

ANALYSIS OF MATHEMATICS TEXTBOOK CLASS VII ON GEOMETRY MATERIALS BASED ON THE NATIONAL EDUCATION STANDARDS AGENCY

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ABSTRACT

Learning resources are one of the aspects needed to support the learning process, especially during the Covid-19 pandemic, the closest learning source to students is textbooks. Based on Permendiknas No. 2 of 2008 article 4(1), the textbooks used must meet the suitability for use based on the National Education Standards Agency. This study aims to describe the suitability of class VII mathematics textbooks used by students in Tenggarong Seberang District in terms of material aspects, namely material coverage, material accuracy, and skills. This type of research is a document/text study, the method used is the Miles and Huberman model and the validity of the data in this study was carried out by triangulation of sources and agreement percentage. The results showed that The criteria are very suitable for Mathematics textbooks SMP/MTs Class VII Revised Edition 2017, 2016 and 2014 published by the Center for Curriculum and Bookkeeping, Erlangga¹, Erlangga²) with conformity indicators 19 indicators out of 24 indicators and reliability coefficient 0.91, as well as appropriate criteria for the Mathematics Assessment Book for SMP/MTs Class VII published by Erlangga with the suitability more than 14 suitability but less than 19 from 24 indicators and a reliability coefficient of 0.70.. In the sub-aspect of material coverage, the presentation of material in the Class VII SMP/MTs Mathematics books published by Erlangga¹ and Erlangga²) and the Class VII SMP/MTs Mathematics Assessment Books published by Erlangga has not used a scientific approach. In the sub-aspects of material accuracy and skills, in the Mathematics Assessment Book for SMP/MTs Class VII published by Erlangga, there are items that are not in accordance with the material presented, and there are no activities that can specifically develop aspects of student skills.

Key words: Analysis, Material aspects, Mathematics textbooks, Geometry subject matter.

INTRODUCTION

In Law Number 20 of 2003 concerning the National Education System, education is a conscious and planned effort to create a learning atmosphere and learning process so that students actively develop their potential to have religious spiritual strength, self-control, personality, intelligence, noble character, and skills that needed by himself, society, nation and state.

To achieve the goals of education, the government stipulates Government Regulation Number 13 of 2015 concerning the Second Amendment to Government Regulation Number 19 of 2005 concerning National Education Standards, in which regulations are stipulated in the administration of education so that each level of education unit can meet certain standards. These standards include content standards, process standards, graduate

competency standards, education and education personnel standards, facilities and infrastructure standards, management standards, financing standards, and educational assessment standards. Where, the standard of facilities and infrastructure related to various aspects needed to support the learning process.

Learning resources are one of the aspects needed to support the learning process. In the learning process, especially during the Covid-19 Pandemic, the closest source of learning for students is books. Textbooks or textbooks, in Permendikbud No 8 of 2016 explain that textbooks are the main learning source to achieve basic competencies and core competencies and are declared feasible by the Ministry of Education and Culture to be used in education units. Learning materials occupy a very important position in textbooks for student learning activities. Learning materials are information, tools and texts needed for planning and reviewing the implementation of learning as well as to assist in student learning activities.

The number of textbooks in circulation provides many choices for teachers to determine which textbooks students use in learning activities at home. Textbooks are one of the facilities and infrastructure for students and are important learning media to support learning activities. Therefore, good quality textbooks will affect the feasibility of textbooks and the feasibility of textbooks is one thing that contributes to the success of student learning activities at home.

Textbooks used in the learning process must meet the appropriateness of use based on the standards of the National Education Standards Agency in accordance with the provisions in the Minister of National Education Regulation No. 2 of 2008 article 4 (1). The National Education Standards Agency is an independent, professional and independent institution that carries out the mission to develop, monitor the implementation and evaluate the implementation of national education standards, with one of its tasks being to assess the appropriateness of the content, presentation, language and graphics of textbooks.

The National Education Standards Agency (BSNP) has set quality standards for textbooks, namely material/content standards, presentation standards, linguistic standards and graphic standards. The standards that have been set by BSNP, aim to provide appropriate textbooks, increase the love of reading, and protect students from less-quality textbooks. In this study, the aspects that will be assessed in grade VII mathematics textbooks are material/content aspects, namely material coverage, material accuracy, and skills based on instrument 1 assessment of mathematics student textbooks from the National Education Standards Agency in 2014.

METHOD

This research is a qualitative research with the type of research document/text study. This study analyzes the suitability of the Mathematics textbooks for SMP/MTs Class VII Revised Edition 2017, 2016 and 2014 published by the Center for Curriculum and Bookkeeping, Erlangga(1), Erlangga(2), and the Mathematics Assessment Book for SMP/MTs Class VII published by Erlangga on the material aspect/ content, namely material coverage, material accuracy, and skills according to the standards of the National Education Standards Agency.

The data collection of the suitability of mathematics textbooks was carried out using a research instrument in the form of an assessment sheet consisting of 24 indicators used to assess mathematics textbooks and the assessment sheet used was an instrument for assessing mathematics student textbooks according to the standards of the National Education Standards Agency.

Tabel 1. 24 indicators from textbook assessment sheets

Sub-aspects	Components	Indicators
Material Coverage	Material Equipment	1. The material presented is in accordance with the basic competencies 3.10.
		2. The material presented uses a scientific approach.
		3. The material presented makes students actively find out for themselves.
	Material breadth	4. The material presented contains sub-materials that support the achievement of basic competencies 3.10.
		5. The breadth of the material is in accordance with the basic competencies 3.10.
	Material Depth	6. The material includes the direct objects of mathematics.
		7. The material includes the indirect object of mathematics.
Material Accuracy	Fact Accuracy	8. All the facts written in the book are in accordance with international agreements.
	Concept Accuracy	9. The concepts presented in the book contain

		facts that are in accordance with the basic competencies 3.10.
	Principle Accuracy	10. Each principle presented in the book corresponds to the basic competence 3.10.
	Procedure Accuracy	11. Each procedure presented in the book contains principles that are in accordance with the basic competencies of 3.10.
	Example Accuracy	12. The examples written in the book are in accordance with the materials, procedures and concepts used.
	Question Accuracy	13. The questions presented in the book are in accordance with the material.
		14. The questions presented in the book have varying levels of difficulty.
		15. The questions presented in the book are challenging.
Skills	Skill Coverage	16. The material presented can develop aspects of skills (thinking and motor skills) that support the achievement of basic competencies 4.10.
		17. The activities presented can develop aspects of skills (thinking and motor skills) that support the achievement of basic competencies 4.10.
		18. The material presented is using problem-based, project-based or cooperative learning models.
	Activity Accuracy	19. The activities presented in the material are in accordance with the demands of basic competencies 4.10.
		20. In the material there is problem solving or determining, which requires procedures and resolution strategies.
		21. In the material there are clear sentences to direct students to do certain activities.
		22. Activities can be done.
	Characteristics of Activities Referring	23. The description questions presented in the book motivate students to carry out scientific activities.

	to the Scientific Approach	24. Exercises or examples of questions presented in the book motivate students to carry out scientific activities.
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The data analysis technique in this study uses the Miles and Huberman model, namely by reducing the data obtained from the results of textbook assessments carried out by researchers and mathematics teachers on the subject matter of Basic Competence geometry 3.10 and 4.10, the data that has been reduced is then presented in the form of text that is descriptive in nature. narrative and supported by valid data and high data consistency, then conclusions are drawn based on the results of the data validity test and adjusted to the textbook criteria. The criteria for the suitability of textbooks in this study were made by the researcher by adjusting the criteria for the suitability of books that have been set by the National Education Standards Agency.

Table 2. Criteria for Suitability of Textbooks

Suitable Indicator (x)	Criteria
$x \geq 19$	Very Suitable
$14 \leq x < 19$	Suitable
$12 \leq x < 14$	Quite Suitable
$x < 12$	Not Suitable

Valid data and high data consistency were obtained from the data validity test, namely source triangulation and percentage agreement. Triangulation of sources to test the credibility of the data, is done by clarifying or rechecking the data that has been collected to mathematics teachers and colleagues from the same department who carry out similar research and percent agreement for the dependability test by conducting an audit of the research process. percent agreement is the simplest reliability calculation, conceptually, the formula for calculating percent agreement is as follows:

$$\text{Reliability} = A/N$$

where A is the number of indicators agreed by two people, and N is the number of indicators, with the interpretation of the reliability coefficient as follows:

Table 3. Guilford . Reliability Coefficient Interpretation

Coefficient Interval	Category
0,00 – 0,19	Very low
0,20 – 0,39	Low
0,40 – 0,59	Currently
0,60 – 0,79	High
0,80 – 1,00	Very high

RESULT AND DISCUSSION

Based on the results of the study, the percent agreement category was obtained for the six mathematics textbooks that were invited to be analyzed. The 2017 Revised Edition of Middle School/MTs Mathematics Book published by the Curriculum and Bookkeeping Center is symbolized by the letter A, the Mathematics book for SMP/MTs Class VII published by Erlangga is symbolized by the letter B, the 2016 Revised Edition of SMP/MTs Mathematics Book published by the Curriculum and Bookkeeping Center is symbolized with the letter C, the Mathematics Book for SMP Class VII published by Erlangga is symbolized by the letter D, the Revised 2014 Edition of the Mathematics Book for SMP/MTs Class VII published by the Curriculum and Bookkeeping Center is symbolized by the letter E, and the BUPNA Mathematics for SMP/MTs Class VII publications of Erlangga is symbolized by the letter F.

Table 4. Recapitulation of Percent Agreement Categories

Book	Reliability Coefficient	Category
A	1,00	Very High
B	0,95	Very High
C	1,00	Very High
D	0,91	Very High
E	0,95	Very High
F	0,70	High

The results of the book assessment obtained are then re-verified by triangulation of sources to obtain valid data. From the valid data, it is then interpreted using qualitative sentences with the criteria for the suitability of mathematics textbooks that have been set

Table 5. Results of Triangulation of Mathematics Textbook Assessment Sources

Num	Indicator	Evaluation Textbooks					
		A	B	C	D	E	F
1	The material presented is in accordance with the basic competencies 3.10.	Y	Y	Y	Y	Y	T
2	The material presented uses a scientific approach.	Y	T	Y	T	Y	T
3	The material presented makes students actively find out for themselves.	Y	Y	Y	Y	Y	Y
4	The material presented contains sub-materials that support the achievement of basic competencies 3.10.	Y	Y	Y	Y	Y	Y
5	The breadth of the material is in accordance with the basic competencies 3.10.	Y	Y	Y	Y	Y	Y
6	The material includes the direct objects of mathematics.	Y	Y	Y	Y	Y	Y
7	The material includes the indirect object of mathematics.	Y	Y	Y	Y	Y	Y
8	All the facts written in the book are in accordance with international agreements.	Y	Y	Y	Y	Y	Y
9	The concepts presented in the book contain facts that are in accordance with the basic competencies 3.10.	Y	Y	Y	Y	Y	Y
10	Each principle presented in the book corresponds to the basic competence 3.10.	Y	Y	Y	Y	Y	Y
11	Each procedure presented in the book contains principles that are in accordance with the basic competencies of 3.10.	Y	Y	Y	Y	Y	Y
12	The examples written in the book are in accordance with the materials, procedures and concepts used.	Y	Y	Y	Y	Y	Y
13	The questions presented in the book are in accordance with the material.	Y	Y	Y	Y	Y	T
14	The questions presented in the book have varying levels of difficulty.	Y	Y	Y	Y	Y	Y
15	The questions presented in the book are challenging.	Y	Y	Y	Y	Y	Y
16	The material presented can develop aspects of skills (thinking and motor skills) that support the achievement of basic competencies 4.10.	Y	Y	Y	Y	Y	Y
17	The activities presented can develop aspects of skills (thinking and motor skills) that support the achievement of basic competencies 4.10.	Y	Y	Y	Y	Y	T
18	The material presented is using problem-based, project-based or cooperative learning models.	Y	Y	Y	Y	Y	Y
19	The activities presented in the material are in accordance with the demands of basic competencies 4.10.	Y	Y	Y	Y	Y	T
20	In the material there is problem solving or determining, which requires	Y	Y	Y	Y	Y	Y

	procedures and resolution strategies.						
21	In the material there are clear sentences to direct students to do certain activities.	Y	Y	Y	Y	Y	T
22	Activities can be done.	Y	Y	Y	Y	Y	T
23	The description questions presented in the book motivate students to carry out scientific activities.	Y	Y	Y	Y	Y	Y
24	Exercises or examples of questions presented in the book motivate students to carry out scientific activities.	Y	Y	Y	Y	Y	Y

Description: Y = Yes and T = No

Based on the results of the data validity test, books A, B, C, D, and E are included in the criteria very much in accordance with the reliability coefficients in order of 1.00, 0.95, 1.00, 0.91, and 0.95. In the sub-aspects of material coverage, books A, B, C, D, and E present the completeness of the material, the breadth of the material and the depth of the material in accordance with the basic competencies of 3.10, and includes both direct and indirect objects of mathematics and material presented using a scientific approach. In the sub-aspect of material accuracy, books A, B, C, D, and E present the accuracy of facts/symbols, concepts, principles, procedures, examples and questions that are in accordance with international agreement and basic competence 3.10, in addition to the questions presented in the book. in accordance with the basic competence material 3.10 by having varying levels of problem difficulty and there are problems presented that are problem solving. In the sub-aspects of skills, books A, B, C, D, and E present the scope of skills and activities in accordance with basic competencies and the characteristics of activities that refer to a scientific approach. The material and activities presented in the material can develop aspects of skills, with the presentation of the material in the book presented with a project-based and problem-based learning model to achieve basic competencies 4.10. However, there are shortcomings in books C, D, and E, namely the basic competencies contained in the book are still not in accordance with Permendibud Number 37 of 2018 and books B and D in presenting the material still do not use a scientific approach, because in the book there are no commands or invitations. which makes students indirectly perform activities of observing, asking, gathering information, associating, and communicating.

Book F is included in the criteria according to the reliability coefficient of 0.70. In the sub-aspect of material coverage, presenting the completeness of the material that is not in accordance with the basic competence of 3.10 and the material presented has not used a scientific approach, but the breadth of the material and the depth of the material

are in accordance with the basic competence of 3.10 and includes both direct and indirect objects of mathematics. In the sub-aspect of material accuracy, presenting the accuracy of facts/symbols, concepts, principles, procedures, examples and questions that are in accordance with international agreement and basic competencies 3.10 and the questions presented in the book are in accordance with the 3.10 basic competency material with a different level of difficulty. varied and some of the questions presented were problem solving, but there were items that were not in accordance with the material because one of the items contained material on the relationship between angles, but the book did not contain material on the relationship between angles and examples in solving mathematical problems in relational material. between corners. In the sub-aspect of skills, presenting the scope of skills and activities that are not in accordance with basic competencies 4.10. This is because in the material there are no activities that can develop aspects of student skills. However, the material presented in can develop aspects of skills, with the presentation of the material in the book presented with a problem-based learning model.

CONCLUSION

The criteria are very suitable for Mathematics textbooks SMP/MTs Class VII Revised Edition 2017, 2016 and 2014 published by the Center for Curriculum and Bookkeeping, Erlangga(1), Erlangga(2) with conformity indicators, 19 indicators out of 24 indicators and reliability coefficient 0.91, as well as appropriate criteria for the Mathematics Assessment Book for SMP/MTs Class VII published by Erlangga with the suitability more than 14 suitability but less than 19 from 24 indicators and a reliability coefficient of 0.70.

In the sub-aspect of material coverage, the presentation of material in the Class VII SMP/MTs Mathematics books published by Erlangga(1) and Erlangga(2) and the Class VII SMP/MTs Mathematics Assessment Books published by Erlangga has not used a scientific approach.

In the sub-aspect of material accuracy, in the Mathematics Assessment Book for SMP/MTs Class VII published by Erlangga there are items that are not in accordance with the material presented, and

In the skills sub-aspects in the Book of Mathematics Assessment for SMP/MTs Class VII published by Erlangga, there are no activities that can specifically develop aspects of student skills.

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