

## ***The Development of PISA Type Evaluation Instruments with Ethnomathematic Characteristics of Kudus Local Islamic Culture***

**Mulyani Putri Wulandari<sup>\*1</sup>; Arghob Khofya Haqiqi<sup>2</sup>**

<sup>1,2</sup>Program Studi Tadris Matematika, Fakultas Tarbiyah, Institut Agama Islam Negeri Kudus

Email: putriwula511@gmail.com<sup>1</sup>, arghobhaqiqi@iainkudus.ac.id<sup>2</sup>

### ***Abstract***

This study aims to determine the development and feasibility of the PISA type evaluation instrument with the ethnomathematical characteristics of the local Islamic culture of Kudus. This evaluation instrument is more appropriate if used at the time of learning evaluation. By using this evaluation instrument, students do not only study mathematics, but also about Islamic culture in Kudus. The type of research used is Research and Development with the ADDIE model. The results of this study are in the form of an evaluation instrument product of the PISA type with the ethnomathematical characteristics of the local Islamic culture of Kudus in class VII mathematics is sets, lines and angles, rectangles and triangles, and the results of the product feasibility test obtain the same CVR value of 1, because all validators assigns an essential value (E) to each instrument. So that the results obtained state that the instrument is valid, and the conclusion states that the instrument is suitable for use without revision. After being declared feasible without revision, then a small and large trial was carried out using 4 feasibility tests, namely validity test, reliability test, difficulty level test, and discriminatory power test. With the results of the calculation of small and large trials using validity and reliability tests, the results are both valid and reliable. So that it can be categorized as feasible and can be used in the evaluation of class VII mathematics learning.

***Keywords:*** *Learning Evaluation; PISA; Ethnomathematics; Kudus Local Islamic Culture.*

### ***Abstrak***

Penelitian ini bertujuan untuk mengetahui pengembangan dan kelayakan instrumen evaluasi tipe PISA berkarakteristik etnomatematika budaya Islam lokal Kudus. Instrumen evaluasi ini lebih layak apabila digunakan pada saat evaluasi pembelajaran. Dengan menggunakan instrumen evaluasi ini, maka peserta didik tidak hanya mempelajari materi matematika, akan tetapi mengenai kebudayaan Islam yang ada di Kudus. Jenis penelitian yang digunakan adalah *Research and Development* dengan model ADDIE. Hasil penelitian ini adalah berupa produk instrumen evaluasi tipe PISA berkarakteristik etnomatematika budaya Islam lokal Kudus pada materi matematika kelas VII (himpunan, garis dan sudut, segiempat dan segitiga), dan pada hasil uji kelayakan produk memperoleh nilai CVR yang sama yaitu 1, karena semua validator memberikan nilai esensial (E) pada setiap instrumen. Sehingga hasil yang diperoleh menyatakan bahwa instrumen valid, dan kesimpulannya menyatakan bahwa

---

\*Correspondence:

Email: [putriwula511@gmail.com](mailto:putriwula511@gmail.com)

instrumen layak digunakan tanpa revisi. Setelah dinyatakan layak tanpa revisi, kemudian dilakukan uji coba kecil dan besar menggunakan 4 uji kelayakan yaitu uji validitas, uji reliabilitas, uji tingkat kesukaran, dan uji daya pembeda. Dengan adanya hasil perhitungan uji coba kecil dan besar menggunakan uji validitas dan uji reliabilitas, menunjukkan hasil yang sama-sama valid dan reliabel. Sehingga dapat dikategorikan layak dan dapat digunakan dalam evaluasi pembelajaran matematika kelas VII.

**Kata Kunci:** Evaluasi Pembelajaran; PISA; Etnomatematika; Budaya Islam Lokal Kudus.

## INTRODUCTION

Evaluation is an activity carried out intentionally by an educator in order to obtain data or values regarding the success of students. Educators are said to be responsible if they are able to improve their teaching, namely by conducting evaluations for themselves and evaluations for their students. It is a must for an educator to make decisions in learning outcomes, because to know whether or not the learners are successful in the learning process. According to Magdalena, Fauzi, dan Putri (2020) that the benefits of conducting learning evaluation include 1) gaining an understanding of the learning process that has been carried out; 2) be able to make decisions regarding the learning process; 3) can improve the quality of the learning process to improve efforts to improve the quality of graduation efforts. Meanwhile, the purpose of learning evaluation according to Elis Ratna (2014) is to find out the effectiveness and efficiency of a learning system, both in learning objectives, learning materials, learning methods and media, learning resources, and the assessment system used.

Evaluation is carried out by each educator in the subjects he has, for example in mathematics subjects. Mathematics teachers generally design and carry out evaluation activities using only materials or theories related to the subject. For example, when making an evaluation on cognitive aspects, the teacher only relates the material, for example, in the flat building material, the teacher makes an instrument to write the definition of the side on the flat side room. With this instrument, a teacher can develop an evaluation of ethnomathematic characteristics, which are associated with local Islamic culture

or other cultures. So not only the material taught but students also know and understand about the culture.

According to Wahyuni, Tias, dan Sani (2013) that culture and education are two inseparable components in everyday life. Where culture is a complete and comprehensive unity in the life of society, while education is a fundamental need for everyone in the life of society. One that can connect culture with mathematics education is ethnomathematics. Irawan dan Kencanawaty (2017) suggest that ethnomathematics is a cultural element found in mathematics learning. Where culture-based mathematics learning is met with context learning with mathematical material. As is the case according to Richardo (2020) that Ethnomathematics is a series of mathematical learnings that are associated with culture. With the existence of ethnomathematics, it is easier for educators to implement the concept of abstract mathematical material with real life through the concept of culture. The concept of culture has a very broad meaning, that is, in terms of artifacts and activities. For example, in terms of artifacts, there are traditional houses, temples, and other historical buildings. Meanwhile, in terms of activities, for example, the tumpengan tradition, the wetonan tradition, and so on. According to Sarwoedi, et al. (2018) stated that with the existence of ethnomathematics in learning evaluation, students not only during the learning process they can apply ethnomathematics, but at the time of learning evaluation can also apply ethnomathematics. The application of ethnomathematics is expected to improve the ability of students in learning mathematics. Educators can provide evaluations by providing questions or problems related to their local culture or local Islamic culture.

In the evaluation of mathematics learning with ethnomathematic characteristics, the right and appropriate type or model is to use the PISA (Programme for International Student Assessment) type. PISA is an evaluation survey of education systems around the world that measures the performance of learners in high school education. Based on Hewi and Saleh (2020) in 2018 from 79 countries, PISA measured the abilities of 600 thousand learners aged 15 years. From the results of the PISA survey in 2018, it is stated that in the category of

mathematical literacy, Indonesia is ranked 73rd with an average score of 379. The following is a table of PISA assessment results in mathematical literacy obtained by Indonesia from 2000 to 2018:

**Table 1. Results of PISA Indonesia Assessment on Mathematical Literacy**

<b>Year</b>	<b>Number of PISA Participating Countries</b>	<b>International Average Score</b>	<b>Indonesia Average Score</b>	<b>Indonesia Ranking</b>
2000	41	500	367	39
2003	40	500	360	38
2006	56	500	396	50
2009	65	500	371	61
2012	65	500	375	64
2015	69	500	386	63
2018	79	500	379	73

According to Pratiwi, Effendi, and Ummah (2020), PISA is an evaluation activity on the mathematical literacy skills of students around the world. There are three main characteristics of student literacy skills through PISA type questions, namely content, context, and competence. Where these three characteristics can make students accustomed to solving problems in daily life, can cultivate students' high thinking skills, and students are able to combine the knowledge they have in solving a problem contained in PISA questions. The context of the PISA problem can be easily understood by students if it is associated with local culture, because mathematics is manifested by human activities or activities, one of which is culture.

In the research conducted by Dina Fakhriyana, Mardiyana, and Aryuna (2018) there are three things related to the preparation of mathematical literacy problems in PISA, namely the first is content in the form of changes and relationships, space and form, quantity, uncertainty and data. The second is process, in PISA the ability of the process is classified into three, namely formulate (able to formulate or formulate situations mathematically), employ (able to apply or use or apply concepts, facts / reality, procedures, and also reasoning in mathematics), interpret (able to interpret, apply and also evaluate the

results of a mathematical process). Then the third is context, the context in PISA is a series of problems and situations contained in daily life, there are four categories in the context of PISA, namely the individual context, the educational context, the general or social context, and the scientific context.

By the statement above explained the development of the results of the PISA survey in 2018 and also the context of PISA questions that can be related to culture or daily life, it is appropriate for educators to apply learning evaluation using PISA-type instruments with ethnomathematic characteristics of local culture. Research or studies on ethnomathematics have been carried out by many researchers, even every region has conducted research on ethnomathematics, for example in Kudus. From various cultural ethnomathematics research in Kudus, the research carried out only focuses on the development of mathematics learning, and the development of mathematics learning media. As was the case with Ulfa Masamah (2019) who only developed mathematics learning with an ethnomathematics approach based on the local Kudus culture which only focused on the Menara Kudus Mosque and the Tomb of Sunan Kudus. However, researchers have not found a description or study of ethnomathematics in the development of PISA-type learning evaluation instruments in Kudus, therefore making space or opportunity for researchers to conduct research on these studies. The distinctive feature or differentiator of this development from other developments is this development only focuses on making mathematics learning evaluation instrument product using PISA type questions with the characteristics of the local Islamic culture of Kudus. With the description of these problems, there are two formalations of the problem which are also the objectives of this research and development, namely to determine the development and feasibility of PISA-type evaluation instruments with ethnomathematic characteristics of the local Islamic culture of Kudus.

## **RESEARCH METHODS**

The development method used is the Research and Development method. This method seeks to create or produce a new product. Where the development

model used is the ADDIE development model (Analysis, Design, Development, Implementation, and Evaluation). The subjects of this research and development were class VII A students at SMP NU Al-Ma'ruf Kudus. The data collection instruments used included subject matter expert validation instruments performed by mathematics lecturers, Islamic culture expert validation instruments conducted by religion lecturers, and product due diligence expert validation instruments conducted by SMP/MTs mathematics teachers. While the data analysis technique used is expert validation data analysis using the Lawshe's CVR (Content Validity Ratio) method, and small-scale trial data analysis was carried out on 6 students and large-scale trials were carried out on 30 students using four learning evaluation feasibility tests, that is validity test, reliability test, difficulty level test, and discriminating power test.

## **RESULTS AND DISCUSSION**

The development of evaluation instruments carried out in this study uses the ADDIE development model. The following are the results of research obtained at each stage of development and data analysis that has been carried out:

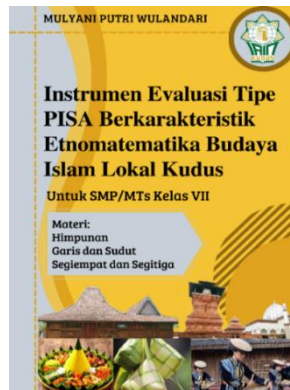
### **a. Analysis Stage**

At this stage, the researcher conducts activities to observe and analyze the evaluation of class VII mathematics learning. These analyzing activities include analyzing the needs of students for the evaluation of mathematics learning, analyzing the curriculum, and analyzing the instruments used in the evaluation of mathematics learning. Based on these observations, in accordance with the results of interviews with mathematics teachers in grade VII at SMP NU Al-Ma'ruf Kudus stated that there are several things that students need, namely students need a measuring instrument for learning outcomes in mathematics subjects, namely an interesting and not monotonous mathematical learning evaluation instrument (only containing text). Meanwhile, in curriculum analysis, the curriculum used is the 2013 curriculum which contains core competencies (KI-3 and KI-4), basic competencies, and indicators. Meanwhile, in the analysis of the instruments used in the evaluation

of mathematics learning, there has not been found an evaluation instrument that is suitable for use in the evaluation of class VII mathematics learning on the material of sets, lines and angles, rectangles and triangles using PISA types that are ethnomathematic characteristics of the local Islamic culture of Kudus. Just like what was done by Purnomo and Palupi (2016) at this stage of analysis in the form of interview activities that resulted in a statement that students needed a tool to measure learning outcomes in the learning evaluation process. At the time of making measuring instruments or evaluation instruments must pay attention to the curriculum, core competencies, and basic competencies. Then in the form of instruments or tests it is made with the needs and purpose of its manufacture.

#### **b. Design Stage**

In this stage, it is in the form of preparing an evaluation instrument preparation in accordance with material indicators, PISA levels and ethnomathematics of the local Islamic culture of Kudus. The arrangement includes the front cover, table of contents, introduction, learning evaluation instruments, and answer keys. In the preparation of such instrument products using the applications of Canva and Microsoft Word. The Canva application is used to create the front cover, while Microsoft Word is used to write the contents of the evaluation instrument product, ranging from the table of contents to the answer key. After the preparation and creation of the evaluation instrument product is to collect and make one file in Microsoft Word, then it is used as a hardfile and bound in a Spiral shape. As is the case with the development at the design stage or design carried out by Ratih Puspasari (2019) that in that stage conducts or designs the product structure and framework of the content of the product he makes. Here is an image of the front cover of the evaluation instrument product:



**Figure 1. Front Cover**

In this evaluation instrument product, there are 18 instruments consisting of 6 set material instruments, 6 line and angle material instruments, and 6 rectangular and triangular material instruments. This instrument product not only contains mathematical concepts and concepts of kudos local Islamic culture, but in each instrument or question item contains a level or level of PISA and is integrated with Islamic values. The following is an explanation of the pisa type evaluation instrument product characterized by the ethnomathematics of the local Islamic culture of Kudus in each material:

**1) Instruments on the set material**

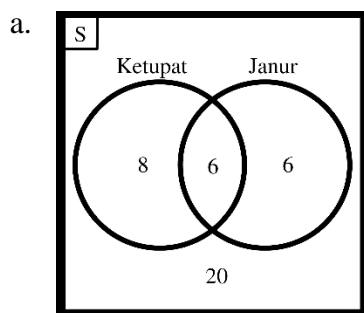
**Question number 4:**

Before Eid al-Fitr, Muslims usually buy janur and kupat. Kupat is a special food during Eid in the form of white rice cooked in the janur. Kupat stands for " laku sing papat" or the four circumstances bestowed by Allah SWT on the fasting person, namely wide, melting, luber, and labur. Is janur "sejatining nur (light)" or the one who fasts acquires jatining nur which means that he has returned to fitrah. (Source: <https://medium.com/@arifinung/makna-filosofis-janur-dan-ketupat-f6afefe5995b>)

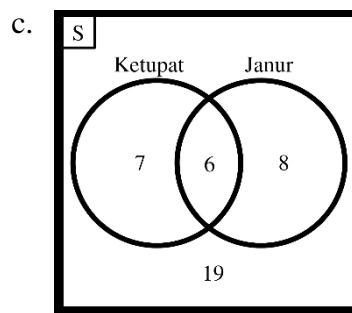
There were 40 people who were buying kupat and janur sold by Mrs. Lia. Bu lia sells 1 bunch of kupat for Rp. 5,000 and 1 bunch of janur for Rp. 2,000. There were 15 people buying 6 bunches of kupat, 13 people



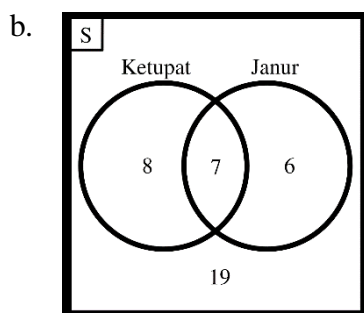
buying 8 bunches of janur, and 7 people buying both in the amount of 2 bunches of kupaat and 2 bunches of janur. How many people don't buy both? Which Venn diagram corresponds to the set? Then how much money did Mrs. Lia get?



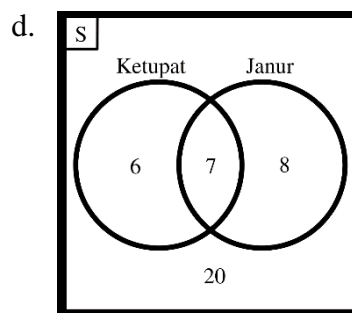
The money earned by the mother is Rp. 404,000



The money earned by the mother is Rp. 430,000



The money earned by the mother is Rp. 434,000



The money earned by the mother is Rp. 440,000

**Problem Analysis:**

Mathematical concepts : Venn diagrams in the material of the set

Cultural concepts : kupaatan tradition

PISA level : level 4

Islamic values : lies in the prologue of the problem, which is about the meaning of kupaat, where kupaat stands for "laku sing papat" or the four circumstances bestowed by Allah SWT on fasting people, namely width, melting, luber, and labur. Whereas janur is "sejatining nur (light)"

or the one who fasts acquires jatinig nur which means that he has returned to fitrah.

## 2) Instruments on line and angle material

### Question Number 2

On QS. Yasin verse 40 explains that the sun and the moon are undergoing revolution, meaning that it is impossible that night precedes day or day precedes night, because the sun and moon circulate following its line of circulation. (Source: <http://k-conk-azhil.blogspot.com/2014/12/integrasi-islam-bab-garis-dan-sudut.html>) It is known that the hour hand of the Holy Tower shows 02.18. The magnitude of the angle formed between the two clockwork is...

- a.  $38^\circ$
- b.  $39^\circ$
- c.  $43^\circ$
- d.  $41^\circ$

### Problem Analysis:

Mathematical concept : the magnitude of the angle in the material of lines and angles

Cultural concept : the mosque of the Holy Minaret

Pisa Level : level 2

Islamic values : on the question there is a verse of the Qur'an in the letter yasin verse 40 regarding lines and angles, where the verse explains that the sun and the moon are revolutionized, meaning it is impossible that night precedes day or day precedes night, for the sun and the moon circulate following its line of circulation, and the verse can be attributed to the two-handed rotation of the Holy Tower which forms an angle.

## 3) Instruments on rectangular and triangular matter

### Question Number 6:

The characteristic of the Kudus traditional house is that it is found on the roof which is called a trapezoidal "pencu". The roof tile on the traditional

house of joglo pencu Kudus there is a tile called kerpus tile, its hollow shape has the meaning of a way of life to accept and open.

(Source: <https://www.merdeka.com/jateng/mengenal-joglo-pencu-rumah-adat-kudus-yang-unik-dan-penuh-makna-simbolik.html>)

Ana and Ani draw the Joglo Traditional House The Holy Hall. They drew with different sizes, Ana drew a roof with sides of 5 m and 7 m with a height of 6 m, while Ani drew a roof with a side of 7 m and 9 m with a height of 8 m. Determine the number of tiles on the roof of the Joglo Pencu Kudus Traditional House drawn by Ana and Ani when the side tiles are 10 cm!

- a.  $38^\circ$
- b.  $39^\circ$
- c.  $43^\circ$
- d.  $41^\circ$

#### **Problem Analysis:**

Mathematical concept : trapezoidal area and square area  
Cultural concept : traditional house joglo pencu Kudus  
Level PISA : level 6  
Islamic value : lies in the explanation of the roof tile of the traditional house joglo pencu Kudus which has a tile called kerpus tile, its hollow shape has meaning as a form of a way of life to accept and open.

#### **c. Development Stage**

At this stage, the evaluation instrument product is validated to three experts, namely material experts, Islamic cultural experts, and product feasibility experts. This validation test aims to determine the level of validity and feasibility of the evaluation instrument product, and also to find out input or suggestions from experts, so that the product can be used in learning evaluation. In the purpose of this validation test, just like Nurafni, Nurafni, Pujiastuti, and Mutaqin (2020) in the development stage, the purpose of the validation test he carried out was to produce a draft of the product he made that had been revised based on expert input so that it could be tested and used in learning evaluation.

The material expert validation test was carried out by two lecturers of the Iain Kudus mathematics tadrīs, and the validation test of Islamic cultural experts was carried out by two iain kudus religious lecturers using the Lawshe's CVR method and obtained different CVR scores on each instrument or question item. The conclusion of such calculations results in a valid category and is worth using with revisions. As is the case with the development carried out by Sabina Ndiung and Mariana Jediut (2020) in the implementation of its validity test using Lawshe's CVR with the validation results of the mathematics learning outcomes test instruments that it developed with the results declared valid.

After validation tests were carried out on material experts and Islamic cultural experts, it was then corrected and revised according to the notes and suggestions of each validator. The evaluation instrument product that has been improved, then the product feasibility expert validation test is carried out by three class VII mathematics teachers using Lawshe's CVR method and obtaining the same CVR value of 1, because all validators give an essential value (E) to each instrument or question item, starting from the instrument on the set material, lines and angles, rectangular and triangular. So that the results obtained state that the instrument is valid, and in the conclusions of the notes and suggestions in general by each validator, state that the instrument is fit for use without revision. The results of the feasibility test are the same as the results of the development carried out by Sulistiyono, Mundilarto, dan Kuswanto (2019) that in the feasibility test of instruments involving product users, namely educators, they get effective results and are worthy of use in the evaluation of mathematics learning.

#### **d. Implementation Stage**

This stage aims to test the evaluation instrument product to learners after it is declared suitable for use without revision by the product feasibility expert. At this stage, two trials were carried out, namely small-scale trials and large-scale trials. In its implementation, the two trials were assisted by Google Form to make it easier for students to work on it. The instruments / questions

given are 18 questions with details of 6 points of set material, 6 points of line and angle material, and 6 points of rectangle and triangular material. This stage of implementation consists of small-scale trials and large-scale trials. A small-scale trial conducted by 6 learners by obtaining valid, reliable results with high reliability, difficulty and differentiating power with different results. Meanwhile, in large-scale trials carried out by 27 students of class VII F by obtaining valid, reliable with high reliability, difficulty and differentiating power with different results. As well as the development research conducted by Fityana, Sarwanto, dan Sugiarto (2017) which states that small-scale trials and large-scale trials obtain valid results and high reliability, so that the results of product development have good quality.

#### **e. Evaluation Stage**

Based on the results of all the stages that have been carried out in this research and development, it is then evaluated by experts in their field. At the analysis and design stage, it is evaluated by the supervisor. At the development stage, it is evaluated by several validators or experts, namely material experts, Islamic cultural experts, and product feasibility experts. Meanwhile, at the implementation stage, the instrument product is evaluated by students who are the subject of the study.

The product of this development research is to produce a PISA-type evaluation instrument characterized by the ethnomathematics of the local Islamic culture of Kudus with class VII mathematics material, namely sets, lines and angles, rectangles and triangles. Meanwhile, the local Islamic culture of Kudus used is the Kudus minaret mosque, the traditional house of joglo pencu Kudus, the tradition of tumpengan, the tradition of kupatan, and the kretek kudus dance. The presentation of this product is a hardfile, so it is easy for educators and students to use in the process of evaluating mathematics learning. The purpose of this instrument, in addition to learning evaluation tools, is also used to introduce students to the local Islamic culture of Kudus. So that students do not only learn mathematics, but also participate in preserving islamic culture in Kudus. As well as the development carried out by

Ulfa Masamah (2019) that in the development he carried out, namely applying the kodus local culture in mathematics learning, so that in the learning process also invite students to preserve the culture in Kudus.

## CONCLUSION

This research and development resulted in a product of evaluation instruments, namely PISA-type evaluation instruments with ethnomathematic characteristics of the kodus local Islamic culture. The local Islamic culture of Kudus used is the Kudus minaret mosque, the traditional house of joglo pencu Kudus, the tumpengan tradition, the kupatan tradition, and the Kudus kretek dance. As well as the materials used are sets, lines and angles, and triangles. The result of this product is in the form of a hardfile or a book in the form of a Spiral. There are 18 instruments or question items in the product which consist of 6 instruments on the set material, 6 instruments on the line and angle material, and 6 instruments on the rectangel and triangular material. Each instrument or question item already covers the level or level in PISA, and also contains the local Islamic culture of Kudus with integrated Islamic values.

The product in this research and development is a PISA-type evaluation instrument with ethnomathematic characteristics of the local Islamic culture of Kudus which has been declared valid and suitable for use. The validation test was carried out by three experts, namely material experts, Islamic cultural experts and product feasibility experts. In material experts consist of two validators, Islamic cultural experts consist of two validators, while product feasibility experts consist of three validators who are class VII mathematics teachers. The results of the validation test of material experts and Islamic cultural experts obtained different CVR values on each instrument, but the results obtained stated that they were valid and suitable for use with revisions so that improvements must be made in accordance with the records and suggestions of each validator. After revision and improvement, it is continued with the feasibility test of the product with the results obtained stating that the instrument is valid for use without revision. So that the final result of the PISA-type evaluation instrument product with the

ethnomathematic characteristics of the kudos local Islamic culture is feasible to use.

## REFERENCES

- Fakhriyana, Dina, Mardiyana, dan Dyah Ratri Aryuna. (2018). *Analisis Kemampuan Literasi Matematika Dalam Memecahkan Masalah Model Programme For International Student Assessment (PISA)*. *Jurnal Pendidikan Matematika dan Matematika* Vol 2 (6) 425-427.
- Fityana, Isna Nur, Sarwanto, dan Sugiarto. (2017). *Pengembangan Instrumen Penilaian Autentik Pada Pembelajaran IPA Berbasis Proyek Untuk Siswa SMP / MTs Kelas VII*. *Jurnal Materi dan Pembelajaran Fisika (JMPF)* Vol 7 (2) 25.
- Hewi, La. dan Muh Shaleh. (2018). *Refleksi Hasil PISA (The Programme For International Student Assessment): Upaya Perbaikan Bertumpu Pada Pendidikan Anak Usia Dini*. *Jurnal Golden Age* Vol 4 (1) 35.
- Irawan, Ari, dan Gita Kencanawaty. (2017). *Implementasi Pembelajaran Matematika Realistik Berbasis Etnomatematika*. *Journal of Medives* Vol 1 (2) 79.
- Magdalena, I., Fauzi, H. N., dan Putri, R. (2020). *Pentingnya Evaluasi Dalam Pembelajaran Dan Akibat Memanipulasinya*. *Jurnal Pendidikan dan Sains* Vol 2 (2) 247-250.
- Marbun, S. M., Th, S., & PdK, M. (2018). *Psikologi Pendidikan*. Ponorogo: Uwais Inspirasi Indonesia.
- Masamah, Ulfa. (2019). *Pengembangan Pembelajaran Matematika Dengan Pendekatan Etnomatematika Berbasis Budaya Lokal Kudus*. *Jurnal Pendidikan Matematika (Kudus)* Vol 1 (2) 130.
- Ndiung, Sabina, dan Mariana Jediut. (2020). *Pengembangan Instrumen Tes Hasil Belajar Matematika Peserta Didik Sekolah Dasar Berorientasi Pada Berpikir Tingkat Tinggi*. *Premiere Educandum : Jurnal Pendidikan Dasar Dan Pembelajaran* Vol 10 (1) 105.
- Nurafni, Atika, Heni Pujiastuti, dan Anwar Mutaqin. (2020). *Pengembangan Bahan Ajar Trigonometri Berbasis Kearifan Lokal*. *Journal of Medives : Journal of Mathematics Education IKIP Veteran Semarang* Vol 4 (1) 76.
- Pratiwi, Anggi Aprilia Mohammad Mahfud Effendi, dan Siti Khoiruli Ummah. (2020). *Pengembangan Instrumen Evaluasi Pembelajaran Matematika Tipe PISA Berkarakteristik Kebudayaan Lokal*. *Jurnal Pendidikan Matematika RAFA* Vol 6 (1) 40-41.

- Purnomo, Puji, dan Maria Sekar Palupi. (2016). *Pengembangan Tes Hasil Belajar Matematika Materi Menyelesaikan Masalah yang Berkaitan dengan Waktu, Jarak dan Kecepatan untuk Siswa Kelas V. Jurnal Penelitian (Edisi Khusus PGSD)* Vol 20 (2) 155.
- Puspasari, Ratih. (2019). *Pengembangan Buku Ajar Kompilasi Teori Graf dengan Model Addie. Journal of Medives : Journal of Mathematics Education IKIP Veteran Semarang* Vol 3 (1) 143.
- Ratna, Elis. (2014). *Evaluasi Pembelajaran*. Bandung: Pustaka Setia.
- Richardo, Rino. (2020). *Pembelajaran Matematika Melalui Konteks Islam Nusantara: Sebuah Kajian Etnomatematika di Indonesia. Jurnal Pendidikan Matematika (Kudus)* Vol 3 (1) 88.
- Sarwoedi, S., Marinka, D. O., Febriani, P., & Wirne, I. N. (2018). *Efektifitas Etnomatematika dalam Meningkatkan Kemampuan Pemahaman Matematika Siswa. Jurnal Pendidikan Matematika Raflesia* Vol 3 (2) 126.
- Sulistiyono, Mundilarto, dan Heru Kuswanto. (2019). *Pengembangan Instrumen Penilaian Kerja Laboratorium Fisika Untuk Mengukur Sikap Dan Tanggung Jawab Siswa. Jurnal Materi Dan Pembelajaran Fisika (JMPF)* Vol 9 (1) 48.
- Wahyuni, Astri, Tias, A. A. W., & Sani, B. (2013). *Peran Etnomatematika Dalam Membangun Karakter Bangsa: Penguatan Peran Matematika dan Pendidikan Matematika Untuk Indonesia yang Lebih Baik*. Prosiding pada Seminar Nasional Matematika dan Pendidikan Matematika, Jurusan Pendidikan Matematika FMIPA UNY, Yogyakarta.