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Developing South Middle Timor Local Wisdom Based Geometry Learning Material To Improve Students' Learning Outcome

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Abstract

Contextual learning is a necessity for elementary school students to understand geometry material studied. This learning model is achievable if the learning components contain contextual approach. However, it was found in fields that textbooks schools used were not in accordance with the context of environment, culture and students' characteristics. Responding this, developing teaching material based on local wisdom which is one of the innovations in the development of teaching material with a contextual approach was considered necessary. This is needed by students to help them as mathematics learning begins from concrete things and on the other side helps preserve local culture, particularly South Middle Timor region. This study aimed to determine the feasibility, practicality, effectiveness and attractiveness of geometry teaching material based on TTS local wisdom. This was a development research using ADDIE model which consists of analysis, design, development, implementation, and evaluation stage. In analysis and design stage, data of students' and teachers' needs of teaching material were collected as well as information about South Middle Timor local wisdom related to mathematics learning and also designing teaching material. In development stage, researcher involved material experts, linguists and media experts in order to produce valid teaching material. In implementation stage, a limited trial was conducted on teachers and students of SD Inpres Lakat, as well as a survey to see subjects' responses on the effectiveness, practicality and attractiveness of teaching material. In evaluation stage, an evaluation and revision of the teaching material final product was undertaken relying on data collected from previous stages. The result revealed that geometry teaching material based on local wisdom was feasible, practical, effective and interesting to be used by students of SD Inpres Lakat, South Middle Timor.

Keywords: Teaching Material, Local Wisdom

INTRODUCTION

Education plays important role to shaping qualified human resources in knowledge, attitudes and skills domains. One of which is to create qualified learning as well. Learning activities are a series of processes that involve many components including teaching material. Teaching material is a means of delivering knowledge, attitudes and skills to students. It is stated by (Divan, 2018) that teaching material is the most important part in learning as the contents will affect students' mindset. If the material is of high quality, students are also continuously conditioned to be of high quality.

Relying on observation results at SD Inpres Lakat, it was found that: first, textbooks issued by the government are mainly used in learning process in which some parts of the material, including geometry, are not contextual. Whereas according to (Samiha, 2020: Laksana, Ngurah et al., 2016; Pratiwi & Wahyudi, 2021), this tends to put students in difficulty as non-contextual learning makes students unable to learn from concrete things available in their enVronment as the nature of primary school students is to learn from concrete to abstract things. The basis is learning from concrete things to abstract things. Second, cultural values are fading as stated by (Syahrul et al., 2019) that students began to forget the values of local wisdom

in East Nusa Tenggara and in fact they tend to proudly adapt to foreign cultures. Therefore, integrating local wisdom in teaching material is a part of implementing contextual mathematics learning, (Farhatin et al., 2020) as well as preserVng local heritage of NTT. Local wisdom is a society's way of life that specifically relates to particular culture. Each ethnic group has local wisdom holding socio-cultural values that must be maintained. This includes education, health, as well as ancestral advice about good deeds to fellow humans, even the nature in which they live.

Responding this, it is necessary to develop mathematics teaching material based on local cultural wisdom to solve these problems. This is because the integration of local wisdom in learning mathematics helps students to connect mathematics learning with real life examples, making it easier for students to understand mathematical concepts students considered abstract and cultivating an understanding of real mathematical concepts (Sintiya et al., 2021). This is also supported by (Ratriana et al., 2021) that in teaching formal mathematics (school mathematics) teachers need to start with informal mathematics learning or things students often encounter in everyday life so as to help them understand the given material easily. In addition, through local wisdom integration in mathematics learning, it is easier for teachers to teach character as character learning is integrated in local wisdom (Nurafni et al., 2020). Thus, (Nurjannah et al., 2021) affirms that in order for students to change their perspective on mathematics as a difficult subject, then teachers can innovate teaching material, one of which is developing local wisdom integrated teaching material.

Furthermore, other benefits gained from developing teaching material based on local wisdom are the heritage can be developed and passed on to young Indonesian generation, it gives education its own characteristics and forms national identity. Therefore, the integration of local wisdom in learning is one way to form a cultured education. This is supported by (Kumala & Difficultyowati, 2016) that developing teaching material based on local wisdom can help culture preservation and avoid shifts in cultural values students adopted.

Several theories and studies have shown the reason for teaching material based on local wisdom as a means of preserVng culture for generations. Studies conducted by (Anggramayeni et al., 2018; Dela et al., 2018; Fitriani et al., 2021; Lestariningsih & Suardiman, 2017; Primasari, Nuhyal, U, Yustiana, n.d.; Putra, 2019; Santoso, 2020; Satriawan & Rosmiati, 2016) reveals that the development of local culture-based teaching material can improve students' actiVties and learning outcomes in mathematics, character, cultural resilience and their literacy.

Based on this description, the researcher conducted a study entitled "Developing Geometry Teaching Material Based on Local Wisdom". This study aimed to determine the feasibility, effectiveness, attractiveness and practicality of product in form of geometry teaching material based on South Middle Timor local wisdom that can is usable as reference material by teachers, students, educational practitioners and other researchers in elementary schools. This research was different from other studies because it integrated local wisdom of South Middle Timor in Geometry learning of Class V Elementary School. This research benefited as reference material for other researchers to develop teaching material for geometry based on local wisdom of South Middle Timor.

RESEARCH METHOD

This study was conducted using research and development (R&D) method. According to Sugiyono (2019), R & D is used to get a product tested for its effectiveness. ADDIE model comprising procedures namely analyze, design, develop, implement, and evaluate was applied in this study. The developed product was geometry teaching material based on South Middle Timor local wisdom in Class V elementary school was put to test for validity by material experts, media experts and linguists. Furthermore, it was distributed to a number of trial subjects, in this case teachers and students of SD Inpres Lakat, South Middle Timor. Data collection technique was

carried out using the initial observation method to identify the need for teaching material based on local wisdom, interview was undertaken to collect data on local wisdom related to contents of class V geometry learning. Then, questionnaire was distributed to linguists, material and media experts to evaluate the material's validity as well as testing the effectiveness and attractiveness of teaching material by teachers and students as users of the teaching material. Furthermore, data analysis was carried out to interpret all research results in descriptions form and then processed into research results. This study applied two types of data analysis which were qualitative and quantitative data analysis. The analytical technique used to analyze qualitative data was descriptive analysis. It was used to analyze data from interviews, observations, criticisms and suggestions from experts, teacher and students. It was aimed to classify information from qualitative data in form of criticism, suggestions, and responses. The analysis result fumctioned as a reference for improVng or revising the teaching material product based on local wisdom of South Middle Timor. Furthermore, quantitative data analysis was used to process the assessment data from experts, student responses, and teacher responses obtained using questionnaire. The experts who were asked to become validators were Elementary School Teacher Education Program lecturer specializing in mathematics at Nusa Cendana University, linguistics lecturer at Citra Bangsa University and Informatics Education Lecturer at Citra Bangsa University. The evaluation stage was carried out to fulfill the need for product revision and determining the feasibility of the final product.

In detail, this procedure started from the first stage, analyze, which was carried out for needs analysis. In general, it included seeking information about student characteristics, conducting interviews with classroom teachers to determine teaching material suitable with student characteristics, analyzing mathematical contents relevant to local wisdom of South Middle Timor, collecting teaching material available on the market as supporting resource.

Then in design stage, design of the teaching material was created. The design was formed by observing problems and then finding solution based on problem analysis. This phase aimed to prepare a teaching material design developed by creating a format from the start to the end of learning. In the third stage which was development, a teaching material draft that had been revised based on expert input was produced so that they could be tried out on students. Several things were done at this stage consisting of instrument validation, in which the designed instrument in previous stage was validated in order to measure the developed teaching material validity. The next step was product validation which was used to determine the developed teaching material feasibility. Design validation was a process of assessing product design. The product was validated by 2 experts to assess whether the product was feasible or not. In implementation stage, the obtained data from observations was processed into descriptive qualitative data, so it could help as reference in order to improve the developed product. In this phase, pretest and posttest were also administered to students before and after being treated using geometry teaching material based on local wisdom of South Middle Timor to find out if there was an increase in learning outcomes.

RESULT AND DISCUSSION

The result of this study was grade V local wisdom based geometry teaching material. It was the final product of analyze, design, development, implement, and evaluate stages of this research.

a. Analyze

Several activities, including analysis of students' characteristics, need analysis of teaching material suitable for their characteristics, and analysis of local wisdom of South Middle Timor which were relevant to geometry material were done in this phase.

1. South Middle Timor Local Wisdom Relevant to Geometry Material Content

The result of South Middle Timor local wisdom context which could be integrated in Geometry Topic of mathematics (prism, cylinder,

pyramid, cone and circle) in Grade V is presented in Table 1.

Table 1. South Middle Timor Local Wisdom Context

No	South Middle Timor Local Wisdom Context
1.	Bitel nut container "Oko'Mama" in form of hexagonal and quadrangle prism.
2.	Chalk container "Kal Ao" and money container "ok tuke" in form of cylinder
3.	Mollo tribe's saucer Tuke'
4.	Cone shaped food cover "tobe"
5.	Cone shaped traditional house "Ume-Kbubu"
6.	Pyramid shaped roof of the regent's office
7.	Circle shaped giring – giring accecories
8.	Half circle shaped plate made from coconut skin

2. South Middle Timor Local Wisdom Based Mathematics Geometry Teaching Material Characteristics

Geometry teaching material based on local wisdom of South Middle Timor could be material references that teachers and sixth grade students at SD Inpres Lakat utilized in studying geometry that was relevant the local cultural context. Its availability helped students understand the topic easier as they encountered these things on daily basis. Characteristics of the designed teaching material were:

1) Describing learning objectives of geometrical topic that teachers and students could useas guideline in studying the material.
2) Directing students to follow four steps of scientific approach, namely observing, asking, reasoning and trying and communicating.
3) Material and examples in observing, asking, reasoning and trying and communicating phases were directed to South Middle Timor local wisdom in order to encourage students to open up their insight first with material and examples of TTS local wisdom objects that were related to elements of geometry.
4) Students were given problems related to TTS local wisdom to be solved by them. This enabled student learning process more meaningful and helped them deepen their understanding of the material.

b. Design

At design stage, initial design of teaching material consisted of cover, material, evaluation and layout were made. The material, examples and tasks designed in this teaching material were linked to the local wisdom of South Middle Timor. Below is the initial cover design from the teaching material of geometry.

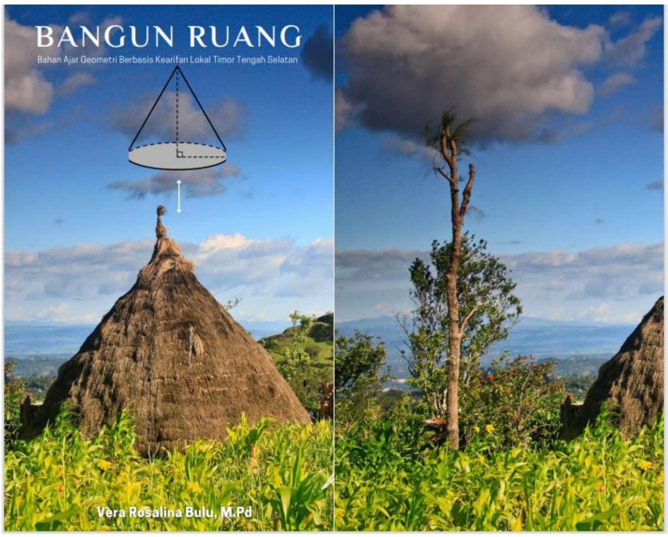
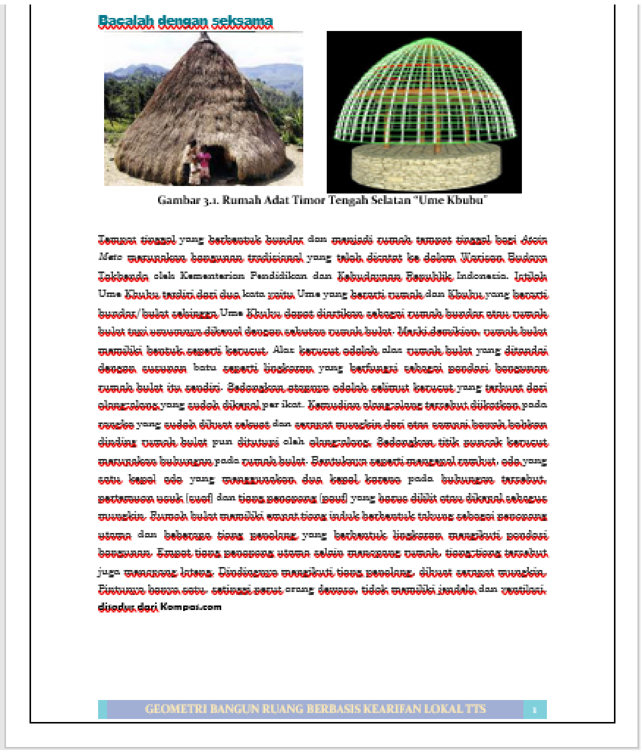


Figure 1:Front and Back Cover Layout



Bacalah dengan seksama

Gambar 3.1. Rumah Adat Timor Tengah Selatan "Ume Kbubu"

Tempat tinggal yang berbentuk bundar dan menjadi rumah tempat tinggal bagi Atoin Meto merupakan bangunan tradisional yang telah dicatat ke dalam Warisan Budaya Takbenda oleh Kementerian Pendidikan dan Kebudayaan Republik Indonesia. Istilah Ume Kbubu terdiri dari dua kata yaitu Ume yang berarti rumah dan Kbubu yang berarti bundar/bulat sehingga Ume Kbubu dapat diartikan sebagai rumah bundar atau rumah bulat tapi umumnya dikenal dengan sebutan rumah bulat. Maski demikian, rumah bulat memiliki bentuk seperti kerucut. Alas kerucut adalah alas rumah bulat yang ditandai dengan susunan batu seperti lingkaran yang berfungsi sebagai pondasi bangunan rumah bulat itu sendiri. Sedangkan atapnya adalah selimut kerucut yang terbuat dari alang-alang yang sudah dikepal per ikat. Kemudian alang-alang tersebut diikatkan pada rangka yang sudah dibuat sekuat dan serapat mungkin dari atas sampai bawah bahkan dinding rumah bulat pun ditutupi oleh alang-alang. Sedangkan titik puncak kerucut merupakan hubungan pada rumah bulat. Bentuknya seperti mengepal rambut, ada yang satu kepal ada yang menggunakan dua kepal karena pada hubungan tersebut pertemuan usuk (suaf) dan tiang penopang (niuf) yang harus dililit atau dikepal sebagus mungkin. Rumah bulat memiliki empat tiang induk berbentuk tabung sebagai penopang utama dan beberapa tiang penolong yang berbentuk lingkaran mengikuti pondasi bangunan. Empat tiang penopang utama selain menopang rumah, tiang-tiang tersebut juga menopang loteng. Dindingnya mengikuti tiang penolong, dibuat serapat mungkin. Pintunya hanya satu, setinggi perut orang dewasa, tidak memiliki jendela dan ventilasi. diadur dari Kompas.com

GEOMETRI BANGUN RUANG BERBASIS KEARIFAN LOKAL TTS 1

Figure 2:Teaching Material Preface Layout

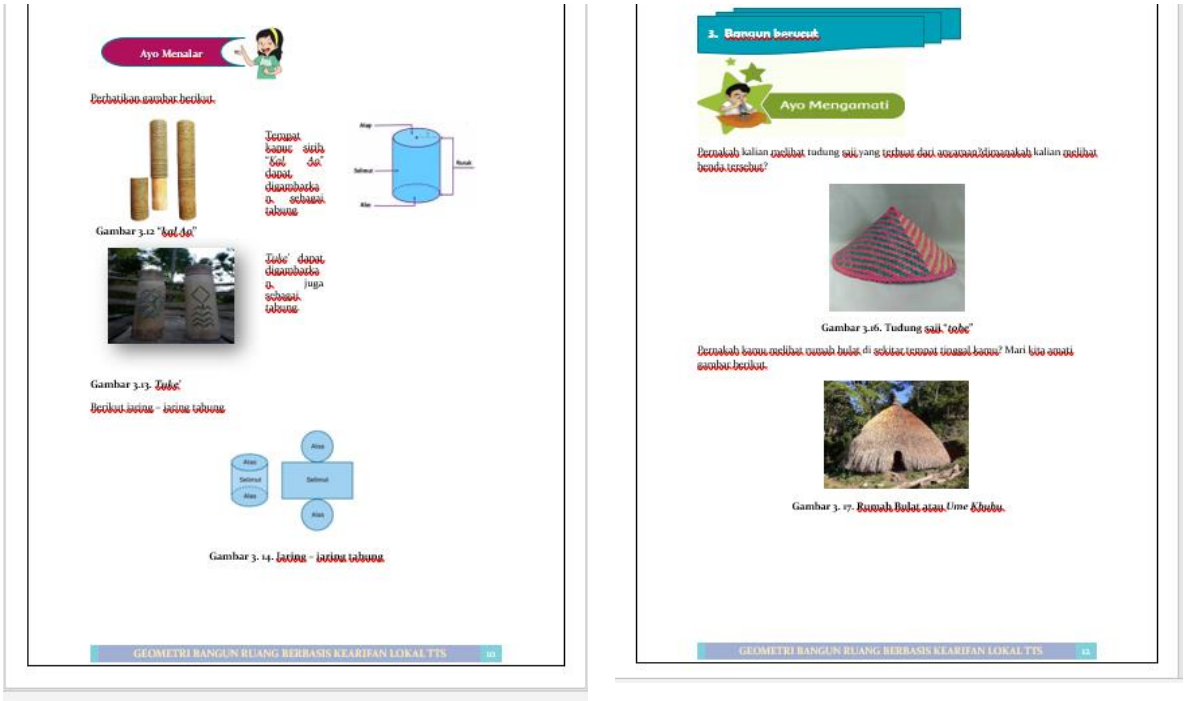


Figure3:Local Wisdom Based Teaching Material Layout

c. Development

In development phase, the developed product was teaching material for geometry based on local wisdom of South Middle Timor. Products were printed like textbooks that could be used by elementary school teachers, especially teachers of SD Inpres Lakat, Timor Tengah Selatan. This product was developed with the expectation of helping students understand geometry through contextual learning. On the other hand, this teaching material was expected to preserve the local culture of South Middle Timor among elementary school students through mathematic learning.

During this stage, the researcher searched for and collected all supporting references needed for development of geometry topic. Supporting references were obtained through interviews with South Middle Timor cultural activists, articles on the relationship between mathematics learning and local cultural content of South Middle Timor. Experts involved in the development of geometry teaching material product were media experts, linguists and material experts. Researcher provided teaching material products that had been designed to the experts to be examined. Then, the researcher revised the developed product based on the given input.

Table 2. Validation Result of Material Expert

Validator	Evaluation Aspects	Score	Statement	Percentage(%)	Criteria
Material Expert	Content Feasibility	38	12	79.16%	Feasible

	Presentation feasibility	18	6	75%	Feasible
Media Expert	Book Content	89	28	79.46%	Feasible
Linguist	Legibility	25	8	78.12%	Feasible

In Table 2, validation results of assessment by material experts showed that teaching material based on local wisdom of South Middle Timor met eligibility criteria for content and presentation with 77.78%. Moreover, the result also revealed that teaching material based on local wisdom of South Middle Timor met the criteria of book content aspect with the percentage obtained was 79.46% and by linguists showed that teaching material based on local wisdom of South Middle Timor met the legibility aspect with the percentage obtained was 78.12%. Thus, it could be assumed that teaching material based on local wisdom of South Middle Timor was categorized suitable for use in learning geometry.

Besides providing assessment on the teaching material, the validators also gave comments and suggestions as presented in Table 3.

Table 3. Comments and Suggestions of Material, Media Expert and Linguist Validators

Validators	**Comments and Suggestions**
Material	1. A guideline of teaching material based on local wisdom should be designed for teachers and parents. 2. Revise several terms so the content is understandable. 3. The use of teaching material should be more consistent.
Media	1. Pay attention to the use of too various font types. 2. Pay attention to figures placement in teaching material cover to give good impression.
Language	1. Add laku tobe, a pyramid shaped special cuisine of Timoreses as example. 2. Add ke'e (drum), a cylinder shaped musical instrument used in giring-giring dance 3. Be consistent in using apostrophe on Dawan terms for pronunciation.

d. Implement

Moving to implementation stage, a trial process of teaching material for geometry based on South Middle Timor local wisdom was carried out. The limited trial was carried out in class V SD Inpres Lakat with a total of 20 subjects. It was carried out to observe teachers and students responses to the

developed teaching material. The result of the class V teacher responses is presented in the following table.

Table 4. Mathematic Teacher Responses

Respondent	Assessment Aspects	Total Score	Statements	Percentage	Category
Mathematic Teacher	Effectiveness and Practicality	85	17	76.47%	Good

Based on the table, data of mathematics teacher responses were collected regarding the effectiveness and practicality of the developed teaching material. The total score obtained from the teacher's response questionnaire was 65 out of a total score of 85. The percentage of teacher's response questionnaire was 76.47% with a good category. This indicated that geometry teaching material based on South Middle Timor local wisdom was effective and practical to be used by sixth grade teachers of SD Inpres Lakat, TTS.

On the other hand, questionnaires were also distributed to class V students to examine the effectiveness and attractiveness of teaching material based on local wisdom of South Middle Timor. The result of the class V students' responses can be seen in the following table.

Table 5. Students' Responses

Respondents	Assessment Aspects	Total Score	Statements	Percentage (%)	Category
Students	Effectiveness and Attractiveness	85	17	77.64%	Good

As presented on the table, the collected data were student responses to the effectiveness and attractiveness of the developed teaching material. The score of student response questionnaire was 66 out of a total score of 85. The percentage of student response questionnaire was 76.47% with a good category. This result also indicated that the teaching material of geometry was effective and interesting to be used by grade V students of SD Inpres Lakat, TTS.

e. Evaluate

The evaluate stage was carried out to get a final product suitable for use by teachers and sixth grade students at SD Inpres Lakat, TTS. Relying on evaluation results, several points of the teaching material based on TTS local wisdom were revised, including the use of terms students understood more easily, more consistency in term usage, writing format that needed to be considered such as inconsistent font types, the use of capital letters, and the addition of local wisdom concept in cylinder and pyramid submaterial. After being revised, the product was returned to validators for final review.

In addition, data of pretest and posttest results was analyzed including prerequisite analysis which covered normality test, homogeneity test, and linearity test. Then, hypothesis (t-test) and the average increase (n-gain) tests were undertaken.

1. Early Data Analysis

a. Normality Test

The result of pretest and posttest normality was tested using SPSS version 16.0. This test is used as a parametric calculation requirement to find concluding hypothesis on

t-test. The criterion in this normality test is if the output sig. is > 0.05, it means that the data comes from a normally distributed population. The output of normality test using Kolmogrov-Smirnov from SPSS can be seen in Table 6. Normality Test

Table 6. Normality Test

		Unstandardized Residual
N		20
Normal Parameters	Mean	.0000000
	Std. DeVation	7.67044961
Most Extreme Differences	Absolute	.176
	Positive	.176
	Negative	-.075
Kolmogorov – Smirnov Z		.754
Asymp Sig (2 – tailed)		**.337**

Based on calculation result in Table 6, the data had a significant value of 0.337. Therefore, the significant value was > 0.05 which led to the conclusion that the pretest and posttest data were normal. Normal data implied that empirical data collected from the field was in accordance with normal distribution. Normally distributed data in data processing could be continued by measuring the influence or relationship.

b. Homogeneity Test

Homogeneity test is used as a reference material to determine statistical test decisions. Test of Homogeneity of Variances SPSS Version 16.0 program was used for homogeneity test in this study. The output of the test is presented in Table 7. Homogeneity Test

Table 7. Homogeneity Test

Leaning Output			
Levene Statistic	df1	df2	Sig
2.373	6	14	**0.142**

As shown in Table 7 regarding the result of homogeneity test, the significant value of pretest and posttest groups was 0.142, in which 0.142 > 0.05. Thus, it could be declared that the pretest and posttest groups came from similar variance populations.

c. Linearity Test

Linearity test is used to determine whether the obtained regression is "meaningful" if it is used to draw conclusions between variables being analyzed. The linearity test in this study was run using One-Way Anova SPSS Version 16.0 program. The output of linearity test can be seen in Table 8. Linearity Test

Table 8. Linearity Test

			Sum of Squares	df	Mean Square	F	Sig.
Aggressiveness Religiousness	Between Groups	(combined)	210.542 64.247	6 1	42.224 64.247	.453 .622	.687 .404

		Linearity	149.287	3	36.474	.401	.801
		Deviation from Linearity					
	Within groups		1287.557	14	92.474		
	Total		1711.633	19			

The linearity test is declared linear if the result > 0.05. As Table 8 shown, the significance value between pretest and posttest was 0.801, in which 0.801 > 0.05. Based on the calculation results, it could be declared that the relationship between pretest and posttest variables was linear.

2. Hypothesis Test

Hypothesis testing is performed to determine whether there is an effect before and after being given treatment or not. In this study, the researcher used parametric statistics as the data were normally distributed and the type of data was interval. In this testing, the results were processed using SPSS. A t-test was conducted when the conclusion of normality test stated that pretest and posttest scores were normally distributed. The effect of South Middle Timor local wisdom based teaching material on geometry learning outcomes could be seen from the difference in average scores of pretest and posttest. If the sig value (2-tailed) > 0.05, then Ho was rejected and Ha was accepted. On the other hand, if the value of sig (2-tailed) < 0.05, then Ho was accepted and Ha was rejected.

Ho = There was no influence in the use of geometry teaching material based on TTS local wisdom on mathematics learning outcomes of V grade students.

Ha = There was an influence in the use of geometry teaching material based on South Middle Timor local wisdom on mathematics learning outcomes of V grade students.

The t-test results can be seen in Table 9.

Table 9. T-Test Result

		Paired Differences							
					95% Confidence Interval of the Difference				
		Mean	Std. DeVation	Std. Error Mean	Lower	Upper	t	df	Sig. (2-tailed)
Pair 1	Pretest Posttest	-2.045151E1	9.14562	2.04447	-24.48745	-16.07564	-10.054	19	**.000**

Based on calculation result shown in Table 9, the value of sig (2-tailed) 0.000 <0.05 indicating that there was significant difference between pretest and posttest result. It could be concluded that geometry teaching material based on local wisdom had an effect on grade V students learning outcomes.

3. Average Increase Test Result (N- Gain)

Average increase test was carried out to calculate initial test with a test using gain index analysis. The

used gain is normalized gain (N-gain) acquired from comparing difference in pretest and posttest score with difference between the ideal score and pretest score. The result of average increase (n-gain) test is presented in

Table 10.

Table 10. N-gain Average

Criteria	Score
Pretest average	64,34
Posttest average	86,42
Differences	22.08
Gain score	0,5902
Gain Index Criteria	High

Based on Table 10, n-gain of 0.5902 was in high category, the average learning outcome obtained from pretest had increased by 22.08, from 64.34 to 86.42. Thus, teaching material based on local wisdom was effective in learning mathematics for geometry topic for fifth grade students of SD Inpres Lakat, South Middle Timor.

DISCUSSION

The results showed that teaching material based on local wisdom of South Middle Timor was interesting, effective and practical for teachers and students of SD Inpres Lakat to use. It implied that learning process that was in accordance with local cultural context enabled students to understand the provided material well. Students understand materials better if the content includes things students often encounter in their daily life. It is also suggested by (Satriawan & Rosmiati, 2016) that using contextual approach to teaching material can create meaningful learning and students can understand material ranging from concrete to abstract things. In addition, a learning process with teaching material based on local wisdom TTS makes more varied learning and increases student motivation. This is in line with (Lestariningsih & Suardiman, 2017) who stated that the existence of teaching material based on local wisdom can improve student motivation in learning as it contains things that students often encounter in everyday life but have something to do with mathematics learning. This is unique to the students who study it. It is further supported by (Satriawan & Rosmiati, 2016) that integrating local wisdom into learning can lead to innovation and new ideas in learning. In addition to its benefits in learning mathematics, students can learn noble values embedded in local wisdom at the same time. This leads to strengthening their cognitive and affective domains.

In relation to learning mathematics using South Middle Timor local wisdom, this learning approach is recommended to be implemented by teachers who understand the local wisdom well so each material can be delivered and accepted properly.

1. Local Wisdom Based Geometry Teaching Material Feasibility

The feasibility assessment of geometry teaching material based on local wisdom of Amanuban tribe developed by researcher could be identified through expert validation on the teaching material. The quality assessment of geometry teaching material based on local wisdom was identified through validation by material, language, and media experts. Material experts validation was guided by assessment instrument prepared by BSNP. The instrument contained content and presentation feasibility. Moreover, language validation contained legibility aspects of geometry teaching material based on TTS local wisdom and media validation contains aspects of legibility. Material and language validation aimed to determine

feasibility of material and language content contained in the satial geometry teaching material based on TTS local wisdom appropriate with elementary school students' level of understanding. Material expert validation on geometry teaching material based on local wisdom developed by researcher for the content feasibility aspect was 79.16% in appropriate category and presentation feasibility was 75% in appropriate category. Besides, the percentage of media expert validation on the teaching material based on local wisdom in book content aspect was 79.46% in appropriate category and the result of media expert validation in legibility aspect was 78.12% in legible category. Relying on this review, it indicated that all teaching material aspects in general had been fulfilled in geometry teaching material based on local wisdom of Amanuban tribe. Thus, a conclusion could be drawn that geometry teaching material based on local wisdom for V grade students of SD Inpres Lakat, South Middle Timor was suitable for use in learning geometry of mathematics subjects

2. Local Wisdom Based Geometry Teaching Material Attractiveness and Practicality

Assessment of attractiveness and practicality of teaching material based on local wisdom South Middle Timor developed by researchers was presented through the results of teacher and student responses. Response questionnaire was distributed to teachers and students to check their responses on the developed teaching material. The researcher gave a response questionnaire to the teacher after observing learning process using the local wisdom integrated teaching material.

Based on the fifth grade teacher of SD Inpres Lakat response after carrying out learning using geometry teaching material product based on local wisdom of South Middle Timor. Overall, the teacher responded positively to the questions in teacher's response questionnaire. According to the teacher, it was a teaching material that promote students' enthusiasm and interest in learning to know local culture. The cause was the content of teaching material based on local wisdom that could accommodate students thinking stages from concrete to abstract. Likewise, the results of student response questionnaire at SD Inpres Lakat revealed that all of them gave positive responses to all teaching material aspects. Those questionnaires were distributed to 20 students after participating in the product trial. Their responses were used by researchers as corrections if there was no answers from students. The percentage of their responses to the teaching material was 77.64% in good category. Thus, it could be concluded that teaching material based on local wisdom of South Middle Timor was interesting and practical to use in geometry topic of mathematic subject in the fifth grade at SD Inpres Lakat Elementary School, South Middle Timor.

3. Local Wisdom Based Geometry Teaching Material Effectiveness

The effectiveness of geometry teaching material based on local wisdom was identified through the improvement of student learning outcomes presented in pretest and posttest scores. Pretest scores were collected prior to implementation of the geometry material learning using teaching material based on local wisdom of South Middle Timor meanwhile posttest scores were obtained after implementing local wisdom based teaching material in geometry topic of mathematic learning. Based on the data, the pretest score average score was 64.34 whereas the average score of posttest was 86.42. This implied that there was an improvement in the average score of pretest and posttest with 22.08 point difference and N Gain of 0.5902 with high criteria. Consequently, the use of geometry teaching material based on South Middle Timor local wisdom in grade V SD Inpres Lakat was effective in improving their learning outcomes.

CONCLUSION

Based on results of the study, it can be concluded that geometry teaching material based on local wisdom of South Middle Timor sas feasible to use. This statement was based on the validation results by material experts who showed that teaching material based on local wisdom of South Middle Timor met the eligibility criteria for content and presentation with a percentage of 77.78%. Furthermore, the validation results by media experts that teaching material based on local wisdom of South Middle Timor met the criteria of content aspect of the book with the percentage of 79.46% and additionally by linguists showed that teaching

material based on local wisdom of South Middle Timor met the legibility aspect with the percentage of 78.12%. Thus, it could be concluded that geometry teaching material based on South Middle Timor local wisdom was categorized suitable for use in learning. Moreover, based on mathematics teachers and students responses to measure effectiveness, attractiveness and practicality, the percentages were 76.47% and 77.64% respectively, in good category. It also showed that teaching material based on local wisdom of South Middle Timor was effective, practical and interesting for use by teachers and students at SD Inpres Lakat, South Middle Timor. The results indicated that the existence of learning that is in accordance with local cultural context helped students understand well the provided material. Learning mathematics that was considered abstract and difficult to understand became easier for students to understand since the explanation of the material began from simple things. This confirmed that contextual approach through the development of geometry teaching material based on local wisdom of South Middle Timor could facilitate learning mathematics while increasing students' motivation to learn mathematics. In addition, it turned into a means of preserving the local culture of South Middle Timor among the students.

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