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DEVELOPMENT OF CABATAR LEARNING MEDIA ON FLAT GEOMETRY MATERIAL TO IMPROVE STUDENTS NUMERACY ABILITIES IN ELEMENTARY SCHOOLS

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ABSTRACT

The research focuses on developing and testing the feasibilty of CABATAR (Canva Bangun Datar) media for teaching mathematics about flat figures in class IV SDN Susukan 04 Pagi. CABATAR media is designed to address students numeracy abilities regarding material explained through conventional learning methods. The research method used is Research and Development (RnD) with the ADDIE (Analysis, Design, Development, Implementation, Evaluation) development model. Validation results from media experts show a feasibility percentage of 91.25% and validation from material experts shows a percentage of 94.16%. The implementation of this media in small and large groups shows that CABATAR media is very suitable for application in learning with positive student responses. It is hoped that this media can foster students' creativity and learning motivation and contribute to the development of interesting and effective learning media in developing numeracy skills. The N-Gain test score was 0.62 with moderate criteria, while the CABATAR media effectiveness score in improving numeracy skills was 63.73% with moderately effective criteria.

KEYWORDS *Learning Media, CABATAR Learning, Flat Geometry Materials, Numeracy Skills*

INTRODUCTION

Education is a very important role to develop the potential of students who are the hope as the next generation of the nation. Law Number 2 of 1989 states that education is a conscious effort to prepare students through guidance, teaching or training for their future roles. To improve the understanding of students can be through guidance and training. According to Muhibbin, education comes from the word "didik" and gets the prefix "me" so that it becomes "educate" which means to maintain and provide training and the need for teaching, guidance, and leadership regarding morals and intelligence of the mind. (Moto, 2019).

Realizing national education requires a curriculum as the main position. According to Hidayani (Hartoyo & Rahmadayanti, 2022) The main thing in every educational activity is the curriculum, the curriculum must be carefully prepared to achieve educational goals.

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The curriculum needs to be improved and adapted to the context of each school by considering the stages of learner development. The government is consistently trying to improve all factors that affect the development of the quality of education in Indonesia including the quality of educators, students, curriculum, and learning infrastructure. Therefore, there is a need for creative and innovative educators to create effective learning media that meets the learning objectives of the independent curriculum.

The Merdeka Curriculum teachers must be able to master technology to facilitate the learning activity process to attract students' interest in learning and make students obtain information widely. (Nurafni & Ninawati, 2021). Currently, there are still many teachers who have not mastered technology, so the process of teaching and learning activities is less effective, which makes it difficult for students to understand the material presented. (Manalu et al., 2022). The subject that students are less interested in because it is difficult to understand is mathematics. In essence, mathematics is one of the subjects that has an important role in education where this subject is useful in everyday life to solve problems and train logic, think critically, creatively, and innovatively.

Mathematics is a subject where all levels from the lowest to the highest have mathematics subjects, one of which is in elementary school. Mathematics in elementary school can foster basic knowledge to develop knowledge at a higher level. The reality that often occurs in learning mathematics is the lack of student understanding of the material presented due to an ineffective learning process that races with books without any supporting learning media, causing a decrease in student AKM.

The Minimum Competency Assessment (MCA) is one of the assessments or assessments as a substitute for the National Examination (UN) which is valid starting in 2020, but has only been implemented since 2021. One of the skills tested in the MCA is numeracy. If we look at the results of the latest *Program for International Student Assessment* (PISA) in 2018, the numeracy skills of Indonesian students are still low, even in the top 5 from the bottom. (OECD, 2019)Numeracy is defined as part of mathematics. In flat geometry material, numeracy skills are very important to have because to use formulas and perform precise calculations. Math numeracy skills will be a benchmark for student achievement in mathematics at the next level. (Mercader et al., 2018).

So important is numeracy that it can have a good impact on learner achievement, then numeracy skills can have a positive impact and benefit the development of learners, especially in learning if applied regularly. In life, we must have a strategy to improve math numeracy skills because it is very useful for the lives of learners. Low math numeracy skills will have a negative impact on employment opportunities, physical, mental, economic and health (Cohen Kadosh et al. (Cohen Kadosh et al., 2013).Therefore, it is important to improve math numeracy skills in all circles, especially elementary school students. One of the subjects that students are afraid of is math, therefore there is a need for learning media that can help teachers deliver the material and help improve students' numeracy skills.

Learning media will not be separated in the learning process. In conveying messages, ideas in the form of teaching materials educators to students can stimulate the thoughts, emotions, interests, and attention of students, so that educators and students can interact with each other in the learning process. The media will make it easier for teachers to deliver material to students. One of the learning resources is learning media that can be used with various types of media so that it can help teachers in delivering material to students. In this case, learning media is useful for increasing learning motivation, enabling direct interaction between students and the environment in a real way, allowing students to learn independently according to their abilities and interests. Effective use of media can increase student interest in learning. This is because a variety of learning media will be used correctly in the applied curriculum.

In the learning process, there are several media used by teachers, one of which is the canva application media, the canva application can also increase interest in learning and develop students' creativity, so the definition of the canva application is a graphic design platform that bridges its users in order to make it easier to design various types of creative designs online. Therefore, in delivering material, learning media can be used in all subjects, one of which is Mathematics.

Based on the results of observations and interviews that have been conducted, numeracy problems were also found at SDN Susukan 04 Pagi. Observations and interviews were conducted in October 2023 in class IV of SDN Susukan 04 Pagi during the Introduction to School Field (PLP 2). The results of the interview with the homeroom teacher showed that the math numeracy skills of grade IV students at SDN Susukan 04 Pagi were still relatively low. The factors that hamper the numeracy skills of grade IV students at SDN Susukan 04 Pagi are the absence of the use of innovative learning models in learning activities. The media used in learning is also less interesting. Lack of teacher attention and guidance in the learning process that involves students actively and the application of learning that is still conventional and less interactive.

This research is focused on "Development of CABATAR Learning Media on Flat Geometry Material to Improve the Numeration Ability of Grade VI Students of SDN Susukan 04 Pagi." The formulation of the problem raised includes the characteristics, validity, and response of students to the use of CABATAR learning media. The theoretical benefit of the research is to help understand geometry through learning media and become a reference in the field of education. Practically, this research is expected to provide direct experience to students in understanding geometry material, help teachers in teaching the material in a fun way, and add to the experience and knowledge of researchers to be applied in the world of education and further research.

In addition, based on the results of observations that have been made, it is evident that the numeracy skills of grade IV students at SDN Susukan 04 Pagi are still low. This is evidenced by the results of geometry learning scores (flat shapes) of grade IV students at SDN Susukan 04 Pagi with a total of 31 students, 20 students still score below the KKM, 11 students have reached the KKM. Based on the background that has been described, the authors are interested in conducting research with the title "Development of CABATAR Learning Media on Flat Geometry Material to Improve the Numeracy Skills of Grade IV Students at SDN Susukan 04 Pagi".

This research is based on previous relevant research which is the basis of thought and reference. Zahra Kamila and Kowiyah (2022) in their research on the development of Canva-based interactive learning media on fraction material for elementary school students, found that this media is very feasible to use with a percentage score of 89%. Siti Nurhalisa and Sukmawarti (2022) showed that Canva-assisted interactive media in science learning with water cycle material received good responses from material experts and media experts. Putri Mei Wulan Dari et al. (2022) in developing interactive learning media based on PowerPoint on basic spices and their derivatives, found that the media was feasible to use with material validation of 80%, media validation of 78%, and student response of 87.78%. These studies show the effectiveness and feasibility of interactive learning media in improving the quality of learning.

RESEARCH METHOD

Researchers use the research and development (R&D) method. The model used is the ADDIE model which consists of five stages, namely: analysis, design, development, implementation, and evaluation. The first step is analysis. After conducting observations at SDN Susukan 04, the researcher found that learning media was needed for the learning

process of class IV. Determining needs is done by looking at the characteristics of the students themselves, which will be adjusted to the product being developed, namely the CABATAR learning media which is made using the Canva application. After that, the learning resources and tools that will be used to produce the product will be examined.

Analysis of learning development objectives needs which includes job analysis, student analysis, and fact analysis is the initial step in the analysis process. Design stage: At this stage, the design will be implemented using a framework that describes three activities: selecting content that is appropriate to competencies, implementing learning methodologies, and evaluating results.

The development stage of the ADDIE model includes tasks to implement the proposed product design. The research development process includes the creation and modification of educational materials. The conceptual framework for creating educational media has been created throughout the design stage. The conceptual framework is realized at the development stage as an item of learning media prepared for implementation according to the objectives.

The implementation stage of the product used in education has the responsibility to identify factors that affect the efficiency, interest, and activeness of learning. The purpose of the evaluation stage that occurs at the end of the ADDIE development process is to provide value to the product development that will occur after the ADDIE process is complete

Product assessment obtained from the findings of the validation test of media experts, material experts and language experts was carried out using the Likert Scale. Data analysis was carried out using quantitative methods using SPSS 25. Validity and reliability tests are carried out to determine whether the research instrument is accurate and consistent. The N-gain test is used to measure the effectiveness of the treatment. The model is implemented to fourth grade students at SDN Susukan 04 Pagi to see the increase in numeracy skills after using CABATAR learning media

After the media assessment process was carried out by media and material experts and respondents, an analysis was carried out to measure validity using a Likert scale with the formula:

$$p = \frac{f}{n} x\ 100\%$$

Infomatoin:
P = Validation Presentation
f = Total Scores Obtained
n = Maximum Score Amount

Data obtained from validity results are calculated using the Likert Scale, the score assessment is applied as follows:

Table 1. Media Presentation and Eligibility Criteria

Level of Achievement	Category
76%-100%	Very Worth It
51%-75%	Worth It
26%-50%	Less Worthy
0%-25%	Not Feasible

Tabel 1 explain the media eligibility criteria for presenting the results obtained from the data analysis process.

RESULTS AND DISCUSSION

The results of research and discussion of CABATAR learning media on flat geometry material to improve the numeracy skills of fourth grade students of SDN Susukan 04 Pagi are in accordance with the ADDIE model *(Analysis, Design, Development, Implementation, Evalution).* Development research known as the Research and Development (R&D) research method is a research method used to validate and develop products.

Analysis, at this stage the initial activity carried out is to analyze why it is necessary to develop CABATAR media on flat geometry material at SDN Susukan 04 Pagi, for work analysis, there is no use of innovative learning models in learning activities. For student analysis, the lack of creative learning media online, teachers are too focused on books during learning activities.

Design, at this stage the planning is made after analyzing the problems that occur in class IV SDN Susukan 04 Pagi, in this study researchers are looking for the right learning media. This researcher found that creative media made from the canva application in order to attract students.

Development, at this stage, namely the development of results, the image below is the CABATAR media on the flat geometry material that has been developed, namely:

Figure 1. CABATAR Cover View

On the cover display there is the product name, namely CABATAR and a navigation button that can be clicked to start the CABATAR media, the cover can be seen in Figure 1.

Figure 2. Main Course CABATAR

In the main menu section there are several navigation button options, namely instructions, learning objectives, materials, and quiz questions. The main menu can be seen in Figure 2.

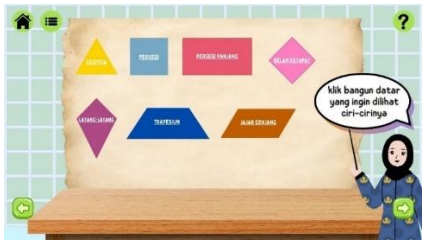

Figure 3. Material

In the material section there are several images of flat shapes, if you click on one of the flat shapes, the next display will appear, namely its characteristics, videos about area and circumference. The material can be seen in Figure 3.

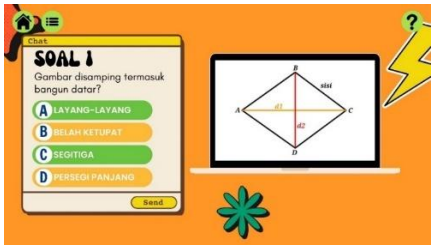

Figure 4. Quiz Questions

In the quiz there are 5 questions, the answers can be clicked to find out whether the answer is right or wrong. The quiz questions can be seen in Figure 4.

Figure 5. Creator Profile

In the creator profile display, there is a biodata of the creator of CABATAR media and the supervising lecturer. The creator profile can be seen in Figure 5.

Once developed, the product is validated by experts. The purpose of this validation is to assess the suitability of the media and provide recommendations for improving deficiencies in the resulting product. To assess the level of validity of the media produced before proceeding to the student trial stage, validation activities were carried out by showing the finished product to the validator along with the validation sheet. The data from media and material experts are:

Table 2. Media Expert Validation Results

No	Assessment Aspects	Validator	
		V1	V2
1	Visual Aspect	3	4
2		4	4
3		3	4

4		4	3
5		3	4
6		3	3
7	Audio Aspect	3	4
8		4	4
9		4	4
10	Content Aspect	4	4
Total		**35**	**38**
Overall Total		**73**	
Maksimum Total		**80**	
Presentation $p = \frac{f}{n} x\ 100\%$		**91,25%**	
Category		**"Very Worth It"**	

Based on Table 2, the average validation findings obtained from media experts containing visual, audio and content aspects obtained a percentage of 91.25%, so it can be categorized that the validation results by media experts obtained the category "Very Worth It".

Table 3. Results of Material Expert Validation

No	**Assement Aspects**	**Validator**	
		V1	**V2**
1	Material Aspects	3	4
2		4	4
3		4	4
4		4	4
5		3	4
6		4	4
7	Learning Aspects	4	4
8		3	4
9		4	4
10		4	4
11		4	4
12		3	4
13		2	4
14		4	4
15		3	4
Total		**53**	**60**
Overall Total		**113**	
Mazimum Total		**120**	
Pressnts $p = \frac{f}{n} x\ 100\%$		**94,16%**	
Kategori		**"Very Worth It"**	

Based on Table 3, the results of the validation of material experts include aspects of material and learning, in both aspects the results obtained a percentage of 94.16%. So the results of the validation by the material on the CABATAR media obtained the category "Very Worth It".

Implementation, before conducting research, researchers will test the validity of pretest and posttest questions. The validity test is carried out by correlating the item scores of the questions using Person Product Moment with a significance value or 95% confidence level or α = 0.05. The formula for product moment correlation using the help of the IBM SPSS Statistics 25 application. The validity test was carried out on 20 questions made by researchers and carried out outside the research subject with a sample of 21 students from different elementary schools. The validity test of the questions was carried out in the same class of the target class, namely class IV. After it is found that there are 15 questions that are declared valid and 5 invalid questions, then 15 questions will be given to be distributed to the experimental class at SDN Susukan 04 Pagi.

Next, after obtaining the results of the pretest and posttest questions, the researcher conducted a reliability test which aimed to see the consistency of the measurement results. The findings of the reliability test can be observed by utilizing the help of the IBM SPSS 25 application, if the value in Cronbach's-Alpha > 0.6 is considered reliable.

Table 4. Reliability Test Result

Reliability Statistics	
Cronbach's Alpha	N of Items
.844	19

Referring to Table 4, the reliability test obtained 0.884 with very reliable criteria for use because > 0.6 obtained very reliable criteria.

The following are the results obtained at this stage of implementation, namely the small-scale trial stage carried out at SDN Jatiwaringin 06 school, with a total of 10 students. After that, the researcher distributed a student response questionnaire to get the students' response to the CABATAR learning media on flat geometry material.

Table 5. Result of Small Group Student Responses

Student No.	**Indicator**										
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**Total**
1	3	4	3	3	4	4	4	3	4	3	35
2	4	4	4	3	4	4	4	4	4	4	39
3	4	3	3	4	4	3	3	3	3	4	34
4	4	4	4	4	4	4	4	4	4	3	39
5	4	3	3	4	4	3	3	4	1	2	31
6	3	4	3	3	4	4	4	4	4	4	37
7	4	3	4	4	4	4	4	3	3	4	37
8	4	4	4	4	4	4	4	4	3	4	39
9	3	3	4	3	3	4	3	2	3	4	32
10	4	3	4	4	4	4	4	3	3	4	37
Grand Total											360
Percentage $\boldsymbol{p = \frac{f}{n} x\ 100\%}$											90%
Category											Very Feasible

Table 5 is the result of student responses from a small group of 10 students with a total average result of 3.6. Then the feasibility of the CABATAR media on flat geometry

material was calculated to get a result of 90%. This means that the CABATAR media on this flat geometry material is included in the "Very Worth It".

Table 6. Results of Large Group Student Response

Assessment Aspects	Percentage Per Aspect	Category
Content Qualification	88,7%	"Very Worth It"
Media Qualification	86,9%	"Very Worth It"

Meanwhile, the table above is the result of the response of a large group of students totaling 31 students, for the content feasibility aspect getting a percentage of 88.7% and for the media feasibility aspect getting a percentage of 86.9%.

Table 7. Teacher Response Results

No	Assessment Aspects	Teacher Response				
		G1	G2	G3	G4	G5
1	Material Aspects	4	3	4	4	4
2		4	4	3	4	4
3		3	3	3	3	3
4		3	4	4	4	3
5	Learning Aspects	4	4	3	4	3
6		3	3	3	3	4
7		4	3	4	4	4
8		4	4	3	4	4
9	Media Aspects	3	3	3	4	3
10		4	4	4	3	4
Total		**36**	**35**	**34**	**37**	**36**
Overall Total		**178**				
Presents $p = \frac{f}{n} x\ 100\%$		**89%**				
Category		**"Very Worth It"**				

Based on the description of the assessment above, the small group response questionnaire received a score of 90% which was categorized as "very feasible", while the large group response for the content feasibility aspect received a score of 88.7%, the media feasibility aspect received 86.9%, both of which can be categorized as "very feasible". The teacher response questionnaire was distributed to 5 teachers and received a score of 89% which can be categorized as "very feasible".

Evaluation, this stage carries out a pretest-posttest analysis of the scores on the questions worked on to see the increase in numeracy. The research subjects were class IV A SDN Susukan 04 Pagi, totaling 31 participants. The pretest-posttest findings are described in the table 9

Table 8. N-gain Test Results

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
NGain	31	.14	1.00	.6373	.25208
Valid N (listwise)	31				

Referring to Table 8, the pretest-posttest findings obtained an N-Gain value of 0.62 which is in the "moderate criteria". The results show that the CABATAR media on flat geometry material can improve the numeracy of grade IV students of SDN Susukan 04 Pagi.

CONCLUSION

Based on the results of the research on the development of CABATAR media on flat geometry material for class IV, the final product was created, namely digital learning media, which makes it easier for students to access and can develop students' numeracy skills. This study was conducted in small groups with 10 students and large groups with 31 students in class IV of SDN Susukan 04 Pagi which had been validated by media experts and material experts. The final result of this study was that the CABATAR media was considered " Very Worth It" to be used at the learning stage. The results of the media validation obtained 91.25% which has the category "Very Worth It", then there was validation by material experts which obtained a percentage of 94.16% with the category "Very Worth It".. Furthermore, the results of the responses through the small group student questionnaire with 10 respondents obtained a percentage of 90% with a very appropriate category, the large group obtained 88.7% for the aspect of content appropriateness and 86.9% for the aspect of media appropriateness. The teacher's response was 89% which can be categorized as "Very Worth It". Referring to the findings of the validation test of material experts and media experts, as well as studies conducted in small groups and large groups and testing questions that have been tested for validity, reliability and N-gain test analysis in evaluating the improvement of numeracy skills, it can be concluded that the CABATAR media on this flat geometry material is very feasible and is able to improve numeracy skills that can be used in flat geometry material in mathematics lessons in grade IV of elementary school.

REFERENCES

Hikmah, N., Kuswidyanarko, A., & H. M. Lubis, P. (2022). Development of Pop-Up Book Media on Water Cycle Material in Class V SD Negeri 04 Puding Besar. *PGSD Journal: Scientific Journal of Elementary School Teacher Education*, *15*(2), 137-148. https://doi.org/10.33369/pgsd.15.2.137-148

Jannah. (2020). Development of 3D Animation Learning Video Based on Blender Software on Magnetic Field Material. *Southeast Asian Journal of Islamic Education*, *3*(1), 41-57. https://doi.org/10.21093/sajie.v3i1.2918

Lukman, A., Hayati, D. K., & Hakim, N. (2019). Development of Animation Video Based on Local Wisdom in Grade V Science Learning in Elementary School. *Elementary: Scientific Journal of Primary Education*, *5*(2), 153. https://doi.org/10.32332/elementary.v5i2.1750

Lukman, H. S., Setiani, A., & Agustiani, N. (2023). Development of Mathematical Problem Solving Ability Test Instrument Based on Krulik and Rudnick Theory: A Content Validity Analysis. *Cendekia Journal: Journal of Mathematics Education*, *7*(1), 326-339. https://doi.org/10.31004/cendekia.v7i1.1761

Nurafni, & Ninawati, M. (2021). Effectiveness of Linktree and Wordwall Application on Intrinsic Motivation of Grade V Elementary School Students. *Journal of Primary School Thought and Development (JP2SD)*, *9*(2), 217-225. https://ejournal.umm.ac.id/index.php/jp2sd/article/view/17317

Cohen Kadosh, R., Dowker, A., Heine, A., Kaufmann, L., & Kucian, K. (2013). Interventions for improving numerical abilities: Present and future. *Trends in Neuroscience and Education*, *2*(2), 85-93. https://doi.org/10.1016/j.tine.2013.04.001

Hartoyo, A., & Rahmadayanti, D. (2022). Portrait of an Independent Curriculum, a Form of Independent Learning in Elementary Schools. *Basicedu Journal*, *5*(4), 2247-2255. https;//jbasic.org/index.php/basicedu

Haryati, S. (2012). Research And Development (R & D) As One of the Research Models in. *Academia*, *37*(1), 13.

Hasan, M., Milawati, Darodjat, Khairani, H., & Tahrim, T. (2021). Learning Media. In *Tahta Media Group*.

Ibrahim MYasin MRaihan PNurhadi SSetiawan UDestiyani Y. (2022). *Types, Classification and Characteristics of Learning Media*. *4*(8.5.2017), 2003-2005.

Junaidi, J. (2019). The Role of Learning Media in the Teaching and Learning Process. *Training Review: Journal of Education and Training Management*, *3*(1), 45-56. https://doi.org/10.35446/diklatreview.v3i1.349

Kristanto, A. (2016). Learning Media. *Bintang Sutabaya*, 1-129.

Manalu, J. B., Sitohang, P., Heriwati, N., & Turnip, H. (2022). Proceedings of Basic Education Development of Learning Tools for Independent Learning Curriculum. *Mahesa Center Research*, *1*(1), 80-86. https://doi.org/10.34007/ppd.v1i1.174

Maydiantoro, A. (2021). Models of Development Research (Research and Development). *JPPPI Article*.

Mercader, J., Miranda, A., Presentación, M. J., Siegenthaler, R., & Rosel, J. F. (2018). Contributions of motivation, early numeracy skills, and executive functioning to mathematical performance. A longitudinal study. *Frontiers in Psychology*, *8*(JAN), 1-11. https://doi.org/10.3389/fpsyg.2017.02375

Moto, M. M. (2019). The Effect of Using Learning Media in Education. *Indonesian Journal of Primary Education*, *3*(1), 20-28. https://doi.org/10.17509/ijpe.v3i1.16060

OECD. (2019). Indonesia Education at a Glance. *OECD: Country Note*, 1-5. https://www.oecd.org/education/education-at-a-glance/

Pagarra, H., Syawaluddin, A., Krismanto, W., & Sayidiman. (2022). Learning Media. In *UNM Publishing Agency*.

Rezky, M., Hidayanto, E., & Parta, I. N. (2022). Students' Numeracy Literacy Ability in Solving Socio-Cultural Context Problems on Geometry Topics at Junior High School Level. *AKSIOMA: Journal of Mathematics Education Study Program*, *11*(2), 1548. https://doi.org/10.24127/ajpm.v11i2.4879

Sri Hartatik. (2020). Indonesian Numeracy Skills of Elementary School Teacher Professional Education Students in Solving Mathematical Problems. *Education and Human Development Journal*, *5*(1), 32-42. https://doi.org/10.33086/ehdj.v5i1.1456

Sugiyono. (2019). *RESEARCH AND DEVELOPMENT (R&D) METHODS*. 38.

Yunarti, T., & Amanda, A. (2022). The Importance of Numeracy Skills for Students. *National Seminar on Mathematics, Science and Technology Learning*, *2*(1), 44-48. http://e-jurnal.fkip.unila.ac.id/index.php/SINAPMASAGI/article/view/92