THE EFFECTIVENESS OF MATHEMATICS LEARNING WITH THE ETHNOMATEMATICS APPROACH TO UNDERSTANDING JUNIOR HIGH SCHOOL STUDENTS' CONCEPTS

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Abstrak

Penelitian ini bertujuan untuk mengetahui efektivitas pembelajaran matematika dengan pendekatan etnomatematika pada pemahaman konsep bangun datar siswa kelas VII SMP Negeri 3 Godean. Jenis penelitian ini adalah kuasi-eksperimental dengan desain pretest-posttest kelompok kontrol satu sampel. Penelitian melibatkan dua kelas, yaitu kelas VIIA sebagai kelas kontrol dan VIIC sebagai kelas eksperimen. Instrumen yang digunakan adalah pretest dan posttest. Pendekatan etnomatematika yang diterapkan mengaitkan konsep geometri dengan budaya lokal, yaitu rumah Joglo di Yogyakarta. Hasil penelitian menunjukkan bahwa rata-rata skor posttest siswa pada kelas eksperimen meningkat sebesar 15,19 poin dibandingkan dengan pretest, yang mengindikasikan peningkatan pemahaman konsep yang signifikan. Sebaliknya, kelas kontrol yang menggunakan pendekatan konvensional menunjukkan peningkatan yang lebih kecil. Berdasarkan hasil tersebut, dapat disimpulkan bahwa pembelajaran matematika dengan pendekatan etnomatematika efektif dalam meningkatkan pemahaman konsep siswa tentang bangun datar. Pendekatan ini membuat pembelajaran lebih relevan dengan budaya lokal, menjadikannya lebih menarik dan bermakna bagi siswa.

Kata Kunci: Efektivitas, Pendekatan Etnomatematika, Pemahaman Konsep, Pembelajaran Matematika

Abstract

This study aims to determine the effectiveness of mathematics learning using an ethnomathematics approach in improving students' conceptual understanding of quadrilaterals in grade VII at SMP Negeri 3 Godean. The research design was quasi-experimental with a one-sample pretest-posttest control group. Two classes were involved: VIIA as the control group and VIIC as the experimental group. The instruments used were pretest and posttest. The ethnomathematics approach linked geometric concepts to local culture, specifically the Joglo house in Yogyakarta. The results showed that the average posttest score of the experimental group increased by 15.19 points, indicating a significant improvement in conceptual understanding. In contrast, the control group, which used conventional teaching methods, showed less improvement. Based on these findings, it can be concluded that mathematics learning with an ethnomathematics approach is effective in enhancing students' understanding of quadrilaterals. This approach makes learning more relevant to local culture, making it more engaging and meaningful for students.

Keywords: Effectiveness, Ethnomathematics Approach, Conceptual Understanding, Mathematics Learning

INTRODUCTION

In today's era of rapid globalization, the increasing influence of modernity has led to many individuals, especially students, gradually forgetting or losing touch with their cultural roots, which can have a significant impact on shaping their attitudes and behaviors (Ginting, 2017, p.358). Education and culture are two essential aspects of human life that are intricately connected and cannot be separated in the context of our daily lives (Makarova et al., 2019). Both play an indispensable role in fostering and nurturing the noble values that form the foundation of our national identity. The importance of this relationship between culture and education is echoed in the work of Wahyuni et al. (2013, pp.113-114), who highlight that education is not only a tool for acquiring knowledge but also a medium for instilling cultural values that shape individuals' moral compass and sense of belonging to their heritage.

According to the Big Indonesian Dictionary, understanding means understanding correctly, while concept means a design, while in mathematics, a concept is an abstract idea that allows someone to classify an object or event. So conceptual understanding is the correct understanding of a design or abstract idea. According to Duffin & Simpson (Kesumawati, 2008,

p.2) conceptual understanding as the ability to: (1) explain concepts, can be interpreted as students being able to re-express what has been communicated to them. (2) use concepts in various different situations. And (3) develop several consequences of the existence of a conceptual situation, can be interpreted that students understand a concept as a result students have the ability to solve every problem correctly.

One particular subject that has shown to make a significant and positive contribution to the intellectual and moral development of individuals, and by extension the nation, is mathematics. As pointed out by Hartono (Pangestu and Santi, 2016, p.59), mathematics plays a key role in advancing the intellectual life of the nation while also humanizing the Indonesian people in a more comprehensive sense. When it comes to the teaching and learning of mathematics, teachers are encouraged to focus on improving the overall quality of the learning experience. A vital aspect of this is the integration of ethnomathematics into the curriculum, which provides students with an opportunity to grasp mathematical concepts in a manner that is not only relevant but also closely tied to their own cultural heritage (Rosa & Orey, 2011; Mania & Alam, 2021). This approach offers a dual benefit: it enhances students' understanding of mathematical principles while simultaneously deepening their connection to their cultural identity. As a result, educators are better equipped to instill cultural values in students, ensuring that these values, which are vital to the nation's character, become deeply ingrained in students from an early stage of their education (Wahyuni et al., 2013, p.114).

In terms of ethnomathematics according to D'Ambrosio (Fitriatien, 2016, p.4) it is defined as mathematics practiced among identified cultural groups such as national tribal communities, labor groups, children of certain age groups and professional classes. Ethnomathematics can also be considered as a program that aims to study how students can understand, articulate, process, and finally use mathematical ideas, concepts, and practices that can solve problems related to their daily activities. Ethnomathematics uses mathematical concepts broadly related to various mathematical activities, including grouping, counting, measuring, designing buildings or tools, playing, determining locations and so on (D'Ambrasio & Rosa, 2017; Rosa & Orey, 2011).

Shirley (Marsigit et al., 2016, p.23) presents the view that ethnomathematics represents the kind of mathematics that evolves and develops within a society, reflecting the unique aspects of its local culture. Although relatively new to the educational world, ethnomathematics has shown great promise as a powerful tool in the teaching and learning process (Kabuye Battiibwe, 2024; Unodiaku, 2013). It offers an innovative way of integrating cultural elements into mathematical education, making the learning experience more relevant and engaging for students. Ethnomathematics, by its very nature, is closely tied to local cultural practices and traditions, such as those exemplified in the Joglo Traditional House in Yogyakarta, which serves as a rich source of local knowledge and cultural expression. Given the direct connection between ethnomathematics and local culture, the researcher has conducted a study titled *Effectiveness of Mathematics Learning with an Ethnomathematics Approach to Junior High School Students' Conceptual Understanding of Quadrilateral Material* to explore how this approach can enhance students' understanding of mathematical concepts while also deepening their appreciation of their cultural heritage. Through this study, the researcher aims to demonstrate the effectiveness of ethnomathematics in bridging the gap between education, culture, and mathematics, providing a holistic approach to learning that benefits both the individual and society.

METHOD

This type of research is quasi-experimental research (Quasy Experimental Design). This type of research involves two sample groups, namely the experimental group and the control group. According to Iskandar (Jakni, 2016, p. 68) said that experimental research is research that requires researchers to manipulate and prioritize one or more independent variables and observe dependent variables. The design that will be used in this experimental research is One-Group Pretest-Posttest Control.

This study was conducted for one month, namely in the second semester of the 2018/2019 academic year, starting from March to April 2019. The population in this study were students of class VII of SMP Negeri 3 Godean involving a sample of 64 students consisting of class VII C as an experimental class of 32 students and class VII A as a control class of 32 students with a random sampling technique. According to Nuryadi and Khuzaini (2016, p.85) that independent variables are stimuli or variables that affect other variables, whose variability is measured, manipulated or selected to determine their relationship with an observed symptom. While the dependent variable is a variable whose variability is observed and measured to determine the influence caused by the independent variable. The independent variable in this study is the ethnomathematics approach, while the dependent variable is students' understanding of concepts.

Jakni (2016, p.89) stated that data collection is an important step in a study to obtain the required data. The data obtained must be accurate and scientifically accountable. Therefore, appropriate data collection techniques and tools are needed. In this study, the data collection technique used was a test. The form of the test used was a pretest-posttest in the form of a description/essay. According to Jakni (2016, p.151) research instruments are tools used to obtain or collect data in order to solve research problems and to achieve research objectives. The instrument used in this study was a test. The test is used to obtain data on students' conceptual understanding of quadrilateral material. The test in this study is in the form of a description/essay with 4 items. The stages of data analysis include (1) descriptive analysis, (2) testing analysis assumptions, and (3) testing hypotheses. The stages of data analysis are as follows.

1. Descriptive Analysis

   Descriptive analysis is used to describe the data. In describing the data, statistical techniques are used which include average, standard deviation, variance, maximum score, minimum score and range. The data used in this study are the results of the pretest-posttest of the experimental class and the control class with the help of SPSS 20 software.

2. Testing Analysis Assumptions

   a. Normality Test

      According to Nuryadi et al. (2017: 79) the normality test is a procedure used to determine whether the data comes from a normally distributed population or is in a normal distribution. The normality test is used to determine whether the data obtained is normally distributed or not. The basis for decision making is if the value $L_{calculation} > L_{table}$ then H_0 is rejected and H_a is accepted, and if $L_{calculation} < L_{table}$ then H_0 is accepted and H_a is rejected. Statistical hypothesis used:

      H_0 : Normally distributed samples

      H_a : The data sample is not normally distributed

      The Normality Test used in the study is the Kolmogorov-Smirnov test with the help of special statistical software, namely SPSS 20 (Statistical Package for the Social Sciences 20). If Sig. (2-tailed) or probability value $< 0{,}05$, then the data is not normally distributed. If Sig. (2-tailed) or probability value $> 0{,}05$, then the data is normally distributed.

   b. Homogeneity Test

      The homogeneity test is used to determine whether the population variance is homogeneous or not. Data homogeneity is determined by the homogeneity test using SPSS 20 software with the following hypothesis:

      $H_0 =$ The variance of the two homogeneous populations

      $H_a =$ The variance of the two populations is not homogeneous

      The conclusion is drawn at a 95% confidence level (5% significance) with the criterion that H_0 is rejected if the significance is ≤ 0,05.

   After the normality test and homogeneity test are carried out, the hypothesis testing is continued. Before the hypothesis testing is carried out, a test is first carried out to see whether the experimental class and the control class have the same initial ability or not. After the initial ability test is carried out, it is continued with a test of the effectiveness or otherwise of an approach with a one sample t-test.

To answer the research hypothesis, several stages of testing were carried out as follows:

a. Effectiveness of Mathematics Learning with an Ethnomathematics Approach to Junior High School Students' Concept Understanding.

   To determine the effectiveness of mathematics learning with an ethnomathematics approach to junior high school students' conceptual understanding of quadrilateral material, a one sample t-test was used. One sample t-test analysis was used to determine whether or not there was effectiveness in the ethnomathematics approach. Statistically, by testing $H_0: \mu = \mu_0$ against $H_a: \mu \neq \mu_0$ with a significant level $= 0.05$. H_0 accepted when $t_{calculation} < t_{table}$ and H_0 is rejected if $t_{calculation} > t_{table}$. To find the calculation of one sample t-test, researchers use the help of SPSS 20 software.

b. b. Effectiveness of Mathematics Learning with an Ethnomathematics Approach to Junior High School Students' Concept Understanding.

   To determine the effectiveness of mathematics learning with a conventional approach to junior high school students' conceptual understanding of the quadrilateral material, a one sample t-test was used. One sample t-test analysis was used to determine whether or not there was effectiveness in the ethnomathematics approach. Statistically by testing $H_0: \mu = \mu_0$ against $H_1: \mu \neq \mu_0$ with a significant level $= 0.05$. H_0 is accepted if $t_{calculation} < t_{table}$ and H_0 is rejected if $t_{calculation} > t_{table}$. To find the calculation of one sample t-test, researchers use the help of SPSS 20 software.

RESULTS AND DISCUSSION

The learning process is carried out in two classes, namely class VII C as the experimental class and class VII A as the control class. The learning process in the experimental class using an ethnomathematics approach to junior high school students' conceptual understanding of quadrilateral material is carried out by giving a pretest-posttest. Learning is associated with everyday life problems, namely problems related to culture in the student's environment. The learning process with an ethnomathematics approach makes learning in the classroom more effective. Students find it easier to understand the concept because the material being studied has been found by students in everyday life, so that learning is effective.

The introduction of Joglo House culture aims to participate in preserving the values contained in cultural excellence. One example of ethnomathematics in the surrounding culture is the Yogyakarta-style joglo house. The parts of the joglo house that contain mathematical elements are the trapezoidal roof of the joglo house and the pillars or soko guru found in the Yogyakarta joglo house which have 4 main pillars. On one pillar of the Yogyakarta-style joglo house there are 8 corner points and 4 sides which if pulled or combined each corner will produce a flat-sided geometric shape in the form of a rectangle. The study of ethnomathematics in mathematics is presented in table 1.

Table 1. Ethnomathematics Study in Mathematics Learning

Ethnomathematics	Information	Implementation in Learning
 Identification: Joglo House in Yogyakarta style Function: Cultural icon and depiction of social life of Javanese society, and basically the joglo house functions as a	Joglo is a traditional Javanese house building style. The joglo house in Javanese understanding is a reflection of the attitudes, insights and economic-socio-cultural levels of its people.	Students can observe that the joglo house consists of several quadrilateral shapes: - Square - Rectangle - Trapezoid Students can also determine the formula for the area and circumference of a Joglo house which is in the shape of an equilateral square.

residence.		
 Identification: Joglo House Roof in Yogyakarta style Function: As a human protector against the weather, both protection against heat and rain.	The shape of the roof resembles a mountain with very short mala, accompanied by the tumpang sari symbol.	Students are expected to be able to calculate the formula for the area and circumference of the roof of a Joglo house which is in the shape of an isosceles trapezoid.
 Identification The main pillar or main pillar of the Yogyakarta style Joglo house Function: As the main support for the house	Joglo has four main pillars as the main support of the house, where the main pillars represent the direction of the wind. On one pillar of a Yogyakarta style joglo house there are 8 corner points and 4 rectangular sides.	Students are expected to be able to understand the rectangular shape of the pillars and be able to determine the total number of pillars.

The learning process in the control class uses a conventional approach. Learning is more centered on the teacher, the researcher asks students to do a pretest. During the learning process, only a few students pay attention to the researcher in explaining the material and several other students do not pay attention. This learning process makes students' attention less focused on the material being explained.

After the learning process in the experimental and control classes was carried out, for the next meeting the researcher gave a final test (posttest) to students on the quadrilateral material that had been studied, to determine whether or not the ethnomathematics approach and the conventional approach were effective in understanding the concept. Based on the results of the initial data analysis, it was obtained that the pretest data from the two classes in the study were normally distributed, the variance of the data from the two classes was not the same (not homogeneous), and there was a significant difference between the average understanding of the concept of students in the experimental class and the control class. This shows that the samples come from different conditions or circumstances.

The results of the final data analysis obtained that the posttest data of the two classes in the study were normally distributed, the variance of the data of the two classes was the same (homogeneous), and there was no significant difference between the posttest average in the experimental class and the posttest of the control class. This shows that the sample comes from the same conditions or circumstances. After receiving different treatments, namely mathematics learning with an ethnomathematics approach in the experimental class and mathematics learning with a conventional approach in the control class, the next step in this study is descriptive analysis using the pretest and posttest data in Table 2.

Table 2. Description of Pretest and Posttest Result Data

Description	Experiment		Control	
	Pretest	***Posttest***	***Pretest***	***Posttest***
Average	74,81	90,00	56,44	78,00

Standard deviation	6,518	7,858	13,464	9,831
Varians	42,480	61,742	181,286	96,645
Minimum score	63	70	28	58
Maximum Score	90	100	89	94
Range	27	30	61	36

In the pretest data analysis conducted using the t-test, the experimental class had an average pretest score of 74.81 and a posttest of 90.00 and the control class had an average pretest score of 56.44 and a posttest of 78.00. This shows that the average score of the experimental class is better than the average score of the control class. After conducting a normality test, homogeneity test and descriptive analysis, the next step is to test the level of effectiveness of the application of the ethnomathematics approach and the conventional approach to junior high school students' understanding of concepts using a one sample t-test with the help of SPSS 20 with the criteria H_a is accepted if sig.(2-tailed) less than significance level, with the provision of a significance level of 0.05.

a. Effectiveness of Mathematics Learning with an Ethnomathematics Approach to Junior High School Students' Concept Understanding

Before conducting an analysis to test the effectiveness of mathematics learning with an ethnomathematics approach to junior high school students' conceptual understanding of the quadrilateral material, an effectiveness test was conducted using a one sample t-test with the help of SPPS 20 software. With the criteria H_a accepted if sig.(2-tailed) < significance level, with a significance level of 0.05. The results of the one sample t-test are presented in table 3.

Table 3. Results of One-sample t-test Posttest Experimental Class

	Test Value = 75					
	t	**Df**	**Sig. (2-tailed)**	**Mean Difference**	**95% Confidence Interval of the Difference**	
					Lower	**Upper**
Posttest_Value_VIIC	10.799	31	.000	15.000	12.17	17.83

Based on the hypothesis test in the experimental class that has been analyzed with the one sample t-test, it produces a sig.(2-tailed) value < significance level, namely 0.000 < 0.05, thus H_a is accepted. So that mathematics learning with an ethnomathematics approach to junior high school students' conceptual understanding of quadrilateral material is effective.

b. b. Effectiveness of Mathematics Learning with a Conventional Approach to Junior High School Students' Conceptual Understanding of Quadrilateral Material.

To determine the level of effectiveness of the application of conventional approaches to junior high school students' conceptual understanding of quadrilateral material, a hypothesis test was used using a one sample t-test with the help of SPSS 20 with the criteria H_a being accepted if sig.(2-tailed) < significance level, with a significance level of 0.05. The results of the one-sample t-test are presented in Table 4.

Table 4. Results of One-sample t-test Posttest Control Class

	Test Value = 75					
	t	**Df**	**Sig. (2-tailed)**	**Mean Difference**	**95% Confidence Interval of the Difference**	
					Lower	**Upper**
Posttest_Value_VIIC	1,726	31	.094	3.000	-.54	6,54

Based on the results of the hypothesis test analyzed using the one sample t-test, the sig.(2-tailed) value> significance level is 0.094 <0.05, thus H_0 is accepted. So that mathematics learning with a conventional approach to junior high school students' conceptual understanding of quadrilateral material is not effective.

The results of the study that are in line with this study related to the effectiveness of an ethnomathematics approach using a hypothesis test using the KKM completion value are the research of Abdullah et al. The results of the study by Abdullah et al. (2015, p.291) showed that learning with the PBL model with ethnomathematics nuances in the experimental class was better than learning with the PBL model. This is due to several things as follows: (1) the problem-solving ability of students who are subjected to the PBL learning model with ethnomathematics nuances reaches the KKM. This achievement can be seen from the results of the problem-solving ability test of class VII students of SMP Negeri 1 Demak individually, they can reach KKM > 72 and classically the number of students who get a score > 72 is > 75% of the number of students in the class, which is 94.87%, (2) the problem-solving ability of students who are subjected to the PBL learning model reaches the KKM. This achievement can be seen from the results of the problem-solving ability test of class VII students at SMP Negeri 1 Demak, individually they were able to achieve a KKM of > 72 and classically the number of students who got a score of > 72 was > 75% of the total number of students in the class, namely 82.05%. (3) The problem-solving ability of students who used the PBL learning model with an ethnomathematics nuance reached an average of 81.23, higher than the problem-solving ability of students who used the PBL learning model, namely obtaining an average of 77.21.

CONCLUSION

Based on the comprehensive analysis and findings from the research conducted, several significant conclusions have been drawn regarding the effectiveness of different approaches to mathematics learning. The first conclusion, which emerged clearly from the study, is that mathematics learning using the ethnomathematics approach has proven to be highly effective in enhancing the conceptual understanding of junior high school students. This approach not only fosters a deeper comprehension of mathematical concepts but also integrates elements of local culture, making the learning process more relevant and engaging for students. By relating mathematical concepts to real-world cultural practices, students are able to make meaningful connections between the abstract principles of mathematics and the cultural context they experience in their daily lives, leading to improved retention and understanding.

On the other hand, the second conclusion highlights the limitations of traditional or conventional approaches to teaching mathematics. The research found that conventional teaching methods, which often focus primarily on rote memorization and abstract mathematical concepts without considering the cultural context of the students, were not as effective in promoting a deep conceptual understanding of the subject. Students taught through conventional methods demonstrated weaker grasp of mathematical concepts, as these approaches tend to be less engaging and fail to connect the material with the students' personal experiences or cultural backgrounds. This lack of contextual relevance can hinder students' ability to relate to the material, resulting in lower levels of understanding and retention. Thus, the research underscores the importance of adopting more innovative and culturally relevant teaching methods, such as ethnomathematics, to improve students' mathematical learning outcomes. These findings suggest that integrating cultural aspects into mathematics education not only supports academic success but also enriches students' learning experiences by fostering a stronger connection between mathematics and their everyday lives.

REFERENCES

Abdullah, D. I., Mastur, Z., & Sutarto, H. (2015). Keefektifan model pembelajaran problem based learning bernuansa etnomatematika terhadap kemampuan pemecahan masalah siswa kelas VIII. *Unnes Journal of Mathematics Education, 4(3).*

D'Ambrosio, U., & Rosa, M. (2017). Ethnomathematics and its pedagogical action in mathematics education. *Ethnomathematics and its diverse approaches for mathematics education*, 285-305.

Fitriatien, S. R. (2016). Pembelajaran Berbasis Etnomatematika. PGRI University of Adi Buana. In Prosiding Seminar Nasional Matematika Ikatan Alumni S3 Pendidikan Matematika.

Ginting, M. (2017). Peran Globalisasi Dalam Dunia Pendidikan*. In Dalam Prosiding* Seminar Nasional Tahunan Fakultas Ilmu Sosial Universitas Negeri Medan Tahun, e-ISSN: 2549-5976.

Jakni, J. (2016). Metodologi Penelitian Eksperimen Bidang Pendidikan. Bandung: Alfabeta.

Kabuye Batiibwe, M. S. (2024). The role of ethnomathematics in mathematics education: A literature review. *Asian Journal for Mathematics Education*, *3*(4), 383-405.

Kesumawati, N. (2008). Pemahaman Konsep Matematik dalam Pembelajaran Matematika. Semnas Matematika dan Pendidikan Matematika, 2.

Makarova, E. A., Makarova, E. L., & Korsakova, T. V. (2019). The Role of Globalization and Integration in Interdisciplinary Research, Culture and Education Development. *Journal of History, Culture & Art Research/Tarih Kültür ve Sanat Arastirmalari Dergisi*, *8*(1).

Mania, S., & Alam, S. (2021). Teachers' Perception toward the Use of Ethnomathematics Approach in Teaching Math. *International Journal of Education in Mathematics, Science and Technology*, *9*(2), 282-298.

Marsigit, M., Setiana, D. S., & Hardiarti, S. (2018). Pengembangan Pembelajaran Matematika Berbasis Etnomatematika. In Prosiding Seminar Nasional Pendidikan Matematika Etnomatnesia.

Nuryadi, N., & Khuzaini, N. (2016). The Effectiveneness of Team's Game Tournament Seen From Communication and Problem Solveing Capabilities (Experimental Studi of Class VIII students in SMP Negeri 1 Seyegan). Jurnal Mercumatika: Jurnal Penelitian Matematika dan Pendidikan Matematika, 1(1).

Nuryadi, N., Astuti. T. D., Utami. E. S., & Budiantara. M. (2017). Dasar-Dasar Statistik Penelitian. Yogyakarta: Sibuku Media.

Pangestu, P., & Santi, A. U. P. (2016). Pengaruh Pendidikan Matematika Realistik Terhadap Suasana Pembelajaran Yang Menyenangkan Pada Pelajaran Matematika Sekolah Dasar. FIBONACCI: Jurnal Pendidikan Matematika dan Matematika, 2(2).

Rosa, M., & Orey, D. C. (2011). Ethnomathematics: the cultural aspects of mathematics. *Revista Latinoamericana de Etnomatemática Perspectivas Socioculturales de La Educación Matemática*, *4*(2), 32-54.

Rosa, M., & Orey, D. C. (2011). Ethnomathematics: the cultural aspects of mathematics. *Revista Latinoamericana de Etnomatemática Perspectivas Socioculturales de La Educación Matemática*, *4*(2), 32-54.

Unodiaku, S. S. (2013). Effect of ethno-mathematics teaching materials on students' achievement in mathematics in Enugu State. *Journal of Education and Practice*, *4*(23), 70-77.

Wahyuni, A., Tias, A. A. W., & Sani, B. (2013,). *Peran Etnomatematika Dalam Membangun Karakter Bangsa*. *In* Makalah Seminar Nasional Matematika Dan Pendidikan Matematika, *Prosiding*, Jurusan Pendidikan Matematika Fmipa Uny, Yogyakarta: Uny, ISBN: 978-979-16353-9-4.