Analysis of Numeracy Literacy Ability in Fifth Grade Students of SD Negeri Pinayungan V

Ayu Fitri✉1, **Tatang Herman**2

1,2 Basic Education, Universitas Pendidikan Indonesia, Bandung, Indonesia
✉ ayufitri@upi.edu

Abstract. Numeracy literacy skills base on must be possessed by fifth grade elementary school students to face the National Assessment (ANBK), this numeracy literacy ability is very necessary not only related to formulas, but also requires students' reasoning power and critical thinking patterns in answering problems that will be needed in aspects of their lives. at home, at school and in the community. This study aims to analyze the numeracy literacy skills of fifth graders at Pinanyungan V Elementary School. The subject studied 32 fifth grade students of Pinanyungan V Elementary School, Telukjambe District, Karawang Regency. The research method used in this research is descriptive qualitative. Data collection techniques used in this study using tests, interviews, and documentation. Based on research obtained from 32 students who have low literacy skills as many as 14 students and 18 students who have moderate literacy abilities. The conclusion of this study is that the numeracy literacy ability of fifth graders at SD Negeri Pinayungan V is in the medium category.

Keywords: Numeracy, literacy, elementary school.

INTRODUCTION

The Ministry of Education and Culture has attempted to create a literacy culture by launching the National Literacy Movement (GLN). The National Literacy Movement is an implementation of the Minister of Education and Culture Regulation Number 23 of 2015 concerning the Growth of Character and Character. The National Literacy Movement (GLN), which has been launched by the government, is implemented through schools called the School Literacy Movement (GLS). GLS is a comprehensive effort that involves all school members (teachers, students, parents/guardians of students) and the community, as part of the educational ecosystem (Mansyur & Rahmat, 2019). The School Literacy Movement is a program of the central government, through the Ministry of Education and Culture. One of the activities in the movement is the 15-minute activity of reading non-learning books, before class time begins. One of the goals of the School Literacy Movement (GLS) is to foster students' interest in reading. Activities to foster students' interest in reading can be carried out in the school library, class reading corners, and reading areas .

In terms of terms, the word "literacy" comes from the Latin litteratus (littera), which is equivalent to the word letter in English which refers to the meaning of 'the ability to read and write'. Literacy is defined as 'the ability to read and write' which then develops into 'the ability to master knowledge in a particular field'. In Law No. 3 of 2017 concerning the Bookkeeping System, literacy is defined as "the ability to interpret information critically so that everyone can access science and technology as an effort to improve their quality of life".

Numerical literacy is defined as a person's ability to use reasoning. Reasoning means analyzing and understanding a statement, through activities in manipulating symbols or mathematical language found in everyday life, and expressing these statements through writing or orally (Abidin, et al 2017: 107). Numerical ability is a guard of self-protection against unemployment, low income and poor health (Kemendikbud, 2017). According to Mahmud & Pratiwi (2019) numeracy literacy ability is the ability to acquire, interpret, use, and communicate various kinds of numbers and mathematical symbols in solving contextual problems in everyday life. According to Salvia, et al (2022) this numeracy literacy ability is very necessary in mathematics, because mathematics is not only always related to formulas, but also requires students' reasoning power or critical thinking patterns in answering every problem presented.

Numeracy skills are needed in all aspects of life, both at home, at work, and in society (Ekowati & Beti, 2019).

Numerical literacy skills as knowledge and skills that are closely related to understanding numbers, symbols and analysis of quantitative information (graphs, tables, charts, etc.), are very important for the current generation. By having good numeracy literacy skills, students are capable of applying their mathematical knowledge in real life.

Numeration is not the same as math competence. Both are based on the same knowledge and skills, but the difference lies in the empowerment of these knowledge and skills. Mathematical knowledge alone does not make a person have numeracy skills. Numeration includes skills in applying mathematical concepts and rules in real, everyday situations. When the problem is often unstructured, has many ways of solving, or even no complete solution, and is related to non-mathematical factors.

For example, a student learns how to divide an integer by another integer. If the first number is not divisible, there will be a remainder. Usually students are taught to write down quotients with remainders, then they also learn to express quotients in decimal form. In the context of everyday life, precision quotient (with decimals) is often unnecessary, so rounding is often done. Mathematically, the rule of rounding down is done if the decimal value is less than 5, rounding up if the decimal value is greater than 5, and rounding up or down can be done if the decimal value is 5.

However, in a real context, this rule cannot always be applied. For example, if 40 people who are going on an excursion are transported by a minibus that contains 12 people, mathematically the minibuses needed to accommodate all the people are 3.333333. Of course, this number is unreasonable, so we rounded it down to 3 minibuses. However, if a seat can only be occupied by one person, it means that 4 people cannot get a seat. Therefore, the number of minibuses that should be ordered is 4. It should be noted that numeracy requires knowledge of mathematics that is learned in the curriculum. However, learning mathematics itself does not necessarily develop numeracy skills.

The basic principles of numeracy literacy according to the Ministry of Education and Culture (2017) are as follows:
1. Contextual in nature, in accordance with geographical conditions, social culture, and so on;
2. In line with the scope of mathematics in the 2013 Curriculum;
3. Interdependence and enrich other literacy elements

The objectives of learning numeracy literacy for students according to the Ministry of Education and Culture (2021) are as follows:
1. Sharpen and strengthen students' knowledge and numeracy skills in interpreting numbers, data, tables, graphs, and diagrams.
2. Apply numeracy literacy knowledge and skills to solve problems and make decisions in everyday life based on logical considerations.
3. Form and strengthen Indonesian human resources capable of managing natural resource wealth (SDA) so that they are able to compete and collaborate with other nations for the prosperity and welfare of the nation and state.

The benefits of learning numeracy literacy for students according to the Ministry of Education and Culture (2021) are as follows:
1. Students have knowledge and skills in planning and managing good activities.
2. Students are able to perform calculations and interpretation of existing data in everyday life.
3. Students are able to make the right decisions in every aspect of their life.

Ministry of Education and Culture (2017) Numerical literacy is part of mathematics, in terms of the numeracy literacy component taken from the scope of mathematics in the 2013 Curriculum, as shown in the following table.

Table 1. Numerical literacy components in the scope of mathematics in the 2013 curriculum

Numerical Literacy Components	Coverage of Mathematics Curriculum 2013
Estimating and calculating with integers	Number
Use fractions, decimals, percents and comparisons	Number
Recognize and use patterns and relationships	Numbers and Algebra
Using spatial reasoning	Geometry and Measurement
Using measurement	Geometry and Measurement
Interpret static information	Data processing

Based on results interviews conducted at SD Negeri Pinayungan V were obtained that ability numeration very needed in dealing with ANBK (Based National Assessment computer). Student when given direct matter _ the numbers they could finish, however when in question text form story they feel difficulty in complete problem the. Based on Anggraeni's research (2022) that the results of the AKM question test out of 15 students there were 11 students with low numeracy skills, three students with medium numeracy abilities, and one student with high numeracy abilities. According to the research results, students are more prepared to face AKM compared to UN because the context used in AKM questions is the context in everyday life so students explore more and understand questions more easily.

For analyze ability numeration student used source indicators _ from GLN (2017) can seen in table 2.

Table 2. Indicators Ability Numeration

No	Indicator
1	Use various type associated numbers and symbols _ with mathematics base for solve problem in various sour context life daily
2	Analyze displayed information _ in various form (graphs, tables, charts, diagrams and so on)
3	Interpret results analysis for predict and take decision

Whereas for measuring the results of the numeracy ability test will be corrected and analyzed, then based on the test results students are categorized into three levels of categories namely the category of low numeracy ability, medium numeracy ability and high numeracy ability could seen in table 3.

Table 3. Score Intervals from Each Category

No	Score Intervals	Category
1	X < 50	Low
2	$50 \leq x \leq 80$	Medium
3	80>	High

Source: Sari, et al (2021)

Based on background behind problem the so researcher take title " Analysis Ability Literacy Numeratcy Students in Class V SD Negeri Pinayungan V Distric East Telukjambe Regency Karawang".

METHOD

The approach in this study uses a descriptive qualitative approach. This research collects data and records the phenomena that occur both directly and indirectly, then the data is described in the form of words or descriptive descriptions without neglecting the data in the form of words. The subjects of this study were 32 fifth grade students from SD Negeri Pinayungan V who are located in Sukawargi Hamlet. Pinayungan Village East Telukjambe District Karawang Regency.

The collection techniques used in this study were creative thinking tests, interviews and documentation studies. Data analysis techniques using Milles and Huberman is data collection, data condensation, data dispay and than conclusions.

RESULTS

The results of this study namely for analyze ability numeration student class V at SD Negeri Pinayungan V District East Telukjambe Regency Karawang . Question test ability numeration consists from four given essay questions to 32 students. For acquisition results test could seen in table 4 below this:

Table 4. Acquired Test Scores Ability Numeration Class V student

No	Name	Question				Score	Category
		1	2	3	4		
1	S-01	4	3	3	2	75	Medium
2	S-02	2	2	2	1	44	Low
3	S-03	4	3	3	2	75	Medium
4	S-04	3	2	1	1	44	Low
5	S-05	4	3	3	2	75	Medium
6	S-06	3	2	1	1	44	Low
7	S-07	3	2	1	1	44	Low
8	S-08	3	3	3	3	75	Medium
9	S-09	2	2	2	1	44	Low
10	S-10	3	3	3	2	69	Medium
11	S-11	3	2	2	0	44	Low
12	S-12	3	3	3	2	69	Medium
13	S-13	3	2	1	0	38	Low
14	S-14	4	3	2	2	69	Medium
15	S-15	3	3	3	2	69	Medium
16	S-16	2	2	2	1	44	Low
17	S-17	3	2	1	1	44	Low
18	S-18	3	3	3	3	75	Medium
19	S-19	2	2	2	1	44	Low
20	S-20	3	3	3	3	75	Medium
21	S-21	3	3	3	3	75	Medium
22	S-22	3	1	2	1	44	Low
23	S-23	2	2	2	1	44	Low
24	S-24	4	3	3	2	75	Medium
25	S-25	3	3	3	2	69	Medium
26	S-26	2	2	1	1	38	Low
27	S-27	3	3	3	2	69	Medium
28	S-28	4	3	3	2	75	Medium
29	S-29	2	2	2	1	44	Low
30	S-30	4	3	3	2	75	Medium
31	S-31	3	3	2	3	69	Medium
32	S-32	4	3	3	2	75	Medium
Amount		**97**	**81**	**74**	**53**	**1912**	Medium

No	Name	Question				Score	Category
		1	2	3	4		
	Score	75.78	63.28	57.81	41.41	59.75	
	Category	Medium	Medium	Medium	Low	Medium	

Based on table 4 shows that students who could complete question number 1 with value of 75.78 incl category being, students who can complete question number 2 with value of 63.28 incl category being, students who can complete question number 3 with value of 58.59 incl category medium, and students who can complete question number 4 with value of 41.41 incl category low. For more he explained could seen Figure 1 below this!
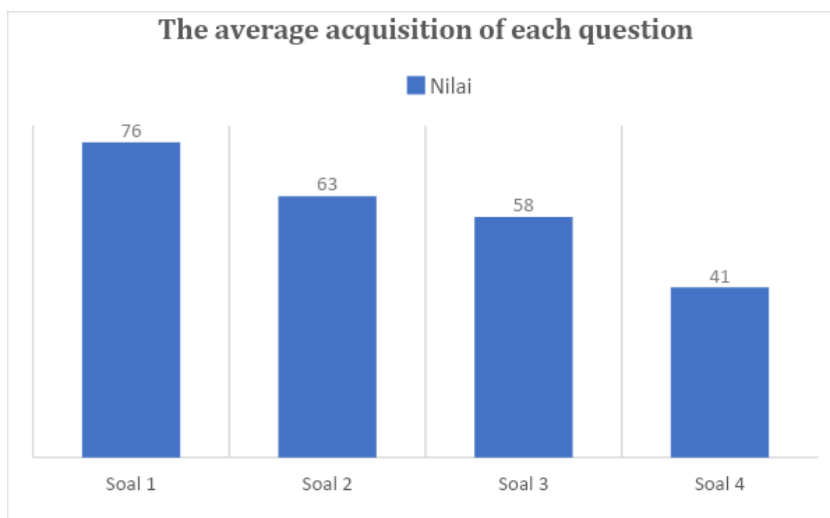

Figure 1. Acquisition of the Average Value of Each Question

Based on figure 1 that acquisition average value each the highest question on the question number 1, then questions 2 and number 3, while the lowest is on question no. 4. Of the 32 students who followed test ability numeration in class V SDN Pinayungan V there are 18 students who get score more of 50 incl in category being and gaining score under 50 as many as 14 people included in category low. Could concluded that ability numeration student class V SD Negeri Pinayungan V District East Telukjambe District Karawang including category medium. For more he explained could seen in Figure 2 regarding acquisition category ability numeration student.
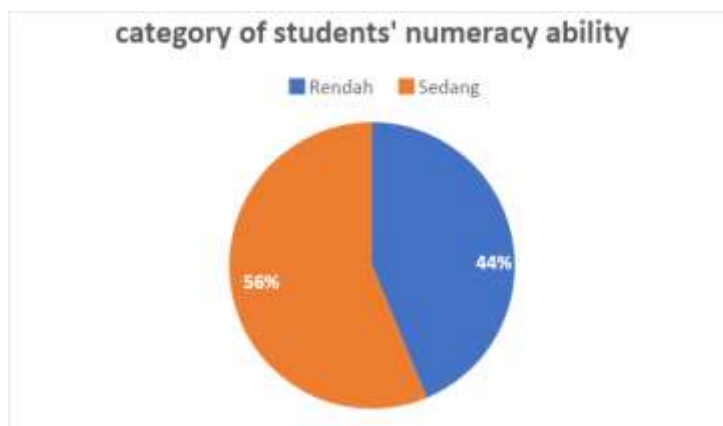

Figure 2. Category Ability Numeration Class V student

Based on results Interview to S-14 students who obtained ability numeration categorized currently as following:

Researcher : " Is it question given difficult for resolved?"
S-14 : "There are easy things done and some are difficult done".
Researcher : " Problem which one are you consider easy?"
S-14 : " An easy question on number 1 "
Researcher : " Why your number 1 consider easy?"
S-14 : "Because number one only split the pizza that dad brought for 4 people who were at home then. Each person gets 2 slices of pizza. Then look for price one slice the pizza"
Researcher : " Which question do you have consider hard"
S-14 : " Question number 3"
Researcher : " Why question number 3 is considered hard?"
S-14 : " Enough read question from sentence beginning turned out to be looking for only soy and sugar sand. But moment share share feel difficulty in share the money".
Researcher : " Is it question number 4 included difficult or no?"
S-14 : " Question number 4 almost same with question number 3"
Researcher : " Is it there is the difference question number 4 with number 3?"
S-14 : " Question number 4 already known the fraction so more easy in share it"
Researcher : "How often do you work on questions like before?"
S-14 : "Rarely"
Researcher : "Usually what kind of questions are given?"
S-14 : "Directly calculate the fractions, not in the form of a story"
Researcher : "Is it easy to solve the problem earlier if it's about you?"
S-14 : "It seems easy, because number 1 I think dad brought pizza for me"

Based on results Interview to S-22 students who obtained ability numeration categorized low as following:

Researcher : " Is it question given difficult for resolved?"
S-22 : " You see difficult".
Researcher : " Problem which one are you consider easy?"
S-22 : " An easy question on number 1 "
Researcher : " Which question do you have? consider hard"
S-14 : " Question number 4"
Researcher : " Why question number 4 is considered hard?"
S-14 : " Because it's a headache which should come first done, you see too long"
Researcher : "How often do you work on questions like before?"
S-14 : " Never"
Researcher : "Usually what kind of questions are given?"
S-14 : " Directly counting fractions does not mix with money"
Researcher : "Is it easy to solve the problem earlier if it's about you?"
S-14 : " How do you do it, ma'am?"
Researcher : "Let's just say number one is dad who bought pizza, number 4 you can make pempek dough!"

DISCUSSION

Based on results study obtained that ability numeration students in class V SD Negeri Pinayungan V included category medium. this _ caused by students seldom given related questions _ with activity everyday. However actually they can complete question with analogy about his life like in question. Considered matter _ easy from four question namely in question 1. For more he explained could seen in figure 3 below this:
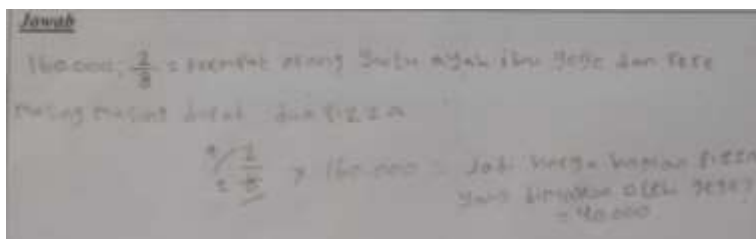
Figure 3. Analysis Results Answer Number 1

Based on figure 3 is obtained that settlement easiest matter. _ They could analogy his father bring food for shared to member his family. Student could use various type number nor symbol mathematics for solve life everyday, he can too analyze information regarding the pizza that will be shared to member his family then searching for how many price every cut pizzas. At stage end he capable take conclusion from decision with return to question question. For discussion question number 2 got seen in Figure 4 below this:
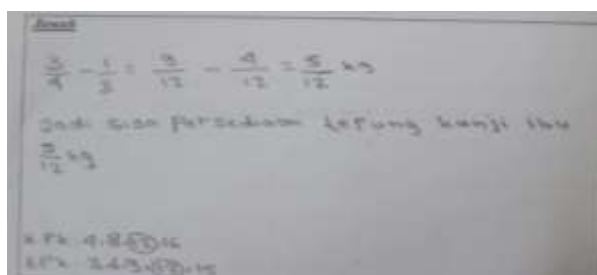

Figure 4. Answer Results Student Number 2

Based on figure 4 is obtained that student direct write operation count the shards begin with symbol operation subtraction for Reduce ¾ of the starch you have mother with 1/3 of the required starch make cireng _ Student could analyze the information provided so that he could solve it, way he finish it too with look for kpk of 3 and 4 is not it direct multiplied by 3 x 4. Ia capable take conclusion from decision with return to question question . For discussion question number 3 d what seen in Figure 5 below this:
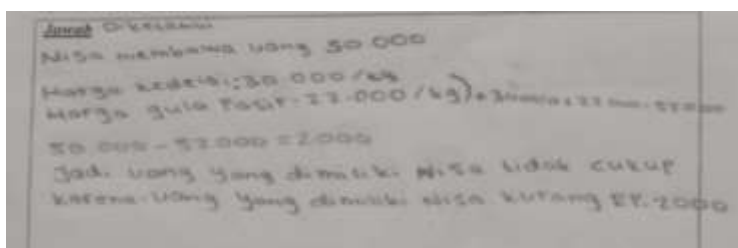

Figure 5. Answer Results Student Number 3

Based on figure 5 is obtained that student feel easy in complete number 3, however he no thorough in read question. Ability read this needed in complete question numeration. They not enough thorough that which was dictated price soy and sugar sand in kg units, even though what is needed in gram units. So that in one class this no there is students who can complete question number 3 with right. For discussion question number 3 got seen in Figure 6 below this:
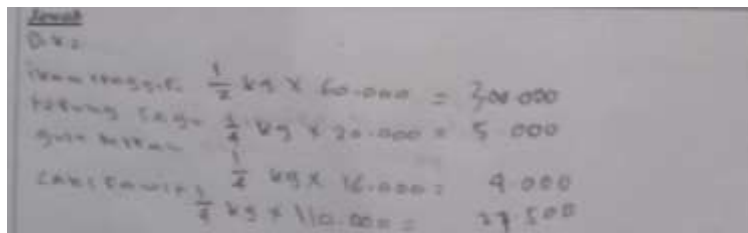
Figure 6. Answer Results Student Number 4

Based on figure 6 is obtained student feel difficult in complete question number 4 because text in question served too long. Whereas researcher want to knowing how ability read student. this proven remainder direct write known thing in problem necessary materials _ for make pempek to form price. However, student no thorough in count it so that writing zero too a lot and not could complete problem until end. From discussion fourth question the that student must have ability read so that could develop ability the numeration.

CONCLUSION

Research conclusion this that ability literacy numeration student class V SD Negeri Pinayungan V District East Telukjambe Regency Karawang of 32 students there are 18 students who get score more of 50 incl in category being and gaining score under 50 as many as 14 people included in category low including category medium.

REFERENCES

Aisyah, N. (2007). Pengembangan Pembelajaran Matematika SD. Jakarta: Dirjen Dikti Depdiknas.

Anggraeni, K.E. & Rini, S. (2022). Analisis Kemampuan Numerasi Siswa SMA dalam Menyelesaikan Soal Asesmen Kompetensi Minimum (AKM). *Mathedunesa Jurnal Ilmiah Pendidikan Matematika*, 11 (3). 837-849

Budiarto, Mega Teguh. (2016). Peran Matematika dan Pembelajarannya Dalam Mengembangkan Kearifan Budaya Lokal Mendukung Pendidikan Karakter Bangsa. Prosiding Seminar Nasional 2016 Program Studi Pendidikan Matematika Universitas Madura, Madura. Hal. 1-11.

Fauzi, I., & Andika, A. (2020). Analisis Kesulitan Belajar Siswa pada Materi geometri di Sekolah Dasar. Kreano: Jurnal Kreatif-Inovatif, 11(1), 27-35.

Harahap, D.G.S., Fauziah, N., Eni, S., Salman, S. (2022). Analisis Kemampuan Literasi Siswa Sekolah Dasar. *Jurnal Basic Edu*, 6 (2), 2089-2098.

Hartatik, S., Nafiah. (2020). Kemampuan Numerasi Mahasiswa Pendidikan Profesi Guru Sekolah Dasar Dalam Menyelesaikan Masalah Matematika. *EHDJ: Education and Human Development Journal*, 5 (1), 32-42.

Lamada, M., Edi, S.R., Herawati. (2021). Deskripsi Kemampuan Numerasi Siswa dalam Menyelesaikan Operasi Pecahan. *Pedagogy,* 6 (2), 90-101.

Mahmud, M.R., Inne, M.P. (2019). Literasi Numerasi Siswa Dalam Pemecahan Masalah Tidak Terstuktur. Kalamatika: *Jurnal Pendidikan Matematika*, 4 (1), 69-88.

Maulidina, A.P. Sri, H. (2022). Profil Kemampuan Numerasi Siswa Sekolah Dasar Berkemampuan Tinggi dalam Memecahkan Masalah Matematika. *Jurnal Bidang Pendidikan Dasar*, 3(2), 1-62.

Mellyzar., Ratna, U., Nanda, N. (2021). Hubungan *Self Efficacy* dan Kemampuan Literasi Numerasi Ditinjau Berdasarkan Gender. Lantanida Journal, 9 (2). 93-182.

Napsiyah, Nurmaningsih, Rahman, H. (2022). Analisis Kemampuan Numerasi Matematis Siswa Berdasarkan Level Kognitif pada Materi Kubus dan Balok. JagoMIPA: *Jurnal Pendidikan Matematika dan IPA*, 2 (2), 103-117.

Noto, M. S., Priatna, N., & Dahlan, J. A. (2019). Mathematical proof: The learning obstacles of pre-service mathematics teachers on transformation geometry. *Journal on Mathematics Education*, 10(1), 117–125.

Nurhayati, Asrin, Nurul, K.D. (2022). Analisis Kemampuan Numerasi Siswa Kelas Tinggi dalam Penyelesaian Soal Pada Materi Geometri di SDN 1 Teniga. *Jurnal Ilmiah Profesi Pendidikan,* 7 (2), 723-731.

Putri, M., Fifwi, I., Hadiany, D, A., (2021). Analisis Kemampuan Literasi Numerasi Siswa SMP Ditinjau dari Kemandirian Belajar Matematika. *Prosiding Seminar Nasional Pendidikan matematika (SNPM) III,* 196-207.

Rahman. (2021). *Model Mengajar & Bahan Pembelajaran*. Sumedang: Alqa.

Sari, D. R., Lukman, E. N. A., & Muharram, M. R. W. (2021). Analisis Kemampuan Siswa dalam Menyelesaikan Soal Geometri pada Asesmen Kompetensi Minimum-Numerasi Sekolah Dasar. FONDATIA, 5(2), 153-162.

Supartono. (2006). Pengembangan Perangkat Pembelajaran Matematika Realistik Untuk Materi Lingkaran di Kelas VIII SMP Negeri 1 Bubulan Bojonegoro. Mathedu ; Vol. 1 No. 2 Juli 2006, hal. 161. Surabaya: Program Studi Pendidikan Matematika PPS-UNESA.

Walle, John A. Van De. (2008). Matematika Sekolah Dasar dan Menengah Jilid 1 Edisi Keenam. (penerjemah Suyono). Jakarta: Erlangga.

Yustinaningrum, B. (2021). Deskripsi Literasi Numerasi Siswa Menggunakan Polya Ditinjau dari Gender. *Jurnal Sinektik*, 4 (2). 126-140