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Development of Student Worksheets Using the Context of Local Wisdom on Integers and Fractions

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Abstract

The purpose of this research is to develop a valid, practical and effective junior high school mathematics worksheet. Local wisdom referred to in this study is a traditional food, namely Jagung Bose, Jagung Katemak, Ut Kono, and Laku Tobe, which have become a daily diet for the people of the Indonesia-Timor Leste border community on the Pulau Timor. This research is a kind of development research using the Tessmer formative evaluation model, which consists of two stages of development, namely the preliminary analysis stage and the formative evaluation stage. The subject of this research is the 9th-grade students of Taloeb Junior High School in the border area in 2020. The data collection techniques used include tests, learning outcomes, observation, and interviews. Experts have validated the development of student worksheets using the context of local traditional food wisdom with the results of assessments from material experts, media experts and linguists. Validated by Experts, Students Worksheets (SW) of maths included in the very good category and trial results have shown that the SW meets the practical criteria and has a potential effect on improving junior high school students' mathematics skills and learning outcomes.

Keywords: Development, Student Worksheet, Local Wisdom

Abstrak

Tujuan penelitian ini adalah untuk mengembangkan LKS matematika SMP yang valid, praktis dan efektik. Kearifan Lokal yang dimaksud dalam penelitian ini adalah makanan tradisional Jagung Bose, Jagung Katemak, Ut Kono, dan Laku Tobe yang sudah menjadi makanan sehari-hari masyarakat perbatasan Indonesia-Timor Leste di Pulau Timor. Penggunaan konteks kearifan lokaldalam pembelajaran matematika diharapkan dapat menciptakan proses pembelajaran yang berbasis kontekstual bagi siswa. Siswa akan berpikir kritis, aktif dan kreatif, suasana menyenangkan, mudah memahami materi dan pada akhirnya minat dan prestasi belajar siswa meningkat. Penelitian ini merupakan penelitian pengembangan dengan menggunkan model evaluasi formatif Tessmer yang terdiri dari dua tahap pengembangan, yaitu yakni tahap analisis pendahuluan dan tahap evaluasi formatif. Subjek penelitian ini adalah siswa kelas 9 SMPN Taloeb di kawasan perbatasan tahun 2020.Teknik pengumpulan data yang digunakan meliputi tes hasil belajar, observasi, dan wawancara. Pengembangan lembar kerja siswa menggunakan konteks kearifan local makanan tradisional telah divalidasi oleh para pakar dengan hasil penilaian dari ahli materi, ahli media dan ahli bahasa.validasi oleh para pakar, LKS matematika ini termasuk dalam kategori sangat baik dan hasil ujicoba telah menunjukkan bahwa LKS tersebut memenuhi kriteria praktis dan memiliki efek potensial untuk meningkatkan hasil belajar matematika siswa SMP.

Kata kunci: Pengembangan, LKS, Kearifan Lokal

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INTRODUCTION

The mandate of the 2013 revised Curriculum for 2017 emphasizes literacy (culture), creativity, character strengthening (Amsikan and Deda, 2020a) and national identity in the learning process in schools. One way to answer this mandate is to provide Student Worksheets (SW) based on local wisdom of the people of the Indonesia-Timor Leste border area. The purpose of this research is to develop a valid, practical and effective junior high school mathematics worksheet by using local

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wisdom like traditional food in Timor Island. Local wisdom needs to be preserved to maintain an ethnic identity, as well as to strengthen the cultural literacy of future generations. In the present and future, teacher innovation in developing learning is necessary. Current learning technology development innovations, such as the utilization of local potential as local wisdom in mathematics learning (Amsikan and Deda, 2018; Restian, Deviana, and Saputri, 2020; Choirudin, Ningsih, Anwar, Sari and Amalia, 2020; Farhatin, Pujiastuti & Mutaqin, 2020) needs to be done because mathematics is still a difficult subject for most students, especially in border areas. It can be seen from the Average Score of Computer-Based National Examination (UNBK) for Mathematics Subjects 2018/2019 for SMP / MTs, which shows that North Central Timor Regency (TTU) reached 44.69 below the NTT Provincial average of 46.29 (Puspendik, 2019).

The current research aims to provide SW that uses the context of local wisdom in border areas that are very close to the daily lives of students that are valid, practical and effective. The SW needs to be provided for junior high school students in areas with limited access to learning. Local wisdom referred to in this study is the traditional food of Jagung Bose, Jagung Katemak, Ut Kono, and Laku Tobe (Deda & Disnawati, 2019a) which have become people's daily food in the border area. Using the context of local wisdom in mathematics learning is expected to create a contextual-based learning process that is close to students and also for strengthening student character (Amsikan et al., 2020a; Ikhwanudin, T., 2018). The use of the context of wisdom also has an important role in improving students' cognitive abilities (Arisetyawan & Supriadi, 2019). The inclusion of the context of local wisdom in the classroom will make students think critically (Muslimahayati, 2020), be active and creative, have a pleasant atmosphere (Setyaningsih, Rejeki, & Ishartono, 2019), easily understand the material and in the end increase student interest and achievement. The integration of local wisdom in classroom learning is not only beneficial for students but also provides independence for teachers to develop and design teaching materials according to the context of local wisdom around them (Ferdianto & Setiyani, 2018; Deda & Amsikan, 2019).

METHODS

This study used a development research method with a formative research type carried out at Taloeb State Junior High School.

Research Procedure

This research was conducted in two stages, namely the preparation and the formative evaluation stage (Tessmer, 1993; Zulkardi, 2002; Ahyan, Zulkardi & Darmawijoyo, 2014; Kurniawan, Putri, & Hartono, 2018; Disnawati & Nahak; 2019; Usnul, Johar, & Sofyan, 2019) which includes self-evaluation, prototyping (expert reviews and one-to-one, and small groups), and field tests. In the formative evaluation stage, the expert review and one to one do not run simultaneously, but the Expert

review is first followed one to one with the reason to anticipate if there are things that are missed in the expert validation stage (Deda & Disnawati, 2019b; Amsikan & Deda, 2020b).

Data Analysis Technique

In this phase, there are four steps such as document analysis, walk through analysis, test analysis, observation and interview analysis.

Document Analysis

In the self-evaluation stage, document analysis was conducted to determine whether the teaching materials developed are following the students' abilities and K13 standards. It is important so that the teaching materials produced in the prototype are in accordance with the objectives of this study. Document analysis at the one to one stage was applied to analyze the practicality of the learning tools in the second prototype obtained from the results of trials on thirteen students, namely high, medium and low ability. The results of this analysis were used to revise the second prototype, which then produced the third prototype. This third prototype was tested on six students consisting of two students high ability, two medium and low.

Walk Through Analysis

The analysis at this stage was conducted after gaining comments and suggestions from experts, that is about the clarity of the prototype, as well as the suitability of the context used in the prototype. Based on the advice of experts, a valid SW is produced. This stage analysis is carried out on prototype1 and then obtaining prototype2.

Test Analysis

The test result data obtained were analyzed based on the students' abilities seen from the scores obtained by the students in working on the questions in the SW using the context of traditional food.

Observation Analysis and Interview

Interview data were analyzed descriptively to determine student suggestions and input regarding the developed SW. The results of the interview were also analyzed to see how the students' problems with the prototype could be properly and correctly addressed. Then, the data from the observations were carried out to determine the responses and ways of thinking of students while working on the SW.

RESULTS AND DISCUSSION

The first stage in this research is the preparation stage, which is to conduct a survey of traditional food in Timor Island as local wisdom in the border area and look at the mathematical activities that occur in the process of making traditional food, a form of traditional food—analyzing the 2013 revised syllabus and curriculum in 2017 in junior high school mathematics.

Then the second stage, namely the formative evaluation stage, which consists of self-evaluation, expert validation, one-on-one trials, limited trials, and field trials. Self-evaluation, which is the researcher designs and revises student worksheets (SW) based on junior high school mathematics. Traditional food in the border area. The SW results of this self-evaluating are called prototype 1. In the expert validation stage, SW mathematics uses the context of traditional food, *Jagung Bose*, *Jagung Katemak*, *Ut Kono*, and *Laku Tobe*, which were assessed by three experts, namely one Mathematics Education Lecturer as a media expert, and one junior high school math teacher in the border area of Indonesia-Timor Leste as a content/material expert and one Indonesian Language Education and Sastra Lecturer as a linguist. The following are the results of the evaluation and suggestions given by each expert, along with the results of their revisions.

Media expert validation

The media expert suggested that the blank colour of rounded rectangle (space) solutions, on mathematics worksheet, must be colored so that students would be inteseted in answering the question. So, media expert stated that the junior high school mathematics SW using the context of the traditional food developed had drawn from the image colours used and the colour rounded rectangle (space) solutions provided. The revision results are shown in the Figure 1.

Figure 1. Advice Revision from the media expert

Linguist validation

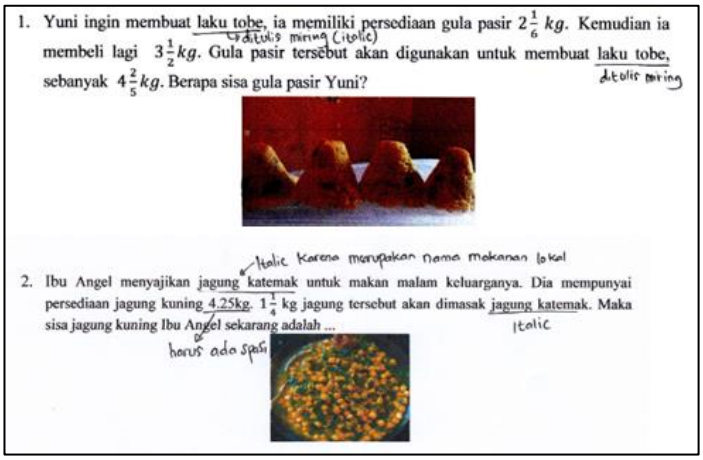

Figure 2. The results of the linguist's assessment

Translation of Figure 2

1. Yuni wants to make laku tobe, he has kristal sugar supplies $2\frac{1}{6}$ kg. then bought again $3\frac{1}{2}$ kg. Kristal sugar would also be used to make laku tobe, as much as $4\frac{2}{5}$ kg. How many Yuni Kristal sugar?
2. The Angel presents jagung katemak for family dinner. He had yellow corn supplies 4.25 kg. $1\frac{1}{4}$ kg corn is cooked jagung katemak. The remaining of the yellow corn of the Angel is …

Linguists provide input on questions number 1 and number 2 SW mathematics using the context of traditional food following the rules of good and correct Indonesian, namely writing the phrase tobe practice written in italic (*italic*) becomes *tobe* practice. Then the name of *Jagung Katemak* and *Laku Tobe* in the caption so that it is consistent with what is in the problem. Furthermore, linguists suggest that the writing of letters and numbers should be spaced, not combined, as shown in Figure 2. The following revisions can be seen in Figure 4.

Material expert validation

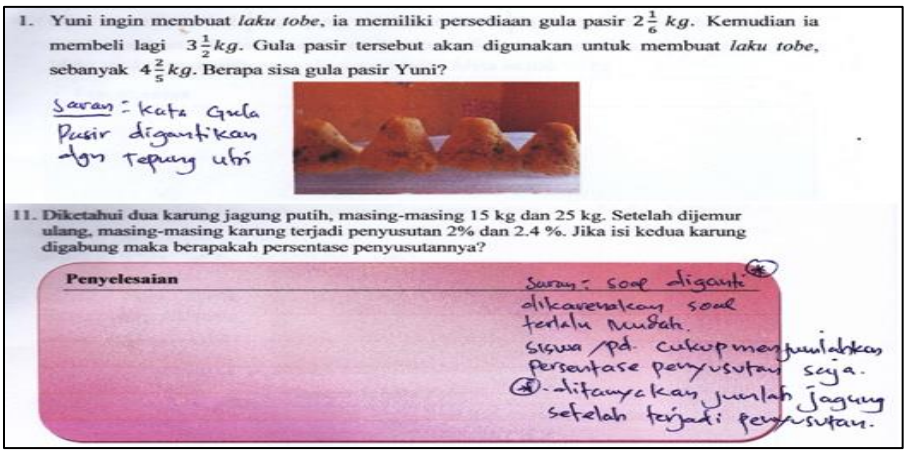

Figure 3. The results of the material expert's assessment

Translation of Figure 3

1. Yuni wants to make laku tobe, he has kristal sugar supplies $2\frac{1}{6}$ kg. then bought again $3\frac{1}{2}$ kg. Kristal sugar would also be used to make laku tobe, as much as $4\frac{2}{5}$ kg. How many Yuni Kristal sugar?
11. Two white sack corn, each 15 kg, and 25 kg. After repeated sun-dried, each sack happened depreciation 2 % and 2.4 %. If the content of the two sacks merged and how the amount of corn after depreciation?

1. Yuni ingin membuat *laku tobe*, ia memiliki persediaan Gula Kristal $2\frac{1}{6}$ *kg*. Kemudian ia membeli lagi $3\frac{1}{2}kg$. Gula Kristal tersebut akan digunakan untuk membuat *laku tobe*, sebanyak $4\frac{2}{5}kg$. Berapa sisa Gula Kristal Yuni?

Gambar 1. *Laku Tobe*

Penyelesaian

2. Ibu Angel menyajikan *jagung katemak* untuk makan malam keluarganya. Dia mempunyai persediaan jagung kuning 4.25 kg. $1\frac{1}{4}$ kg jagung tersebut akan dimasak *jagung katemak*. Maka sisa jagung kuning Ibu Angel sekarang adalah ...

Gambar 2. *Jagung Katemak*

Penyelesaian

11. Diketahui dua karung jagung putih, masing-masing 15 kg dan 25 kg. Setelah dijemur ulang, masing-masing karung terjadi penyusutan 2% dan 2.4 %. Jika isi kedua karung digabung maka berapakah jumlah jagung setelah terjadi penyusutannya?

Figure 4. The results of the revision on the advice of experts

Translation of Figure 4

1. Yuni wants to make laku tobe, he has kristal sugar supplies $2\frac{1}{6}$ kg. then bought again $3\frac{1}{2}$ kg. Kristal sugar would also be used to make laku tobe, as much as $4\frac{2}{5}$ kg. How many Yuni Kristal sugar?
2. The Angel presents jagung katemak for family dinner. He had yellow corn supplies 4.25 kg. $1\frac{1}{4}$ kg corn is cooked jagung katemak. The remaining of the yellow corn of the Angel is …

11. Two white sack corn, each 15 kg, and 25 kg. After repeated sun-dried, each sack happened depreciation 2 % and 2.4 %. If the content of the two sacks merged and how the amount of corn after depreciation?

Question number 1 on the developed SW, the material expert argues that "granulated sugar" can cause students to misunderstand the sugar in question and the tone of the word sand, so it is suggested to replace it with "sweet potato flour" or if it is permissible to use the name of the sugar brand which is often used by people in the border area, namely Crystal Sugar. While for question number 11, the material expert argues that the question is too easy, so it is advisable to change the question from what is the percentage of shrinkage to what is the amount of corn after shrinkage occurs (Figure 4).

The results of this expert validation stage, obtained prototype 2, SW mathematics using a valid local wisdom context based on input or comments from experts. It can be seen from the comments of linguists that the last SW produced used good and correct Indonesian grammar. Media expert comments also said that the SW that was developed was following an attractive layout and appearance. Meanwhile, the content/material expert comments that the questions in SW are following the content standards of the 2017 revised 2013 Curriculum for junior high school mathematics subjects.

The one-on-one test phase and limited trials

At this stage, the researcher wants to get responses and suggestions from students about the SW being developed. Before conducting a one-on-one trial, the research team collected information on third-grade students of a junior high school in Timor Tengah Utara (TTU) District. This information is used to determine students with low, medium and high abilities. The one-on-one trial stage was not carried out simultaneously with the expert validation stage (Deda et al., 2019; Amsikan et al., 2020). The consideration is because at this stage, in addition to students providing views or input on the SW being developed, the one-on-one trial stage is also intended to identify, double-check if there are possible SW errors that have escaped the attention of experts such as punctuation, wrong language and unclear instructions.

Table 1. Student comments and suggestions at the one to one stage

No	Students' name	Students' comments and suggestions	Researchers' comments and suggestions
1	OTO1 (Representing low ability students)	The questions inside SW is easy to understand and looks attractive	The comments and suggestions are acceptable

No	Students' name	Students' comments and suggestions	Researchers' comments and suggestions
2	OTO2 (Representing moderate ability students)	The questions inside SW very clear, picture very appropriate because using traditional food	The comments and suggestions are acceptable
3	OTO3 (Representing high ability students)	The questions are interesting, easy to do	The comments and suggestions are acceptable

Based on the results of one to one study and direct interviews with three students, it appears that OTO1, OTO2 and OTO3 students have no difficulty understanding the issues in SW, these students understand that the context used is traditional food, which is also daily food, and all students in the school where teaching materials have been tested are indigenous people in the border area. At the time of the interview, students express that a student is easier to understand the daily problems about an integer and. For example about number two, the student can understand that mother angel has yellow corn supplies 4.25 kg. $1\frac{1}{4}$ kg yellow corn mentioned cooked so *Jagung Katemak*. On about this, students become very understand of the information which is in about and figure out how to do that the rest of the yellow corn obtained from 4.25 kg reduced $1\frac{1}{4}$ kg. Whereas previously they had difficulty understands a word problem which is in textbooks less contextual. Thus, the one-on-one trial results were prototype 3, namely a legible SW and received input from students.

The small group trial stage was used to get students' views regarding SW mathematics using the context of the traditional Timor Island food that was developed. This stage involved six students, namely two low-skilled students, two medium-ability students and two high-ability students. This small class experiment shows that SW based on traditional Timorese food can be accepted and can be used well. It can be seen from the results of the work of the students who were able to work on the SW questions. The results of the interviews also show that students with low, medium and high abilities. There is no significant difficulty in working on questions number 1 to number 5 in SW. Low and moderate ability students have difficulty converting mixed fractions to decimal form or vice versa. The results of interviews of all students with high, medium and low abilities show that number 6 through number 11 is unclear and not on understand because it is considered a difficult problem. The questions that are not understood are questions in the high order thinking category (Deda, Ratu, Amsikan, & Mamoh, 2020) to measure critical thinking skills such as analyzing, evaluating, creating, reasoning, and making decisions. At this stage obtained implies that in the context of WS use traditional foods helped students to understand the operation of integers and fractions. Well before this WS, they had difficulty understanding the application of the concept of the operation of integers and fraction in daily

life Input from students used as the low capacity to revise WS based on traditional food, namely prototype 4 which have met practical criteria.

Field trials

At this stage, the final SW product or prototype four was tested on third-grade students of SMP in one of the SMPs with the lowest average UNBK results for mathematics in 2019 in North Central Timor Regency. Participants in the field test phase were planned to be followed by 36 students, but 18 participants were involved because they followed the Corona virus (COVID-19) Pandemic health protocol at the time of this research. The question indicator in this fourth prototype is solving daily problems related to integer and fraction operations. Food-based SW is the result of one-on-one trials and limited trials so that the number of items is following the abilities of students in the area. There are five questions on the SW that are proven to be practical, and according to the students' abilities. The pretest results of students before learning using traditional food-based math SW as local wisdom can be seen in Table 2.

Table 2. Results of students' pretest and post-test

Student Grade Range	Number of Students		Presentation		Category
	Pretest	*Posttest*	*Pretest*	*Posttest*	
80-100	-	2	-	11%	accomplished
70-79	2	3	11.11%	16.67%	accomplished
60-69	5	9	27.78%	50%	accomplished
50-59	7	3	38.89%	16.67%	Not accomplished
40-49	4	1	22.22%	5%	Not accomplished
Total	18	18	100%	100%	

The results of the pretest and post-test in table 2 show that of the 18 students who took the pretest before learning used traditional food-based SW that 61.11% of students had not reached the learning completeness criteria set by the SMP. However, after students use SW in learning, the learning outcome test (THB) at the time of the post-test as in table 2 shows that 21.67% of students have not reached the criteria. It means that the developed SW has shown a potential effect because 78.33% of students have reached the minimum criteria of Mathematics subjects. It means that local wisdom can have a positive impact on students (Zulfah, 2018). Based on the questionnaire that was distributed after students took the THB, students felt happy and motivated by learning that used local wisdom (Dazrullisa, 2018) as a context that could make it easier to understand the integer and fractions materials. Students become helped because they are easier to understand material integers

and fractions before they consider it difficult. The students will be the concept of the operation of integers and fractions better using the traditional foods close to them. Even in the COVID-19 pandemic situation, understanding of students' math skills will still raise can be seen from the number of students who completed in pre-test 7 students and in post test 14 students. Students also hope that the learning experience gained in mathematics can be obtained from all subjects at school.

The products produced starting from the preparation stage to the formative evaluation are obtaining a set of students worksheet using traditional foods context such as *Jagung Bose, Jagung Katemak, Ut Kono,* and *Laku Tobeas* local wisdom that is valid, practical and has the potential effect of improving mathematics skills or understanding the concept of integers and fractions operations.

CONCLUSION

Based on the results and discussion that has been described, it can be concluded that the Mathematics Student Worksheet uses the context of local wisdom of *Jagung Bose*, *Jagung Katemak, Ut Kono,* and *Laku Tobe* developed for junior high school students in the border area of Indonesia-Timor Leste has met valid, practical and criteria. It has the potential effect of increasing the learning outcomes of junior high school mathematics.

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REFERENCES

Ahyan, S., Zulkardi, & Darmawijoyo. (2014). Developing mathematics problems based on PISA level of change and relationships content. *Journal on Mathematics Education*, *5*(1), 47-56. http://dx.doi.org/10.22342/jme.5.1.1448.47-56.

Amsikan, S., & Deda, Y. N. (2018). Utilizing the local potential of Kefamenanu in mathematics learning to enhancing the creativity of secondary school teachers [in Bahasa]. *Bakti Cendana 1*(1), 32-40. https://doi.org/10.32938/bc.v1i1.17.

Amsikan, S., & Deda, Y. N. (2020a). Strengthening character education in mathematics learning by using Tenun Insana Fabrics Motifs [in Bahasa]. *JPPM, 4*(1), 25-30. https://doi.org/10.30595/jppm.v0i0.3938.

Amsikan, S. & Deda, Y. N. (2020b). The development of Etnomathematics teaching materials using Ume Kbubu Context on students of mathematics education department. *IJTMER, 3*(2), 95-100. https://doi.org/10.33122/ijtmer.v3i2.142.

Arisetyawan, A. & Supriadi. (2019). The importance of Ethnomatematics learning in improving students's cognitive abilities and how to design teaching materials based on local wisdom [in Bahasa]. *JURNAL BASICEDU, 3*(2), 621-626. https://doi.org/10.31004/basicedu.v3i2.

Choirudin, C., Ningsih, E. F., Anwar, M. S., Sari, I. R., & Amalia, S. (2020). Pengembangan Perangkat Pembelajaran Etnomatematika Pada Situs Purbakala Pugung Raharjo. *Pi: Mathematics Education Journal*, *3*(1), 18-27. https://doi.org/10.21067/pmej.v3i1.3755.

Dazrullisa. (2018). The effect of mathematics learning based on Local Wisdon on students' learning interest [in Bahasa]. *Genta Mulia, 9*(2), 141-149.

Deda, Y. N. & Amsikan, S. (2019). Geometry Concept on the Motifs of Woven Fabric in Kefamenanu Community. *Journal of Research and Advances in Mathematics Education*, *4*(1), 23– 30. https://doi.org/10.23917/jramathedu.v4i1.6253.

Deda, Y. N. & Disnawati, H. (2019a). *Ethnomatematics Teaching Book in Border Area of NKRI-Timor Lester* [in Bahasa]. Yogyakarta: Deepublish.

Deda, Y. N. & Disnawati, H. (2019b). Development of mathematics worksheet Ethnomatematics using the context of Tenun Timor Fabrics Motifs [in Bahasa]. *JKPM, 6*(2), 20-26. https://doi.org/10.26714/jkpm.6.2.2019.20-26.

Deda, Y. N., Ratu, A. H., Amsikan, S. & Mamoh, O. (2020). Analysis of students' ability to solve mathematics national examination of SMP/MTs based on Higher Order Thinking Skills (HOTS) perspectives [in Bahasa]. *JUPITEK, 3*(1), 1-6. https://doi.org/10.30598/jupitekvol3iss1pp1-6.

Disnawati, H. & Nahak, S. (2019). Development of Students' Worksheet Based on Ethnomatematics on number pattern material [in Bahasa]. *Jurnal Elemen, 5*(1), 64-79. https://doi.org/10.29408/jel.v5i1.1022.

Farhatin, N., Pujiastuti, H., & Mutaqin, A. (2020). Development of mathematics teaching material based on Local Wisdom for secondary school students grade VIII [in Bahasa]. *Prima: Jurnal Pendidikan Matematika*, *4*(1), 33-45. http://dx.doi.org/10.31000/prima.v4i1.2082.

Ferdianto, F., & Setiyani, S. (2018). Development of learning media teaching material based on Local Wisdom for mathematics education students [in Bahasa]. *JNPM, 2*(1), 37–47. http://dx.doi.org/10.33603/jnpm.v2i1.781.

Ikhwanudin, T. (2018). Mathematics learning based on Local Wisdom to build Nation's characters [in Bahasa]. *UNION, 6*(1), 11-18. http://dx.doi.org/10.30738/.v6i1.1560.

Kurniawan, H., Putri, R. I. I., & Hartono, Y. (2018). Developing open-ended questions for surface area and volume of beam. *Journal on Mathematics Education, 9*(1), 157-168. http://dx.doi.org/10.22342/jme.9.1.4640.157-168.

Muslimahayati. (2020). Development of critical thinking ability task based on Local Wisdom of South Sumatera on Trigonometry material [in Bahasa]. *AKSIOMA: Jurnal Program Studi Pendidikan Matematika*, *9*(1), 12-20. http://dx.doi.org/10.24127/ajpm.v9i1.2459.

Puspendik. (2019). Report of National Examination results of SMP/MTs year 2018/2019 [in Bahasa]. Jakarta: Kemdikbud. Retrieved from https://hasilun.puspendik.kemdikbud.go.id.

Restian, A., Deviana, T., & Saputri, Y. (2020). Development of students' worksheet based Local Wisdom in Malang for students at grade 4 primary school [in Bahasa]. *Scholaria: Jurnal Pendidikan Dan Kebudayaan*, *10*(1), 85-91. https://doi.org/10.24246/j.js.2020.v10.i1.p85-91.

Setyaningsih, N., Rejeki, S., & Ishartono, N. (2019). Developing realistic and child-friendly learning model for teaching mathematics. *Journal of Research and Advances in Mathematics Education*, *4*(2), 79-88. https://doi.org/10.23917/jramathedu.v4i2.8112.

Usnul, U., Johar, R., & Sofyan, H. (2019). Potential effect of PISA equivalent questions using the context of Aceh Traditional House. *Journal of Research and Advances in Mathematics Education*, *4*(2), 89 – 100. https://doi.org/10.23917/jramathedu.v4i2.8362.

Tessmer, M. (1993). *Planning and Conducting Formative Evaluations.* Philadelphia: Kogan Page.

Zulfah. (2018). Development need analysis of the problem based Local Wisdom [in Bahasa]. *Jurnal Cendekia: Jurnal Pendidikan Matematika, 2*(1), 1-6. https://doi.org/10.31004/cendekia.v2i1.27.

Zulkardi. (2002). *Developing a Learning Environment on Realistic Mathematics Education for Indonesian Student Teachers*. Dissertation. Enschede: University of Twente.