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Developing RME-based Mathematics Textbook to Improve Students' Numeracy Skills and Learning Motivation

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Abstract. Referring to PISA 2015 and 2018 data, Indonesian students' mathematics skills, especially numeracy skills, are lower than the global average score. One effort that can be made to improve students' numeracy skills and learning motivation is the development of mathematics textbook based on Realistic Mathematics Education (RME) with relevant contexts that students can imagine. So, this study aims to develop RME-based mathematics textbook to improve students' numeracy skills and learning motivation using the context of Nai Marbittang, one of the popular folklores in South Tapanuli, North Sumatra, Indonesia. The researchers used the ADDIE development model to develop textbook while assessing its validity through expert validation sheets, practicality through questionnaires, and effectiveness through motivation questionnaires and numeracy tests. Through this study, the products developed were proven to be valid, practical, and effective in improving students' numeracy skills and learning motivation so it can be used more widely, especially on the Pythagorean theorem topic. Other researchers can also utilize folklores on various mathematics topics to improve students' numeracy and learning motivation.

Keywords*:* Folklores; Learning Motivation; Mathematics Textbook; Numeracy Skills; Realistic Mathematics Education

Abstrak. Merujuk pada data PISA 2015 dan 2018, kemampuan matematika siswa Indonesia khususnya numerasi lebih rendah dari rata-rata skor global. Salah satu upaya yang bisa dilakukan untuk meningkatkan numerasi sekaligus motivasi belajar siswa adalah pengembangan buku teks matematika berbasis Realistik Mathematics Education (RME) dengan konteks yang sesuai dengan pengetahuan dan pengalaman siswa. Penelitian ini bertujuan mengembangkan buku teks matematika berbasis RME untuk meningkatkan kemampuan numerasi dan motivasi belajar siswa dengan menggunakan konteks Nai Marbittang, salah satu cerita rakyat yang popular di Tapanuli Selatan, Sumatera Utara, Indonesia. Peneliti menggunakan model pengembangan ADDIE untuk mengembangkan buku teks sekaligus menilai validitas melalui lembar validasi oleh ahli, praktikalitas melalui angket kepraktisan, dan efektifitas melalui angket motivasi dan tes numerasi. Melalui penelitian ini, produk yang dikembangkan terbukti valid, praktis, dan efektif dalam meningkatkan numerasi dan motivasi belajar siswa sehingga dapat digunakan secara lebih luas khususnya pada topik teorema Pythagoras. Peneliti lain juga dapat memanfaatkan cerita rakyat pada berbagai topik matematika untuk meningkatkan numerasi dan motivasi belajar siswa.

Kata kunci: Buku Matematika; Cerita Rakyat; Numerasi; Motivasi Belajar; RME

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INTRODUCTION

Mathematical literacy is a fundamental skill and important. Watson (2002) and Steen et al. (2007) also stated that mathematical literacy was one of key objectives in school. Mathematics teaching in schools aimed to supply students with mathematical literacy skill to use and apply in real life conditions happening outside school (Sumirattana et al., 2017). Another important thing is motivation. Motivation is an need to be pushed to take action in order to accomplish specific goals (Maisaroh & Trisnawati, 2021). Student conduct may be changed by motivation in the form of extrinsic and intrinsic rewards (Rismaratri & Nuryadi, 2017). Maximal learning outcomes can be supported by high motivation (Mujawal et al., 2018). However, students' mathematical skill are relatively poor according to TIMSS in 2015. PISA in 2018 also stated that Indonesian mathematics score is low from global score.

Books as a learning resource have a very important role in motivating students, including learning mathematics. Good picture books can motivate readers to read math books (Desi & Lumbantoruan, 2020). Research development based on local stories on mathematics by Marwanti & Sumilah (2022) has been proven to motivate students to think more deeply about mathematic. Additionally, research development based on local wisdom for junior high school students conducted by Farhatin et al. (2020) has been proven to motivate students in learning mathematics. The book was developed as an effort to increase the learning treasures of students (Mulyasa, 2013). Books help teachers to convey learning to students so that learning goals are achieved (Suryanda et al, 2020). In general, there are two types of books, namely textbooks and non-text books. Textbooks are books that are prepared based on national education standards and the curriculum that applies in Indonesia, while non-textbooks are enrichment books, references or guides that present learning to develop the attitudes, knowledge and abilities of students and teachers (Kosasih, 2021). Non-text books have a function as media or literacy supplements as well as broadening knowledge and increasing insight (Aprianto et al., 2021). This book is certainly needed in learning mathematics.

Textbooks in schools are complex books, but this condition makes it difficult for students to understand (Desi & Lumbantoruan, 2020). Mathematics books in schools are also limited, not yet varied and only student textbooks (Fitri et al., 2019). Furthermore, Indonesian mathematics textbooks as a whole are still not suitable for international mathematics framework like TIMSS (Pertiwi & Wahidin, 2020). Similar conditions were found at South Tapanuli. Based on observations at school, the textbooks used by students to learn mathematics only come from one book and there are no other companion books. The results of the analysis of the book in terms of quality standards are the content of the book contains complex but monotonous material, examples and exercises and few of them are relevant to daily life, the presentation of the book is neat and structured but there is no difference in

learning treatment between one material and another, and the design and graphics of the book are neat and clear but the color gradations are limited.

This book is a book provided directly by the school. The book contains complex learning. However, sometimes students find it difficult to understand the mathematics book lessons so they need to be explained repeatedly. Learning has been carried out using the lecture and discussion model. The teacher had never used a mathematics book other than that one book. The activities in the book are still minimally connected to activities in the real world. This lack of activity results in students being less trained in applying and utilizing mathematical concepts learned at school to solve problems in the real life. However, mathematical literacy focus on how to use mathematics in real life (Sumirattana et al., 2017). In line with the research of Nurrohmah & Mardiyana (2023) that mathematics connected to the real life has a very good effect on improving students' numeracy literacy skills. Apart from that, mathematics connected to the real life has a good effect on students' learning motivation (Rismaratri & Nuryadi, 2017; Syahriza et al., 2023).

Based on the problems above, researchers realized that there was a need to develop mathematics books to improve students' numeracy literacy skill and student motivation. One way is by using RME (Realistic Mathematic Education). Mathematics education was called 'realistic' is not just because of its connection with the real life, but is related to the emphasis that RME puts on offering the students problem situations which they can imagine (Van den Heuvel-Panhuizen, 2000). The contents of this book were developed following Gravemeijer (1994) who stated that there are three principles of RME and five characteristics of RME. RME is designed to bring mathematics closer to students (Syahriza et al., 2023). This learning starts from a real problem and is then taken to formal form through a mathematical process (Sulastri et al., 2017; Wahyuni et al., 2019; Yusmaniar, 2017). This learning emphasizes situations that students can imagine (Syahriza et al., 2023). Folklore is potential combine to RME. Potential of folklore from the area where the school originates, namely South Tapanuli. One of potential of folklore, the tittle is "Nai Marbitang" because this folklore famous in society. Potential of folklore can be utilized as an introduction medium in mathematics. Three principles of RME, namely didactical phenomena, guided discovery, and development of mathematical models. Another things, there are five characteristics of RME, namely use of context, use of models, utilization of student work and construction results, interactive learning, and linkage with other knowledge.

The first characteristic is the use of context, so the context used is the Nai Marbittang folklore. Potential of folklore from the area where the school originates, namely South Tapanuli. One of potential of folklore, the tittle is "Nai Marbitang" because this folklore famous in society. Potential of folklore can be utilized as an introduction medium in mathematics. Popular folklore can serve as an introduction to mathematic (Marwanti & Sumilah, 2022). Developing book based on folklore can

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help teacher to deliver more contextual learning for student (Mahpudin & Yuliati, 2019). Another thing, Designing and developing book can help include local knowledge values into mathematic (Farhatin et al., 2020). Developing book based on folklore has the virtue of preserving local cultural wisdom (Hidayat et al., 2021). In line with research by Arsaythamby & Zubainur (2014) found that mathematics teaching and learning can be more effective and meaningful with RME approach. Based on the description above, the topic of this research is development of mathematics books by using RME to improve the numeracy literacy skill and student motivation. The quality of the book to be developed must meet the criteria of being valid, practical and effective (Van den Akker et al., 2007). Therefore, this research aims to analyze validity, find practicality, and test the effectiveness of mathematics books in improving numeracy literacy skill and student motivation.

METHOD

Kind of research is research development with ADDIE model. ADDIE process is analyze, design, development, implementation, and evaluation. The analysis phase is the initial step. Researchers conducted field inspections of the curriculum, learning resources, textbooks, and classroom circumstances at this point. The second step is design that needs to guide researcher when developing product. Products designed according to data analysis. As part of the design process, a preliminary product concept is developed, and appropriate media is identified for product development. The third step is developing product. At this point, products are designed according to the initial concept of the product. Fourth step is implementation namely products are verified by experts and a product trial process that has been developed is carried out in small and large groups. The last step is evaluation namely a process of evaluating a product determines whether it is finished or needs revisions. The ADDIE model show in the Figure 1.

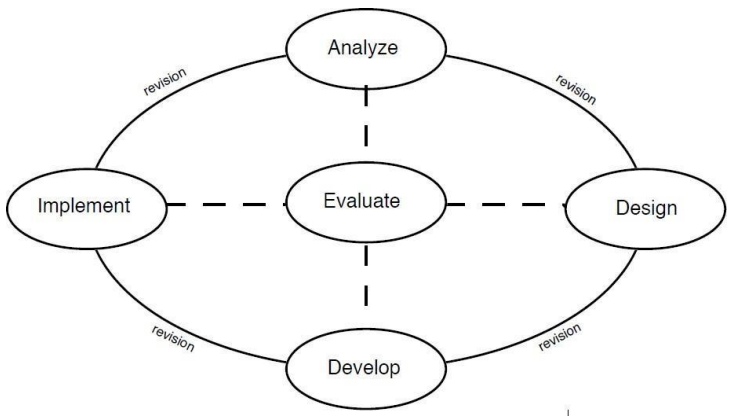

Figure 1. ADDIE Model

This research was conducted at a private Islamic junior high school in Sipirok, South Tapanuli, North Sumatera. Development research was carried out during 2023/2024 academic year. The

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research population was eighth-grade students. Samples are involved during the implementation process or product testing. The independent variables in this research are mathematics books and the dependent variables are numeracy literacy abilities and students' learning motivation. The instruments of this research are expert validation sheets, practicality questionnaires, motivation questionnaires, pre-tests and post-tests. The validation process was carried out by mathematic experts and media experts who are postgraduate mathematics education lecturers at Universitas Negeri Medan.

The aspects of mathematic expert assessment include appropriateness of content, appropriateness of language, and appropriateness of presentation, while aspects of media expert assessment include integration, balance, font format, color, and language. The pretest and posttest used are the same in context and only differ in numbers. The mathematic topic used is Pythagorean Theorem. The pretest and posttest are designed to measure numeracy literacy skills with the following three indicators as Table 1.

Table 1. Indicators of numeracy literacy skills (adaptated from Han et al., 2017)

Indicators of numeracy literacy skills	Number of test
Analyzing information (figure, table, etc).	1, 2,3,4,5
Using numbers and symbols related to solve mathematic problems in daily life	1, 2,3,4,5
Interpreting results of the analysis to predict and make decisions	1, 2,3,4,5

Data analysis for this research is the average test, paired t test, and descriptive analysis. This research aims to analyze validity, find practicality, and test the effectiveness of mathematics books in improving numeracy literacy skill and student motivation. The requirement as Table 2.

Table 2. Book Criteria

Book criteria	Requirement
Valid	- The results of mathematics expert assessment at least good - The results of media expert assessment at least good
Practical	- The result of average practicality at least good
Effective	- The result of pretest posttest has significant different value - The result motivation questionnaires has significant different value

RESULT AND DISCUSSION

Analyze

First, the results of analysis to curriculum, teaching topics, textbooks and student conditions. The curriculum used at school was the 2013 curriculum. The teaching topics in second semester of eighth-grade was Pythagorean Theorem. This topic was chosen because it can be related to everyday life. There are three learning outcomes, namely students are expected to be able to understand the Pythagorean Theorem, students are expected to be able to determine the length of a right triangle if the lengths of two sides are known, and students are expected to be able to apply the Pythagorean

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Theorem to solve real problems in real life. Students need books other than school textbooks as enrichment books which function to increase knowledge and broaden insight (Dewayani, 2018). Meanwhile, the textbooks used by students to study mathematics only come from one textbook and there are no other companion books. The textbooks in schools are complex books but difficult for students to understand (Desi & Lumbantoruan, 2020). This condition shows that students have minimal book references in learning mathematics. The activities in the book are still minimally connected to activities in the real world. This lack of activity results in students being less trained in applying and utilizing mathematical concepts learned at school to solve problems in the real life. However, mathematical literacy focus on how to use mathematics in real life (Sumirattana et al., 2017). In line with the research of Nurrohmah & Mardiyana (2023) that mathematics connected to the real life has a very good effect on improving students' numeracy literacy skills. Apart from that, mathematics connected to the real life has a good effect on students' learning motivation (Rismaratri & Nuryadi, 2017; Syahriza et al., 2023).

The results of literacy numeracy test and motivation questionnaires show that students less motivation to learn and their numeracy literacy abilities are low. The results of distributing motivation questionnaires to 26 students showed that the average score of all students was 22.54 out of a maximum score of 50 in the poor category. The results of the student motivation questionnaire can be seen in the bar diagram in Figure 2.

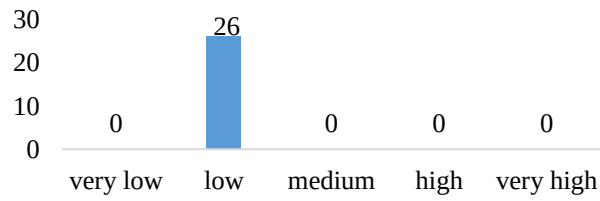

Figure 2. Result of Motivation Questionnaire

Motivation is an impulse that forms a conscious effort to do something and get a specific goals (Maisaroh & Trisnawati, 2021). The results of the motivation questionnaire in Figure 2 showed that all students were not motivated in learning mathematics. The results of the analysis of the motivation questionnaire show that students are less serious about reading existing mathematics books. Students are also not enthusiastic about understanding mathematics lessons and students are not interested in working on the questions in the book. Students are also not enthusiastic about discussing.

Analysis of the problems in this research, the researcher believes that there is a need to develop mathematics books for these students. In reality, the books provided by schools have not been able to encourage students to be motivated to learn mathematics. Therefore, there needs to be new ideas in learning mathematics. One way is by utilizing the potential of regional folklore in Sipirok, where the school located. The Sipirok area has a variety of folk tales that are famous in the community.

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Folklore that is very familiar in society. This folklore can be used as an introductory medium for mathematics learning. Another thing, learning resources must be able to improve students' numeracy literacy abilities (Kustantina et al., 2021). In mathematics, the ability to use numbers, data and mathematical symbols related to solving mathematical problems is called numeracy literacy abilities (Rezky et al., 2022). Another thing, numeracy literacy is an ability to comprehend problems, apply mathematic to solve problem, and articulate how to do (Maulidina & Hartatik, 2019). Numeracy literacy defined as rational thingking ability and important ability in mathematic (Ekowati et al., 2019). However, conditions in reality are the opposite. The results of the test on the numeracy literacy abilities of 26 students showed that 19.23% of students were in the very low category, 46.15% of students were in the low category and 34.62% of students were in the medium category. Meanwhile, students in the high and very high score categories are 0% or none. The test results can also be seen in the bar diagram in Figure 3.

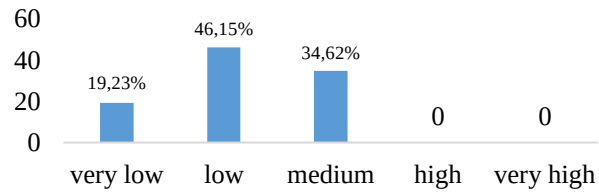

Figure 3. Result of Literacy Numeracy Test

The average score for all students, namely 29.81, is in the low category. The results of test analysis found that students did not understand the information presented in the figure or tables, students misinterpreted the questions so that the decisions taken were wrong, and students' reasons for answering the questions were irrelevant. Therefore, students find it difficult to solve questions. This condition shows that students' numeracy literacy abilities are low.

Design

Based in analysis above, a book was design to increase numeracy literacy and student motivation. The parts of a book are the book cover, the beginning of the book, the contents of the book, and the end of the book (Dewayani, 2018). Meanwhile, in general, books have three main parts, namely the opening section, the contents section, and the closing section (Millah et al., 2012). Specifically, the parts of the book are developed in more detail, as shown in Figure 4.

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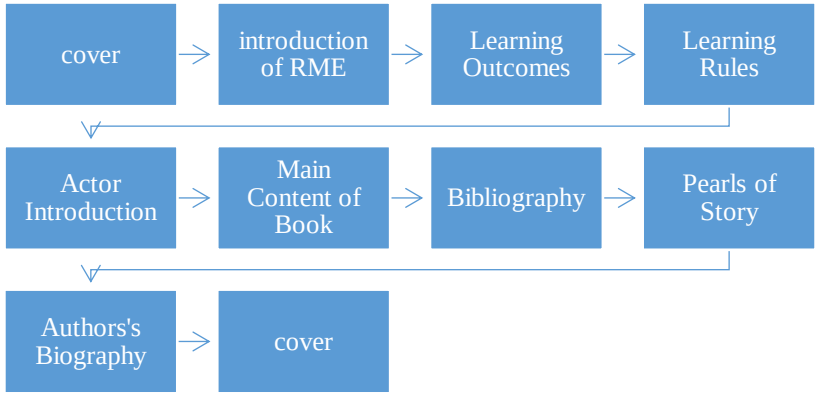

Figure 4. Parts of Book

The design process has been completed, next is the development. Book development was conducted in October 2023 to March 2024. Book development is by lingking "Nai Marbittang" story with mathematics.

Development

The front cover of the book contains the title of the folk tale, the area of origin of the folk tale, illustrations, and the name of the mathematics subject. Next there is an introduction to realistic mathematics learning (RME). This section begins by asking "Did you know?" which aims as a trigger for students. This section contains three principles of RME and five characteristics of RME. This information is presented briefly and uses simple language. Next there are learning outcomes, learning rules, and character introduction. Apart from that, there are several terms of address to someone written in Batak language, namely the native language of the Sipirok area. The introduction of this character makes it easier for readers to understand these terms. Next is the contents of the book which is folklore, the Pythagorean Theorem, illustrations, commands, questions, problems, and alternative solutions. The contents of this book were developed following Gravemeijer (1994) who stated that there are three principles of RME and five characteristics of RME.

Three principles of RME, namely didactical phenomena, guided discovery, and development of mathematical models. The first principle of RME is starting from didactical phenomena. The didactical phenomena presented in the book are real problems that students can imagine. Didactical phenomena are presented in several forms, namely paragraph form and image form. The first form of didactical phenomena is in the form of paragraphs. This paragraph form encourages students to freely imagine phenomena according to each student's thinking patterns. Next, students are guided to express the results of their thoughts in the form of images. Students draw didactical phenomena that they can imagine using information from the paragraphs they have read. This process is part of the guided discovery process as an implementation of the second principle of RME. Another thing, this guided discovery is also in the form of questions arranged in sequence. Questions are arranged

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starting from simple questions to main questions. Next, students are guided to present problems in mathematical form according to each student's way of thinking. In the book, columns are presented for writing mathematical models. This process is part of the process of students developing their own mathematical models.

The first characteristic, the context used is the Nai Marbittang folklore. The next characteristic is interactive learning, so learning activities are carried out in groups. In the book there are instructions that encourage students to study in groups. Another thing, there are commands in the book that encourage students to be interactive, such as "Let's read", "Let's discuss", "Let's practice". Group learning aims for students to discuss while reading stories, such as students taking turns reading stories to each other, students exchanging ideas in understanding the context of the story, students asking each other and students teaching each other the knowledge they understand. Another characteristic of realistic mathematics learning is linking it with other knowledge. Linking with other knowledge aims to help students solve problems such as in Case 1.

Case 1. *If Jappurut is walking on a public road, Jappurut have to walk east for 5 kilometers, then at the intersection Jappurut have to turn south for 12 kilometers. Would Japputu arrive faster if he took the shortcut? What do you think?*

Students need to relate Case 1 to the concept of cardinal directions in solving problems. Students who can connect the location points in the story will find a shape. Students need to use information about shapes to find out the shape of the route to that location. This aims to determine a suitable formula for determining the length of the distance. In this case, the shape of the location route was deliberately designed to be a right triangle. Therefore, students can use the Pythagorean Theorem to determine the length of the distance in question. In answering the question "Would Jappurut arrive faster if he took the shortcut?" So a question model like this will encourage students to think because to get the answer students need to compare the lengths of distances.

Another case that is guide students to imagine right triangle. The didactical phenomenon is organized into paragraph form as follows Case 2.

Case 2. *Aekmilas Sosopan's steps were crowded with the king's retinue. Previously, Aekmilas Sosopan had uneven terrain. The sosopan aekmilas was more easily accessible for people to descend from the plain because of the construction of stairs. A single adult hand's span measures the height of each step. The height increases linearly. An adult foot's width corresponds to each stride. It is wide ahead. In order to create a right angle, the stairs' height and width are perpendicular.*

After Case 2, there are commands and questions aimed at students to imagine the situation in case 2. After that, students can compare the results of their thoughts with alternative images

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presented on the next page. These alternative images are arranged in such a way on the next page so that students cannot see them before completing the commands on the previous page. Alternative image for Case 2 as in Figure 5 .

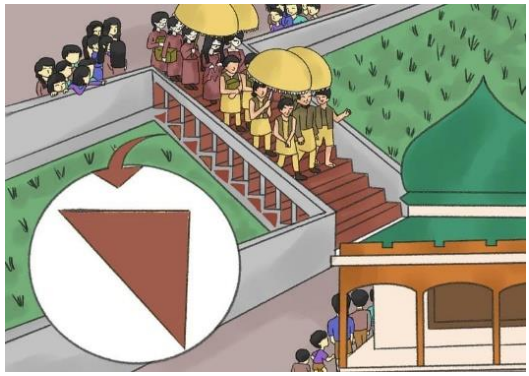

Figure 5. Alternative Image of Case 2

Next, Case 3 is an attempt to check the truth of the Pythagorean theorem. The situation in the story is modified in such a way that it can be related to the Pythagorean theorem. This didactical phenomenon is organized into paragraph form as follows Case 3.

> **Case 3.** *In the room, Bittang arranged the contents of his room neatly and beautifully. The shape of the bedroom walls is unusual. The walls of the room are made of wood with square model. Square model about adult's hand span. All square are the same size. The height of the window in the room measures four squares while the width of the window measures three squares.*

After Case 3, there are questions and explanations in stages that encourage students to arrive at the Pythagorean theorem. The process of discovering the Pythagorean theorem is as Table 3. After that process, students are given exercises to check students' understanding of the use of the Pythagorean theorem. If the student answers the exercise correctly, it is a sign that the student has understood the findings of the Pythagorean theorem and vice versa. If the opposite applies, the teacher's role is to attend directly to the student group and help students to discover the Pythagorean theorem.

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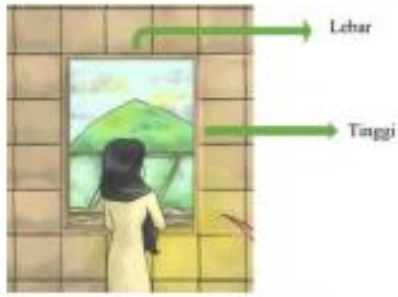
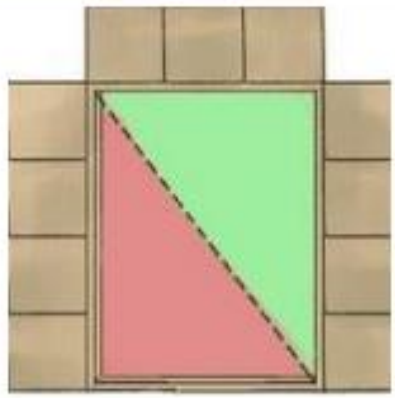
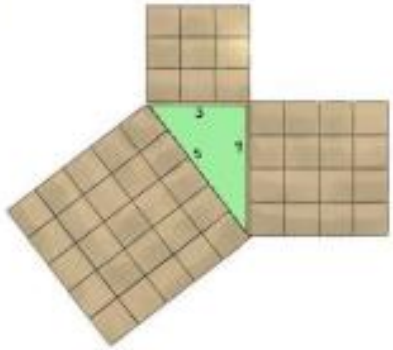
Table 3. Process to Discover Pythagorean Theorem

Step 1	She looked out the window	
Step 2	The process indicates the window's height and width	
Step 3	The process indicates the triangle	
Step 4	The process indicates the pythagorean theorem	

Another characteristic of RME is the use of models and utilization of student work results. The use of models means there is a change from non-formal to formal according to each student's thinking. The results of student work are the topic of discussion. Therefore, in the book there are alternative solutions so that students can compare the results of their work with the answers provided in the book. Problems and alternative answers are deliberately arranged so that they are not on the same page so

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that students cannot see alternative answers directly. Teachers must observe students during the learning process and teachers also play a role in instilling learning values in students so that they are honest. Therefore, problems and alternative answers are designed in a reciprocal position so that alternative answers cannot be seen directly by students. The implementation of the three principles and five characteristics of RME aims to enable students to hone their thinking patterns in solving problems such as Figure 6.

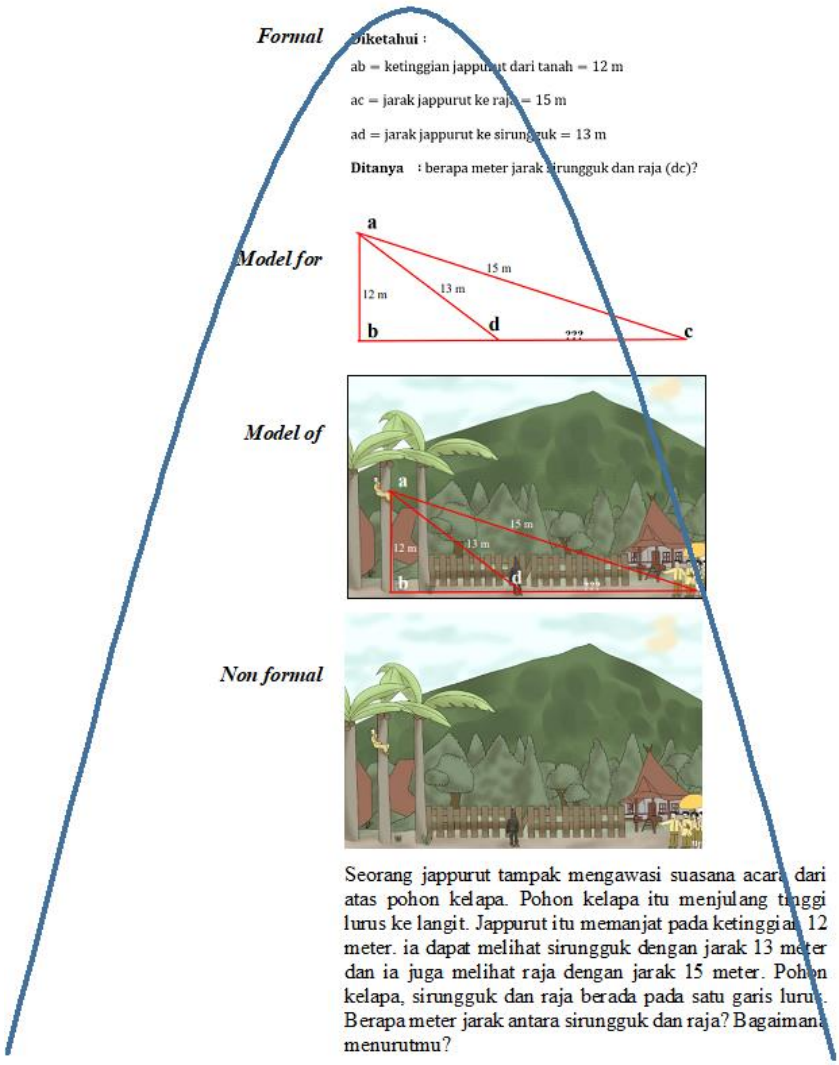

Figure 6. Process Non-Formal to Formal

Next, there is a bibliography located after the contents section. The bibliography contains reference sources during the development of the mathematics book. Therefore, readers can find out all the reference sources for the development of the book by looking at the bibliography. In the next section there are pearls of story. The pearls of the story are lessons that readers can take away after reading the book. The lessons learned by readers can be taken as life lessons. There are five lessons summarized by researchers from the story of Nai Marbittang. In the next section there is a biography

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of the author. The author's biography is information that readers can find out about the author of the book. This biography section contains the full name, place of birth, educational history, social media accounts that readers can contact, a picture of the author, and the author's motivation for writing the book. At the end of the book is a cover which contains a brief overview of the contents of the book. This final section is structured in an interesting way so that readers are interested in reading the contents of the book. Another thing, on the cover there is also the author's telephone number and email address for the author who can be contacted for further information.

Implementation

The development process has been executed, then the book is validated by mathematic experts and media experts. The average score for books from mathematics experts was 43.5 in the very good category, while the average score for books from media experts was 42, which was in the very good category. Conclusion, the mathematics book is declared valid in terms of material so it is suitable for use in mathematics learning on the Pythagorean Theorem (Putra et al., 2018).

Next, the book is implemented in small groups and large groups. Small group trials were carried out on 10 students, while large group trials were carried out on 30 students with different people from the small group. Small groups and large groups were given numeracy literacy ability tests and learning motivation questionnaires before and after using RME-based mathematics books. Apart from that, students were also given a practicality test questionnaire after using the book.

Evaluation

The results of the book practicality test in the small group and large group respectively were an average of 66.8 and 67.93, both of which were in the very good category. The practical findings of the book are that the instructions for using the book can be understood very well, the material and problems in the book can be understood by students, the story makes students motivated to learn, the book is easy to carry because it is thin and light. The results of the book's effectiveness test were assessed from the results of students' numeracy literacy abilities and learning motivation. The results of the Shapiro Wilk normality test on the results of the large group and small group motivation tests both before and after treatment can be seen in Table 4.

Table 4. Result of normality test for motivation questionnaires

Motivation questionnaires	Sig. value	Explanation
Pre- small group	0.391	normal
Post-small group	0.527	normal
Pre-large group	0.175	normal
Post-large group	0.333	normal

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Based on Table 4 significance values for the results of the large group and small group motivation questionnaires both before and after treatment are all normally distributed. Meanwhile, the results of the Shapiro Wilk normality test on the pretest posttest results for large group and small group can be seen in Table 5.

Table 5. Result of normality test for pretest and posttest

Pretest posttest	Sig. value	Explanation
Pretest small group	0.074	normal
Posttest small group	0.453	normal
Pretest large group	0.000	abnormal
Posttest large group	0.001	abnormal

Based on Table 5, the significance values for the small group are normally distributed but for large group are not normal distributed. If the data is normally distributed, next is the paired t test. The last, pretest and posttest of large group is not normally distributed, next is the Wilcoxon test just for pretest and post-test of large group. The results of the paired t-test on small group motivation questionnaires can be seen in Table 6.

Table 6. Result of paired t test for small group motivation

Data	Result	
	T	***Sig. 2 tailed***
Small group motivation	-15.985	.000

Based on Table 6 small group has a sig value 2 tailed is 0.000 < 0.05 and $t_{count} < t_{table}$ is -15.985 < - 2.262. Therefore, H_0 is rejected. These results show that there is a significant effect of mathematics books to student motivation. The results of the paired t-test on large group motivation questionnaires can be seen in Table 7.

Table 7. Result of paired t test for large group motivation

Data	Result	
	T	***Sig. 2 tailed***
Large group motivation	-33.766	.000

Based on Table 7 large group has a sign value 2 tailed is 0.000 < 0.05 and $t_{count} < t_{table}$ is -33.766 < -2.045. Therefore, H_0 is rejected. These results show that there is a significant effect of mathematics books to student motivation. The results of the paired t test on small group for pretest-posttest can be seen in Table 8.

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Table 8. Result of paired t test for small group pretest-posttest

Data	**Result**	
	t	***Sig. 2 tailed***
Small group Pretest and posttest	-5.072	.001

Based on Table 8 small group has a sign value 2 tailed is 0.001 < 0.05 and $t_{count} < t_{table}$ is -5.072 < -2.262. Therefore, H_0 is rejected. These results show that there is a significant effect of mathematics books to student literacy numeracy. The last, pretest and posttest of large group is not normally distributed, next is Wilcoxon test just for pretest and post-test of large group. The results of Wilcoxon test for large group for pretest-posttest can be seen in Table 9.

Table 9. Result of paired t test for large group pretest-posttest

Data	**Result**
	Sig. 2 tailed
Large group Pretest and posttest	.000

Based on Table 9 large group has a sign value 2 tailed is 0.000 < 0.05. Therefore, H_0 is rejected. The results of Wilcoxon test is sig value 2 tailed which is $0.000 < 0.05$. Therefore, H_0 is rejected. It means, there is different between pretest and posttest after used mathematics book. It is mean, there is an effect of mathematics books to student literacy numeracy.

CONCLUSION

The average expert validation for books by mathematic experts and media experts very good, while the practicality based on questionnaires of books was very good. In addition, there is significant effect of mathematics books on students' learning motivation and students' literacy numeracy. So, the mathematics book is valid, practical and effective for use in learning mathematics on the Pythagorean Theorem. However, this development research has limitations. Researchers suggest for further research to utilize other potential folklore that exists in each region and to include varied topics. In addition, researchers suggest to choose the right folklore so that story can really be used as a medium for mathematics learning.

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