who wishes to advance and become better must be able to read. By reading, humans can comprehend the writing around them. As stated by Rupley et al. (Agustin and Huda, 2022) that reading ability gives many advantages. In reading activity, readers can get some knowledge and some important information. Reading is the best activity that should be done for the students to enlarge their knowledge, information, and science.

Muammar (2020) suggests that early reading is the stage at which children start to read in the lower grades, The goal of this stage is to prepare students for entering the advanced reading stage in higher grades by teaching them how to recognize letters (or series of letters) into language sounds using specific techniques while paying attention to aspects of accuracy in writing, pronunciation, and reasonable intonation, as well as fluency and clarity of voice. Besides, the goals of beginning reading, according to Misriana (Hadiana et al., 2018), are to: a) nurture the fundamental reading mechanisms; b) comprehend and articulate simple sentences; and c) read simple words and sentences fluently and correctly.

Based on observations made at SDN Wowong, many students in the lower classes and even the sixth grade struggle with reading comprehension and fluency. When reading, students still repeat every word and stutter. They pause after each word they read. When reading, students frequently use their index finger. They don't completely comprehend the reading.

Early reading requires a teacher's attention as a fundamental ability. To enhance students' reading abilities, teachers must carefully plan their lessons. By providing a fun environment, students are more focused on having high motivation and enthusiasm for learning. One of strategies that can be used is the Active, Innovative, Creative, Effective, and Fun Learning (PAIKEM). This is supported by Minister of Education and Culture Regulation Number 65 of 2013 concerning Process Standards [3], which states that the learning process in educational units is organized in an interactive, motivating, enjoyable, challenging way that encourages students to actively participate and provides enough room for initiative, creativity, and independence in accordance with the students' talents, interests, and physical and psychological development. This legal basis suggests that PAIKEM must be integrated into the educational process at schools and must definitely serve as a foothold for all teachers.

Early Reading

Early reading is the phase of learning to read in the lower classes. In order to prepare students for advanced reading in higher grades, students learn to recognize a series of letters into language sounds using specific techniques by focusing on aspects of accuracy in voicing writing, reasonable pronunciation and intonation, fluency, and clarity of voice. (Muammar, 2020).

Lamb and Arnold (Pratiwi, 2020) contend that physiological, intellectual, environmental, and psychological variables can all have an impact on a child's early-reading abilities. Physical fitness, neurological function, and gender are all influenced by physiological variables. Individual intelligence capacities are related to intellectual variables. The child's background, experiences, and socioeconomic status are environmental variables. The child's interest, motivation, social and emotional maturity are among psychological variables.

There are certain methods that have been proven to be successful in teaching early reading in elementary schools, particularly in terms of motivating students to learn to read. Darmiyati Zuchdi and Budiasih (Muammar, 2020) list the following as some of the techniques used to teach early readers:

- 1. The alphabet or spelling method, which emphasizes word recognition through listening to letter sounds. The introduction of letter symbols or alphabets starts from the alphabet A to Z, i.e. pronouncing consonant and vowel letters.
- 2. The sound method is a method of voicing consonant letters with the help of middle vowels or front vowels.
- 3. The institution word method, which is a method of word recognition, starting from decomposing words into syllables, syllables into letters, then recombining letters into syllables, syllables into words, and combining and multiplying familiar letters into other syllables and words.
- 4. The vocabulary peel and string method is a beginning reading method that first introduces syllables such as ba, bi, bu, be, bo, ca, ci, cu, ce, co, and so on. The syllables are then strung together into meaningful words. For example: bi-bi bibi, ka-ki kaki.
- 5. The global method is a beginning reading method that begins with the presentation of several sentences globally. Example: this is musa i-ni; mu-sa; i-n-i m-u-s-a.



6. The SAS method (structural, analytic, synthetic) is a method of beginning reading by presenting whole sentences which are then broken down into words so that they become syllables and letters that stand alone and are then combined into syllables, words, and sentences.

PAIKEM

According to Aswan (2016, p. 43), PAIKEM is one of the most recent approaches to the learning process that is focused on the creativity of the teacher and the use of a variety of innovative media. According to Saefuddin and Berdiati (2016), PAIKEM actually represents active, innovative, creative, efficient, and enjoyable learning.

- a. Active learning, which is learning that more involved students activities. Students are encouraged to engage in class with enthusiasm and high levels of motivation in order to maintain cooperation.
- b. Innovative learning is learning that inspires teachers and students to create and innovate. By giving students the chance to cultivate their skills and multiple intelligences, teachers and students produce meaningful learning. Teachers help students acquire higher order thinking skills.
- c. A key component of creative learning is the teacher's ability to inspire and foster students' ingenuity while they are learning by making, creating, changing, and creating new things. To foster the development of creativity in the classroom, teachers can create a range of learning models. Learning can be designed to foster creativity in students.
- d. In order for learning to be effective, it must be able to give students new experiences, help them build their competencies, and guide them toward the objectives that can be accomplished most effectively. Teachers must use the appropriate model or method to plan and manage learning.
- e. Joyful learning means learning that can create a joyful atmosphere, thus creating a conducive atmosphere. Joyful learning is learning without feeling forced or pressured, and teachers create a democratic atmosphere.

In addition, Masitoh and Dewi (Aswan, 2016) also revealed the principles of PAIKEM-based learning are as follows:

- 1) Experiencing; students must be physically, intellectually, and emotionally engaged. Students will learn more meaningfully through direct experience than through listening to explanations.
- 2) Communication; communication between teachers and learners is essential for effective learning activities. When the communicator and communicant interact in the same way, communication is successful.



- 3) Interaction; learning must be created multi-directional interaction; the communication process between teachers and students, students with teachers, students with students, and even students with the surrounding environment.
- 4) Reflection; it is a process that is used to evaluate how efficiently instructors and students are doing in the learning process.

RESEARCH METHOD

This research is a Classroom Action Research (CAR) to solve learning problems in the classroom. This collaborative Classroom Action Research is implemented through cycles with the following procedures: planning, action, observation, and reflection. Through these cycles, it can be observed the improvement of early reading abilties by applying the PAIKEM approach to second grade students of SDN Wowong. According to Arifin (2011), CAR enables the analysis, development, and improvement of educational, curricular, and learning issues so that active, creative, effective, and fun learning can be applied. In schools, teachers and teachers-students are required to adopt a learning culture as a result of this CAR.

This study's data collection methods included interviews, tests, observations, and documentation, and it also used descriptive qualitative and quantitative data analysis. The activities that students engaged in while learning using the PAIKEM approach were described through a qualitative descriptive analysis.. Qualitative data in the form of interviews, observation sheets and documentation. Besides, the test results of students' early reading abilities from pre-action before using the PAIKEM approach and test results at the end of each cycle after using the PAIKEM approach were both described using quantitative descriptive analysis. This quantitative analysis used descriptive statistics to find the average score according to Daryanto (Jamhar, et al., 2020) as follows:

 $\overline{X} = \frac{\sum X}{N}$ Remarks: \overline{X} = Average score $\sum X$ = Sum of all student scores N = Number of students

The criteria of success of this study characterized by an improvement in the process and results of learning. The improvement in the process is obtained if: (1) the learning process is carried out in a pleasant and interesting way, (2) students actively participate in the learning process, and (3) students are able to understand learning by using the PAIKEM approach. Meanwhile, the improvement of the results is



obtained if there is an increase in the score of early reading abilities with average score of 60.00 (Minimum criteria of success) for Indonesian language subjects in the second grade of SDN Wowong.

RESULTS AND DISCUSSION

Description of Cycle I

Learning process in cycle I was carried out in 4 learning meetings, namely 3 material presentation meetings and one meeting test at the end of the cycle. The implementation of learning in cycle I began on September 20 to September 23, 2022. The PAIKEM approach was used to carry out the learning implementation in cycle 1. The 4 steps that researchers through in the cycle I are as follows.

1. Planning

The planning are as follows:

- a. preparing lesson plans with rubrics and assessment standards. In addition, planning the approach, methods and media that researchers will use in learning;
- b. preparing research observation sheets; and
- c. preparing camera for documentation during the learning process.
- 2. Action

At this stage, researcher carries out the learning process based on the plans. The lesson plans' learning flow was followed by researcher as he carried out the learning process. Applying the PAIKEM approach is one of the stage's essential factors.

At this point, the learning procedure consisted of three meetings for material presentation and one meeting for evaluation. Researcher and students engage in the following learning activities as part of the learning process:

- a) The researcher checks attendance, introduces himself, leads the class in prayer, and asks the students about their health. In addition, to encouraging and inviting students to actively engage in learning, the teacher asks them to sing a song. To get students ready for the lesson, the teacher asks simple questions. The teacher also explains to the students the learning goals;
- b) The researcher introduces vowels and consonants, syllables and syllables into words. The teacher employs colored picture media to motivate students' learning when delivering these materials.
- c) The researcher asks and guides the students as they read the short story. The guidance is provided so that the teacher can instantly identify errors and assist students in correcting their reading errors.



- d) The researcher reads a short story to the class. The teacher reads by demonstrating body language in accordance with the content of reading. This is done to increase students engagement and listening intent;
- e) Students are told to read aloud in front of the class one by one. When they go to the front of the class to read, they will be accompanied by clapping and singing to increase the students' enthusiasm and excitement in showing their creativity and reading ability.
- f) at the end of the class, the teacher and students conclude the lesson. The teacher encourages students to continue practicing reading by giving them an assignment of reading short stories at home with the assistance of their parents; and
- g) The researcher ends the class with praying together.

At the end of cycle I after giving 3 meeting presenting materials to students, a reading test is administered to students. The following are the criteria for evaluating student reading tests:

No	Assessment	Indicators	Score			
	aspect					
1.	Reasonable Pronunciation	a. Students read with correct pronunciation	3			
		b. Students read with less correct pronunciation	2			
		c. Students read with incorrect pronunciation	1			
2.	Fluency	a. Students are fluent in reading	3			
		b. Students are less fluent in reading	2			
		c. Students are not fluent in reading	1			
3.	Voice Clarity	a. Voice clarity is good	3			
		b. Voice clarity is not good enough	2			
		c. Voice clarity is not good	1			
4.	Reasonable of Intonation	a. Students read with correct intonation	3			
		b. Students read with less correct intonation	2			
		c. Students read with incorrect intonation	1			
Early reading score = $\frac{\text{Earned score}}{\text{Maximum score}} x100$						

Table 1. Standards for Early Reading Assessment

(Source: Muammar, 2020)

The following table shows the results of the second grade students at SDN Wowong in cycle I:

Indicator								
No	Students	Reasonable	Fluency	Voice	Reasonable of	Total	Score	
		Pronunciation		Clarity	Intonation			
1.	Students A	3	3	3	2	11	92	
2.	Students B	2	2	2	2	8	67	
3.	Students C	2	1	2	1	6	50	
4.	Students D	2	1	2	2	7	58	
5.	Students E	2	1	1	1	5	42	
6.	Students F	2	1	2	1	6	50	
7.	Students G	2	1	1	2	6	50	
8.	Students H	2	2	1	1	6	50	
9.	Students I	3	3	2	2	10	83	
10.	Students J	2	2	2	2	8	67	
11.	Students K	2	1	1	1	5	42	

Table 2. Students' Early Reading Test Scores in Cycle I

Remarks: Minimum criteria of success for Indonesian language subject in second grade of SDN Wowong is ≤60.

According to the table above, the average reading score of students in cycle I is 59.18. This score has yet to meet the minimal criteria success of 60.

3. Observation

On this stage, the researcher observed the learning process during cycle 1. This observation was conducted using an observation sheet. Observations made during the learning process revealed that:

- a. Reading materials with colored pictures media makes students more enthusiastic. Some students are active and compete when they are asked to read.
- b. There are still some students who are still silent, shy and hesitant to read.
- c. When the researcher reads short stories, some students are still not paying attention.
- d. Some students read short stories with incorrect pronunciation and intonation, not fluently and still read by spelling. There are still students reading with a very low voice so that their pronunciation is not clear. This demonstrates that there are still some students who have score below the minimum criteria of success.
- 4. Reflection

After reviewing the results and observations, the researcher needs to evaluate some of the activities in cycle I. The test results are clearly supported by observations during the learning process of cycle I. The average score has not yet reached the minimal criteria of success (59.18). Based on that, it is necessary to PUBLISHED BY : LPPM of UNIVERSITAS LABUHANBATU

carry out learning process in cycle II. The number of activities that researcher needs to consider during the learning process in cycle II are as follows:

- a) Learning occurs not only in the classroom but also outside. Students are introduced to a relaxed learning environment. The student learning process should be enjoyable so that students are motivated to learn. This is an effort to stimulate students' enthusiasm in learning.
- b) The researcher modified the design of the picture to make it more colorful and larger in size. This is done to attract students' attention.
- c) The researcher will give presents to students who are able to perform reading in front of the class to increase students' motivation to read.
- d) The researcher will intersperse learning activities with games to stimulate students' enthusiasm for learning to read.
- e) The researcher will not carry out the lesson activities on consecutive days, but will take a day off after the meeting. This is done so that students do not feel bored with the material presented.

Description of Cycle II

There are 3 meetings in cycle II, namely 2 material presentation meetings and one test meeting at the end of cycle II. The implementation of learning in cycle II was carried out on October 03, 2022 and October 05, 2022. While the test in cycle II was conducted on October 07, 2022. The implementation of learning in cycle II was carried out by applying the PAIKEM approach. However, in cycle II it is more focused on improving the learning process as a result of reflection on learning activities in cycle I.

There are 4 steps that researcher go through in cycle II, as follows.

1. Planning

The planning made in this cycle II are:

- a. preparing lesson plans with rubrics and assessment standards. Besides, planning the approaches, methods and media that researchers will use in learning;
- b. researcher also plans learning outside the classroom;
- c. preparing research observation sheets; and
- d. preparing camera documentation during the learning process.
- 2. Action

The learning process in cycle II was slightly different from cycle I because students were directed to learn outside the classroom. At this stage, the learning process was carried out for two meetings of presenting materials and one meeting of administering tests to students. Researcher and students go through the following learning stages during the learning process:

- 1) The researcher begins the class by greeting and praying together. The researcher also gives apperception to the students by asking how they are doing and checking their attendance. The researcher encourages students to sing together, motivates them, and invites them to fully participate in learning. Furthermore, the teacher poses simple questions to prepare students for the lesson and informs them about the learning objectives.
- 2) The researcher introduces vowels and consonants; syllables and words. The researcher conveys these materials using colorful pictures to attract attention as well as motivate students to read;
- 3) The researcher ask and guides the students as they read the short story. The researcher instructs the students to read one by one in the order of the sentences in the short story, ensuring that each student has their turn to read. Guidance is provided in such a way that the teacher quickly notices errors and also assists students in correcting their mistakes in reading, and instructs students to raise their voices in reading so that they can be heard clearly by other students.
- The researcher requests that the students listen as he reads the short story. The researcher reads by displaying body language in accordance with the reading's content. This is done to increase pupil engagement and listening intent;
- 5) The researcher encourages students to do small movements and perform games before continuing with the learning activities. This is done to maintain their enthusiasm. If students are only told to sit and attend to the teacher's explanation, they become easily bored. After this session, learning will continue outside the classroom.
- 6) Learning outside takes place on the the beach in an open hut. The researcher no longer gives material but rather practices; the researcher instructs students to read one by one. When a student's name is called to read, it will be welcomed with enthusiastic applause, which will encourage students' enthusiasm and passion in reading. In addition, the researcher encourages students who can read in front of their peers with gifts.
- at the end of the lesson, the teacher and students conclude the lesson. The teacher motivates students to keep practicing reading by giving them reading short stories task at home; and
- 8) The researcher ends the lesson with praying together.

At the end of cycle II, the researcher administered a reading test to students, which was also done outside of the classroom. The cycle II test was held on October 7, 2022. The following is description of the results of students' reading tests in cycle II:

Indicator								
No	o Students	Reasonable	Fluenc	Voice	Reasonable	Total	Score	
		Pronunciation	у	Clarity	Intonation			
1.	Student A	3	3	3	2	11	92	
2.	Student B	3	2	2	2	9	75	
3.	Student C	3	2	2	2	9	75	
4.	Student D	3	2	2	2	9	75	
5.	Student E	3	2	2	2	9	75	
6.	Student F	3	2	2	2	9	75	
7.	Student G	3	2	2	2	9	75	
8.	Student H	3	2	2	2	9	75	
9.	Student I	3	3	3	2	11	92	
10.	Student J	3	2	2	2	9	75	
11.	Student K	3	2	2	2	9	75	

1.

Table 3. Students' Early Reading Test Scores in Cycle II

Remarks: Minimum criteria of success for Indonesian language subject in second grade of SDN Wowong is ≤60.

According to the table above, the average early reading score of SDN Wowong students is 78.09. This result met and even passed the minimum success criteria for Indonesian language subject.

3. Observation

The test results are also confirmed by the observations made during the learning process. The findings of the observations indicate that the learning process has been going well.

- a. When requested to read the picture, students appear more enthusiastic, active, and competitive due to changes in the picture media, which is slightly larger and colorful.
- b. Giving students rewards to the students motivates them to do their best. When the researcher read the short tale, the students paid close attention and listened intently.
- c. Students are demonstrated short stories with accurate pronunciation and fluency, despite their intonation is still incorrect. Due to the teacher's direct guidance, students have also clearly pronounced their reading; no longer with a low voice.
- d. Games and small movements in between lessons keep students paying attention and concentrating on the material. Learning outside the classroom also increases students' minds and enthusiasm for learning. In addition, the learning system becomes more contextualized because various learning objects can be seen and even felt directly. Boredom is readily created by monotonous learning, which reduces student interest and enthusiasm.
- 4. Reflection



The implementation of the PAIKEM approach in the early reading of SDN Wowong second grade students went well and smoothly and it fulfilled the success criteria in this study. The majority of students were engaged and enthusiastic about learning, and their reading results improved. The second cycle results indicated an improvement, with an average score of 78.09. When compared to the average score in cycle I, this score has risen. The improvement in the process and outcomes of student learning in cycle II demonstrates the effectiveness of the PAIKEM approach in improving students' early reading abilities.

CONCLUSION

The implementation of PAIKEM approach in the classroom has demonstrated to be effective in improving the process and learning outcomes of early reading for SDN Wowong second grade students. This can be seen in the improvement of students' behaviors during the learning process. Students were active, enthusiastic, and enjoyable during the learning process. The improvement in students' positive behaviors during the learning process also had a positive effect on their learning outcomes. With an average score of 78.09, each of the students achieved the minimum success criteria.

REFERENCE

- Agustin, Nining A. and Huda, Moch. C. (2022). An Analysis of Students' Reading Comprehension Achievement at Second Semester Students of Bhinneka PGRI University in the Academic Year 2020/2021. Jurnal Eduscience, 9(1), 235-242. DOI: <u>https://doi.org/10.36987/jes.v9i1.2588</u>.
- Ali, M. (2009). Education for National Development: Towards an Independent and Highly Competitive Indonesian Nation. Bandung: INTIMA.

Arifin, Z. (2011). Education Research: New Methods and Paradigms. Bandung: PT Remaja Rosdakarya. Aswan. (2016). PAIKEM-based Learning Strategies. Yogyakarta: Aswaja Pressindo.

Hariati, P. N. S., Hasibuan, lily R., & Safitri, I. (2020). Pengaruh penggunaan media video animasi terhadap respon siswa dalam pembelajaran matematika pada materi operasi bilangan bulat. Jurnal Pembelajaran Dan Matematika Sigma (JPMS), 6(1), 18–22. https://doi.org/https://doi.org/10.36987/jpms.v6i1.1657



Jamhar, R, et al. (2020). Improving Writing Expository Texts Ability Using Collaborative Writing Method. Jurnal Ilmiah Iqra', 14(1), 1-14. DOI: <u>http://dx.doi.org/10.30984/jii.v14i1.1028</u>.

Muammar. (2020). Early Reading in Primary School. Mataram: Sanabil.

- The Regulation of Minister of Education and Culture Number 65 of 2013 About Standards Process.
- Pratiwi, C. P. (2020). An Analysis of Primary School Students' Early Reading Skills: A Case Study of Second Grade Students in Elementary School. JPE: Jurnal Pendidikan Edutama, 7(1), 1-8. DOI: <u>http://dx.doi.org/10.30734/jpe.v7i1.558</u>
- Riwayani, S., Harahap, RD. (2022). Does Blended Learning Improve Student's Learning dependence during the Covid-19 Pandemic? Evidence from a Labuhanbatu University, North Sumatera. : Jurnal Kependidikan. 8 (1), DOI: https://doi.org/10.33394/jk.v8i1.4509

Saputra, A., Harahap, RD. (2022). An Analysis of Student Learning Challenges in Elementary School Science Subject. Jurnal Kependidikan. 8 (1), DOI: https://doi.org/10.33394/jk.v8i1.4508

- Saefuddin, A.H. & Berdiati, I. (2016). Effective Learnings. Bandung: PT Remaja Rosdakarya
- Latif, A., Safitri, I., & Pasaribu, L. H. (2020). Pengaruh Metode Pembelajaran Problem Solving Terhadap Aktivitas Belajar Siswa. Jurnal Eduscience, 7(2), 1–9. https://doi.org/https://doi.org/10.36987/jes.v7i2.1907
- Mansah, H., & Safitri, I. (2022). The Effectiveness of Improving Student Mathematics Literacy Through The Use of The Facebook Application. AKSIOMA: Jurnal Program Studi Pendidikan Matematika, 11(1), 683–693. https://doi.org/http://dx.doi.org/10.24127/ajpm.v11i1.4743