



Comparison of the Nature of Science Between Thematic and Non-Thematic Science Textbooks in Elementary School

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Abstract: This study aims to analyze the differences in the nature of science in thematic textbooks and non-thematic science textbooks in elementary schools. The study approach used is qualitative with a descriptive method. The subjects in this study were thematic textbooks and three non-thematic science textbooks in grade VI elementary school. The data collection technique used is a documentation study by analyzing the concept of the nature of science in each of the essential competencies presented in the book, the results of the analysis in the Textbook are analyzed descriptively and presented in percentage form. This study indicates a difference between aspects of the nature of science in thematic and non-thematic science textbooks in grade VI elementary school. Non-Thematic textbooks have a higher percentage of science's nature than the nature of science in thematic textbooks. The product aspect has the highest rate, 97%, and the lowest aspect is the creativity aspect, which is 25%. This study is fundamental to analyze in detail the components of science's nature, which can later be used as a basis by teachers in choosing science textbooks in elementary schools so that learning can be carried out correctly and the nature of science can be taught to students.

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Introduction

Scientific literacy in the 21st century is becoming the center of attention with various research experiments that focus on understanding the nature of science (NoS). It is related to people ability to understand science and be able to apply it in everyday life (Annisa & Listiani, 2017). Scientific literacy is one of the needed skills to support the science learning process in school (Hernawati et al, 2019). There is a relationship between scientific literacy and the nature of science in science learning process. The nature of science (NoS) is a requirement related with the literacy science to acquiring knowledge by conducting scientific research how to ask, evaluate, and analyze (Klucevsek, 2017). As stated by Subaeri et al (2016) described that the nature of science is involved in discussing scientific issues that require understanding. In the context of learning, science is one of the disciplines studied from elementary school to university and a compulsory subject that is tested nationally (Satria & Sopandi, 2019). Science lessons in elementary school aim to develop an understanding of natural phenomena, science concepts, and principles that are useful and can be applied in everyday life and increase student's thinking skills (Susilo et al, 2012).

One indicator of science literacy competence, especially in science learning, is providing solutions and concluding a problem. However, the fact has still not been directed, so an effort is needed to add nature of science content in the learning process (Yonanda et al, 2017). The nature of science consists of several forms, namely products, processes, and



attitudes. Science is also inseparable from a learning process as a skill, the ability to understand knowledge, and the development of a scientific attitude. Sardinah et al (2012) explained that the nature of science is the basis for studying science, it contains three aspects of science as a product, science as a process, and science as a scientific attitude. Based on its objectives, several experts have some opinions regarding to aspects of the nature of science (NoS) which these aspects of NoS need to be taught in school (McComas, 2015).

Based on the results of the analysis conducted by Adi & Widodo (2018) that there are seven main aspects that must exist in the nature of science, namely (a) Empirical Based, empirical knowledge based on data/evidence obtained from observations with the five senses or experiments; (b) Tentative, tentative where scientific knowledge is not something that is absolute truth and without error but can change with new observational evidence and with reinterpretation of existing observations, (c) Theories and Law, laws describe relationships, observations, perceptions of natural phenomena that are usually accompanied by mathematical formulas, while theory is an explanation for natural phenomena and the mechanism of the relationship between natural phenomena, (d) Sociocultural Embeddedness, the result of human efforts, so that the process of getting it can be influenced by the society and culture where it is practiced, then the value system and culture will affect what and how science is carried out, interpreted, and accepted, (e) Creativity, creativity is scientific knowledge created from human imagination, creativity and logical reasoning so that it will continue to grow, the creation of scientific knowledge is based on creative planning, observation, and conclusions, (f) Scientific Method, there is no definite and universally applicable scientific method, scientists are free to use any method as long as it can be justified, and (g) Subjective, personal subjectivity is unavoidable in science, factors such as personal values, beliefs, agendas self, and previous experience will influence what and how a scientist does his job.

According to Putri et al (2021) the nature of science has aspects distinguished by form and character, namely aspects of a product, scientific attitude, process, subjective, tentative, empirical, theory and law, socio-cultural, creativity, and the scientific method. One of the benefits of understanding the nature of science (NoS) that is expected to improve learning outcomes about material science, interest in science, and decision-making on scientific problems (Hardianty, 2015). Therefore, understanding NoS is an important ability to be mastered by students. Teachers must apply learning strategies in accordance with the characteristics of science learning that focus on providing direct experience and the application of the NoS aspect itself (Lestari & Widodo, 2021).

Based on this study conducted related to the nature of science, elementary school students from West Java and Central Java only obtained an average value of the essence of science with a percentage of 65% in the excellent category (Widodo et al, 2019). The results of literacy-based tests using international assessments show that Indonesia's position is still far behind other countries. The 2015 TIMSS results show that the average science score for Indonesia is 397 points and ranks 45th out of 48 countries (Hadi & Novaliyosi, 2019). Meanwhile, the results of the PISA survey from 2015 to 2018 placed Indonesia as one of the countries with low scientific literacy. These results show the average science score of OECD countries is 493, while Indonesia has only reached a score of 403 (Narut & Supardi, 2019). Based on several study results, it can be concluded that the scientific ability of students in Indonesia is still low.

There is something wrong with learning science in schools. One of the problems is that almost all science textbooks focus on scientific knowledge only, while the scientific investigation, scientific thinking, and social aspects of science are often ignored (Adi &



Widodo, 2018). Investigation, scientific thinking, and social aspects of science are also ignored (Adi & Widodo, 2018). The content of scientific learning aspects in science material in the Thematic Students' book for Grade VI Elementary School is too low, the percentages are 24.7% (reasoning), 20.3% (questioning), 18.2% (trying), 22.9% (analyzing), and 13.9% (communicating) (Saputri, 2017). Students are unlikely to develop a meaningful understanding of the nature of science by simply reading books that contain scientific concepts. The factor that influences the low competence of scientific literacy in Indonesia is the selection of learning resources that do not explain the concept of science to students (Avikasari, 2018). Instead, students need to experience specific activities designed to highlight certain aspects of the nature of science (Bell, 2009). The development of the nature of science in students can be done by applying learning resources that aim to train students to analyze scientific phenomena and use the environment (Jufrida et al, 2019).

Textbooks are a source of student learning and guideline for teachers in learning (Sayekti et al, 2019). According Khery (2019) conducted relevant research about the effectiveness of Mobile-NoS teaching materials which is showed an increase in students' understanding of the nature of science. This application is an example of modernizing book text sources that will affect the quality of teaching a subject (Jannah et al, 2019). Because of that, teachers must pay attention to what textbooks are used in learning activities. In elementary education, especially teachers often use sourcebooks provided by the government, namely thematic books. In addition, teachers can have other handbooks that support learning, such as non-thematic or partial textbooks from various publishers.

The effectiveness of teaching materials developed to improve students' scientific literacy learning is marked by increased student scientific literacy learning outcomes (Budiningasih et al, 2015). Of course, it must be supported by textbooks whose contents contain the nature of science in detail and depth. Therefore, this study is becoming fundamental to analyze in detail the aspects of the nature of science in science textbooks, so that it can be used as a basis by teachers in choosing science textbooks that follow the learning process, which can also make their learning activities more effective.

Research Method

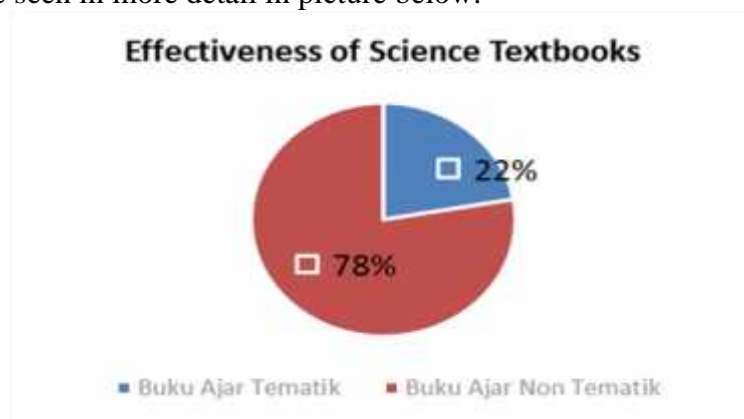
This study used a qualitative approach with a descriptive method. Qualitative research is seen as following research in this study because its essence is to reveal the central phenomena that arise individually, in groups or other things. This study used document analysis with questionnaires and instruments check-list based on the suitability of the indicators of the nature of science (NoS). The nature of science in this study refers to the explanation given by Putri et al (2021) that there are 10 aspects of the nature of science-based on its form and character. The types of data used in this study are all themes from the sixth-grade Thematic Student Books Grade 6 2013 Curriculum guidelines from the government, and three non-thematic science textbooks for grade VI, namely ESPS Book Grade 6 published by Erlangga, Jelajah Sains Book Grade 6 published by Yudistira, dan Keajaiban Sains Book Grade 6 published by Quadra. The selection of these 4 sources of thematic and non-thematic textbooks were based on a survey conducted via google form to teachers related to teaching materials often used in grade VI elementary schools in Bandung.

Collecting data in this study began by reviewing the literature on aspects of the nature of science and determining 10 aspects adapted from previous research which 3 aspects of the nature of science-based on its form, namely products, processes, and attitudes (Sardinah et al, 2012) and 7 aspects based on their uniqueness, namely characteristics of empirical facts, tentative, legal theory, socio-cultural, creativity, scientific and subjective methods (Adi &

Widodo (2018). These data were obtained, read, and analyzed in depth about aspects of the nature of science in paragraph texts on each page of thematic books and 3 non-thematic books. After that, write down the results of the analysis on the checklist sheet. The data collected was analyzed using the percentage indicator of the nature of science from each book. The percentage results were explored in-depth using descriptive. To avoid bias in the findings in this study, a cross-check was carried out by three experts who were tasked with providing an accurate balanced assessment of the contents of this study.

Results and Discussion

This study began with the distribution of a questionnaire in the form of a google form regarding the type of science textbook often used by grade VI elementary school teachers in Bandung. Based on the results of teacher respondents from 15 schools in Bandung, an average of 66.7% of sixth-grade teachers used thematic textbooks. The thematic student books grade 6 is the primary learning resource for science learning. Still, they also explained that non-thematic or partial textbooks for science subjects are more effectively used for learning activities in the classroom. This is shown from the results the average percentage of teachers who answered non-thematic textbooks more effectively was 78%. The presentation of the data can be seen in more detail in picture below.



Picture 1. Percentage of Effectiveness of Science Textbooks

The selection of three non-thematic textbooks for class VI was determined by the percentage of the most type of text used by the teacher. The results of the questionnaire data processing showed that Buku IPA ESPS publisher Erlangga was widely chosen as the first supporting book after the thematic student books grade 6 on the 2013 curriculum.

The nature of science is categorized into 2, based on its form and character. There are ten aspects, namely product, process, attitude, aspects of empirical facts, tentative, legal theory, socio-cultural, creativity, scientific method, and subjective (Putri et al, 2021) on thematic textbooks and non-thematic textbooks obtained that there are differences in the content of aspects of the nature of science. An average comparison of each element of the nature of science-based on its form in thematic and non-thematic textbooks can be seen in table below.

Table 1. Percentage of Nature of Science in Textbook Thematic and Non-Thematic

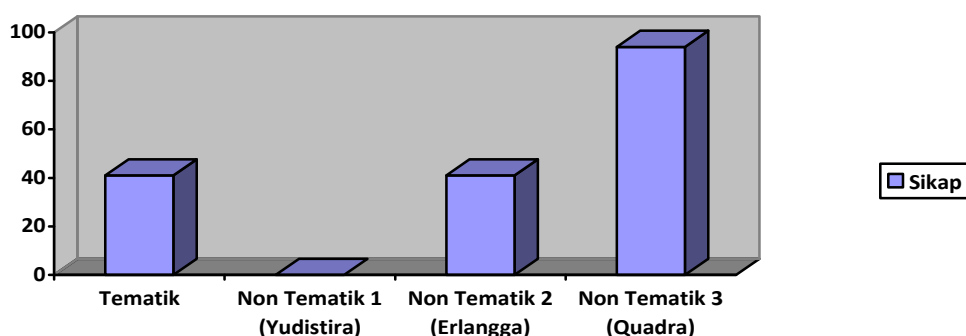
No.	Source Books	Form (%)		
		Attitude	Product	Process
1	Thematic Student Book Grade 6 2013 Curriculum	41	87	39

2	Jelajah Sains Book Grade 6 (Yudistira)	0	100	57
3	ESPS Book Grade 6 (Erlangga)	41	100	29
4	Keajaiban Sains Book Grade 6 (Quadra)	94	100	72
	Average	44	97	49

Attitude aspects contained in science textbooks have the lowest average percentage of 44%. The process aspect is also in the low category, with an average score of 49%. In detail, the elements of the nature of science are described below.

Attitude Aspect

The nature of science in the attitude aspect in the thematic and non-thematic science textbooks for class VI can be seen in the picture below.

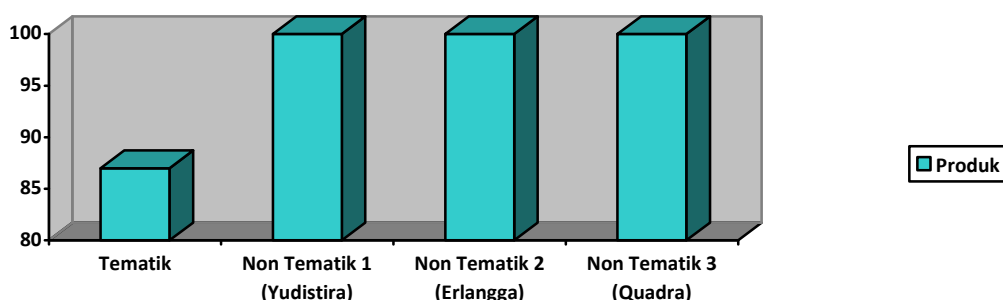


Picture 2. Comparison of the Nature of Science of Attitude Aspects

The highest nature of science in the aspect of attitude is found in the non-thematic textbook publisher Quadra with a percentage of 94%. The lowest attitude aspect is in non-thematic textbooks publisher Yudistira with a percentage of 0%. This shows that the non-thematic publisher Quadra is very good at applying the attitude aspect, while the non-thematic publisher Yudistira does not contain the attitude aspect. This attitude aspect is one of the essential aspects in science learning that cannot be separated from other elements. As stated by Widodo (2007) science learning currently only teaches facts, concepts, principles, laws, and theories that do not teach science as a whole. In studying science, scientific attitudes should be instilled, such as curiosity, honesty, hard work, never giving up, and openness. So this aspect of attitude should also be included in the textbook.

Product Aspect

The comparison of the nature of science in the attitude aspect in the thematic and non-thematic science textbooks for class VI can be seen in Figure 3 below.

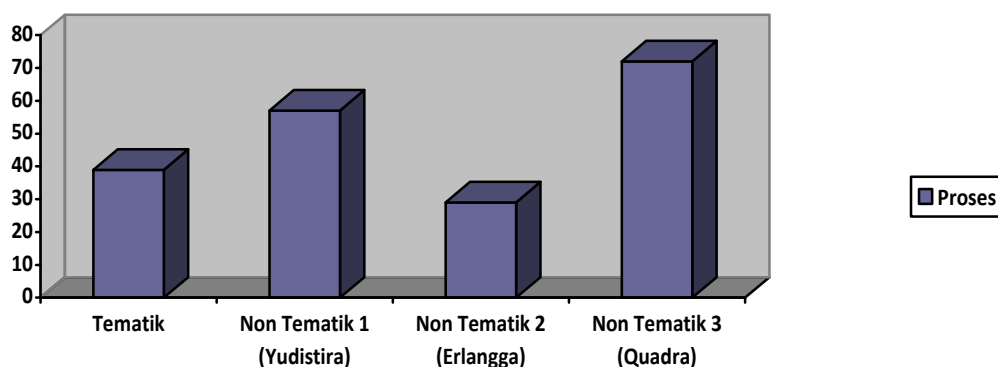


Picture 3. Comparison of the Nature of Science in Product Aspects

Non-thematic textbooks have the highest product aspect compared to thematic textbooks. Three non-theme textbooks get a percentage of 100%, while the product aspect in thematic textbooks only gets a percentage of 87%. This shows that all non-thematic textbooks have implemented product aspects of NoS with maximum value. Meanwhile, thematic textbooks have not yet fully implemented product aspects. This will affect students' conceptual understanding after reading the textbook. Science as a product of Science is the meaning of nature and various phenomena that are packaged into a collection of theories and concepts, laws, and principles. This product aspect is one of the essential aspects of the nature of science (Tursinawati & Widodo, 2019). Products in general knowledge can be divided into facts, concepts, symbols, conceptions/explanations, and theories.

Process Aspects

A comparison of the nature of science in process aspects in thematic and non-thematic science textbooks for class VI can be seen in picture below.



Picture 4. Comparison of the Nature of Science of Process Aspects

The highest nature of science in the aspect of the process is found in non-thematic textbook publisher Quadra with a percentage of 72%, and the lowest process aspect is in the non-thematic publisher Erlangga with a percentage of 29%. This shows that non-thematic publisher Quadra has emphasized the process aspect well compared to other books, while non-thematic publisher Erlangga is still low in emphasizing the process aspect. Science learning cannot be separated from the process aspect as a skill. That process is none other than the scientific method. Scientific method for elementary school students is developed gradually and continuously, hoping that a complete guide will be formed so that students in elementary school can do simple research. Carry out science learning in particular For aspects of fundamental science process skills, an understanding of the nature of science learning and ways to implement it according to its nature (Mulyeni & Lianty, 2021). The stage of development that will be given in education must be adapted to the steps of an experimental research process which includes observation, classification, interpretation, prediction, hypothesis, controlling variables, planning and carrying out research and inference, application, and communication. There is a process aspect in textbooks used to guide students to develop process skills they have.

Obtaining the results of the analysis of 7 aspects of the nature of science-based on their character as analyzed by Adi & Widodo (2018), namely elements of empirical facts, tentative, legal theory, socio-cultural, creativity, scientific and subjective methods in thematic and non-thematic textbooks in science learning is one of the teacher's effort to find out the content of the nature of science in books that are often used. As explained by Situmorang (2016), the procedures that must be prepared by teachers in teaching science literacy in

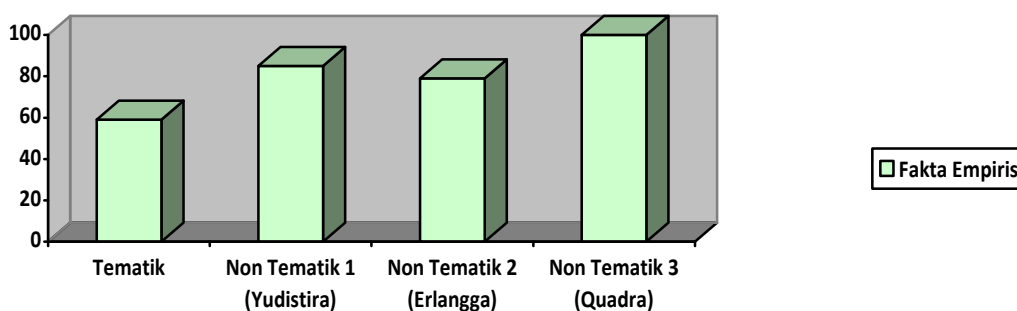
science subjects are (1) incorporating elements of scientific literacy in science subjects and (2) exploring the potential for scientific literacy contained in science. The results of the different aspects of the nature of science based on their nature are presented more clearly in Table 2 below.

Table 2. Percentage of the Nature of Science in Thematic and Non-Thematic Textbooks

No	Sources Books	Sifat (%)						
		Empirical Facts	Tentative	Theory of law	Cultural social	creative	Scientetic Method	Subjective
1	Thematic Student Books Grade 6 2013 Curriculum	59	51	25	37	37	33	67
2	Jelajah Sains Books Grade 6 (Yudistira)	85	23	100	0,4	0	23	19
3	Esps Books Grade 6 (Erlangga)	79	79	75	62	54	20	91
4	Keajaiban Sains Books Grade 6 (Quadra)	100	66	72	22	11	66	27
	Average	81	55	68	40	26	36	51

Empirical Facts Aspects

Comparison of the nature of science on aspects of empirical facts in thematic and non-thematic science textbooks class VI can be seen in picture below.

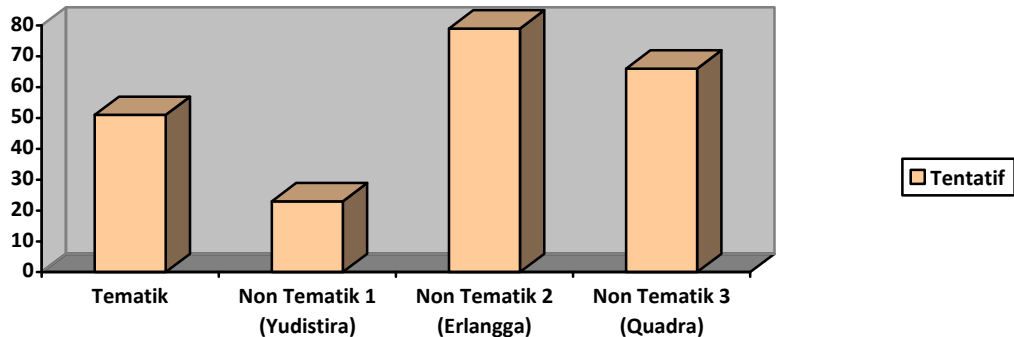


Picture 5. Comparison of the Nature of Science of Empirical Facts Aspects

Empirical facts mean that statements in science learning come from observations of natural phenomena (Jannah et al, 2019). The highest essence of knowledge in empirical facts was found in the non-thematic Quadra Publisher with a percentage of 100%. The lowest aspect of empirical facts is found in thematic textbooks which only get 59%. This shows that the Quadra Publisher is very good at understanding empirical-based scientific knowledge, which includes investigation, observational evidence, measurement. Scientific knowledge is based on data or evidence obtained from observations with the five senses or experiments. While in other books, it is still not optimal in understanding empirical-based science but is quite good with a score above 50%. With empirical facts, students will learn that the scientific material they get comes from observing natural phenomena. Therefore, a good textbook can certainly guide students to gain knowledge from their experiences.

Tentative Aspects

A comparison of the nature of science in the tentative aspects of thematic and non-thematic science textbooks for class VI can be seen in picture below.

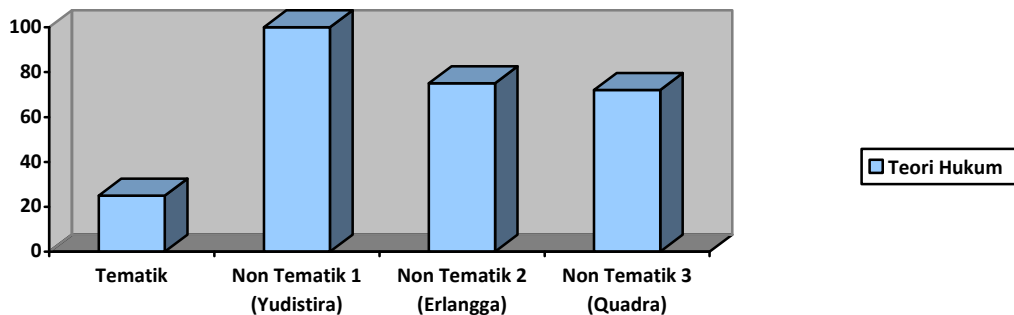


Picture 6. Comparison of the Nature of Science of Tentative Aspects

The highest nature of science in the tentative aspect is non-thematic textbook Erlangga publisher with a percentage of 79%, and the lowest is non-thematic textbook Yudistira publisher with 23%. This shows that the Erlangga publisher textbook understands that scientific knowledge is tentative. Knowledge is uncertain, which means that learning is impermanent and allows it to change like opinion (Nielsen, 2013). Meanwhile, non-thematic Yudistira publisher are still low in understanding tentative scientific knowledge.

Theory and Law Aspects

A comparison of the nature of science in the theoretical and legal aspects contained in thematic and non-thematic science textbooks for class VI can be seen in picture below.

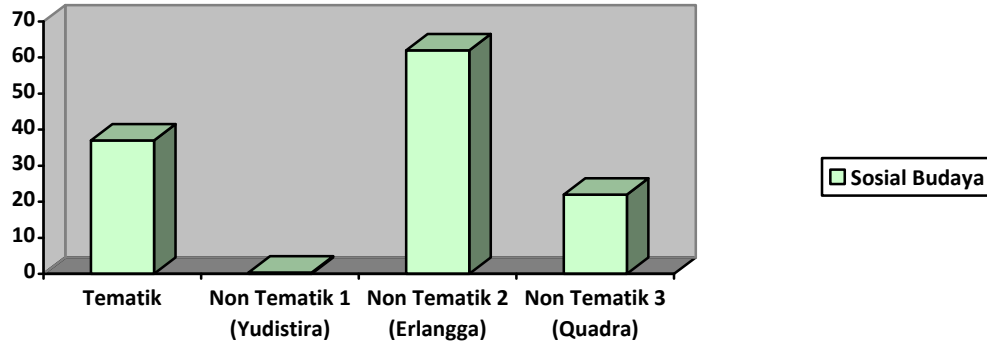


Picture 7. Comparison of the Nature of Science of Theory and Law Aspects

The highest nature of science in the theory and law aspect is non-thematic textbooks, Yudistira publisher with a percentage of 100% and the lowest theoretical and law aspects is Thematic Student Books Grade 6 2013 Curriculum which has 25%. This shows that the non-thematic Yudistira publisher is very good at understanding theory and law compared to other books. Thematic books are shallow in understanding theory and law. Theories and laws are two things that study the universe from different sides. There is no relationship between law and theory at all (Nielsen, 2013), while in thematic textbooks, there are still many misconceptions that there is a relationship between theory and law where there is a hierarchy or level between theory and law.

Socio-Cultural Aspects

A comparison of the nature of science in the socio-cultural aspects of the thematic and non-thematic textbooks for science class VI can be seen in picture 8 below.

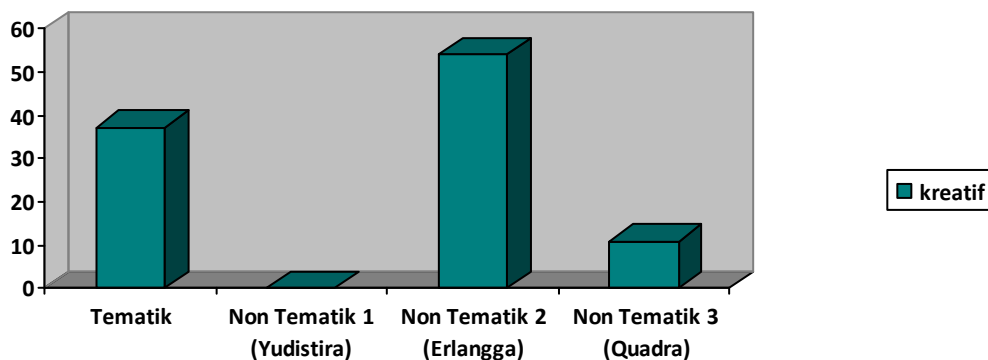


Picture 8. Comparison of the Nature of Science Socio-Cultural Aspects

The highest nature of science in the socio-cultural aspect is found in non-thematic textbook Erlangga publisher with a percentage of 62%, and the lowest socio-cultural aspect is non-thematic Yudistira publisher with a percentage of 0.4%. This shows that the non-thematic textbooks Erlangga publisher provide understanding related to socio-cultural aspects. The socio-cultural aspect as a science is the result of human effort, so getting it can be influenced by the society and culture where it is practiced. The value system and culture will affect how science is carried out, interpreted, and accepted (Widodo et al, 2019). Meanwhile, Yudistira's Publisher Non-Thematic Textbooks are still lacking in understanding socio-cultural aspects, and it can be seen from the percentage score, which is below 1%.

Creative Aspects

A comparison of the nature of science in the creative aspects of thematic and non-thematic science textbooks for class VI can be seen in picture below.



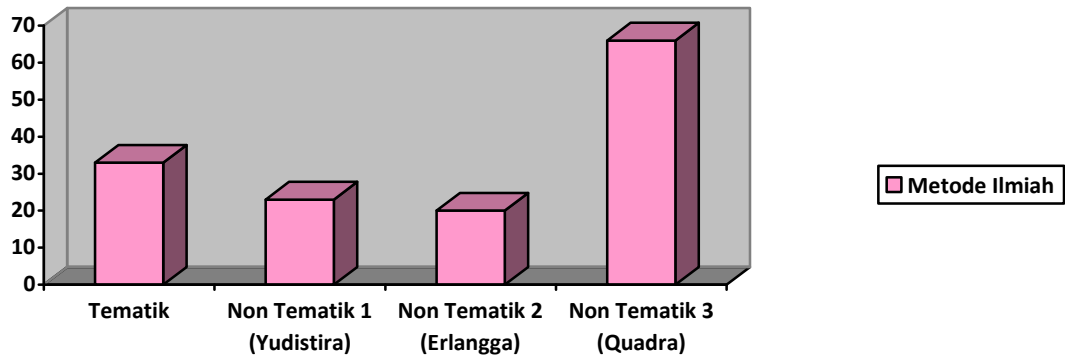
Picture 9. Comparison of the Nature of Science Creative Aspects

The highest nature of science in the creative aspect is found in non-thematic textbook Erlangga publisher with a percentage of 54%, and the lowest creative aspect is non-thematic Yudistira publisher with a percentage of 0%. This shows that the non-thematic textbook Erlangga publisher are pretty good at emphasizing creativity compared to other books. Moreover, Yudistira's non-thematic textbooks don't emphasize the creativity aspect at all. Scientific knowledge is created from imagination, creativity, and human logical reasoning that continues to develop and is based on planning, observation, and conclusion. The

importance of the creativity aspect in NOS is following the opinion of scientists, namely by using creativity and innovations to find new things (Nielsen, 2013).

Scientific Method Aspects

The comparison of the nature of science in aspects of the scientific method in thematic and non-thematic science textbooks for class VI can be seen in picture 10 below.

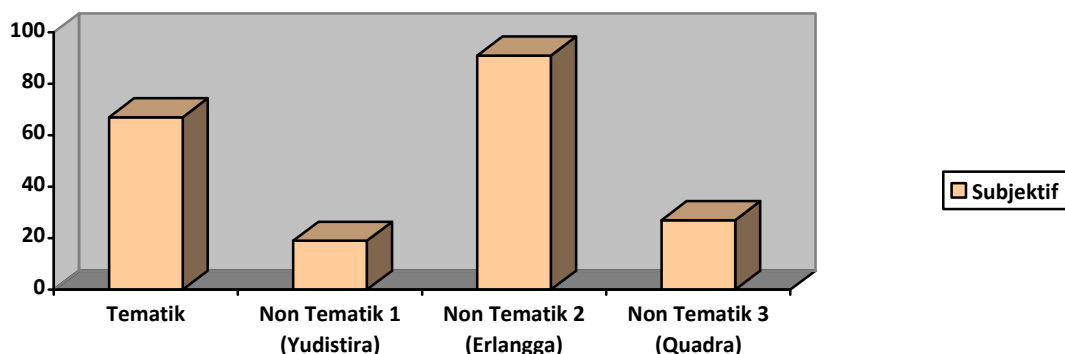


Picture 10. Comparison of the Nature of Science Aspects of the Scientific Method

The highest nature of science in the scientific method aspect is found in non-thematic textbook Quadra publisher with a percentage of 66%, and the lowest scientific method aspect is non-thematic Erlangga publisher with a percentage 20%. This shows that non-thematic textbook Quadra publisher has emphasized the nature of science in aspects of the scientific method well, while other books are still lacking. The thing that must be noted in this aspect of the scientific method is that if there is no definite and universally applicable scientific method, scientists are free to use any form as long as it can be justified (Widodo et al, 2019). So, the graph results show that non-thematic textbooks are better at guiding their students to develop their scientific method skills.

Subjective Aspects

The comparison of the nature of science in the subjective aspects of thematic and non-thematic science textbooks for class VI can be seen in picture 11 below.



Picture 11. Comparison of the Reality of Science Subjective Aspects

The highest nature of science in the subjective aspect is found in non-thematic textbook Erlangga publisher with a percentage of 91%, and the lowest scientific method aspect is non-thematic Yudistira publisher with a percentage 19%. This subjective aspect emphasizes the personal value or knowledge of a theory produced by the researcher. As mentioned by Widodo et al (2019), the researcher's previous experience will affect what and how a scientist does his work.



The Nature of Science in Thematic and Non-Thematic Textbooks

The nature of science is essential in the science learning process. Understanding the nature of science will provide background detailing how science and scientists work. Understanding how scientific knowledge is created, validated and influenced (McComas, 2015). Based on the results of the analysis on the thematic student books grade 6 on 2013 curriculum and 3 non-thematic science textbooks for class VI, namely the ESPS Science Book published by Erlangga, Jelajah Sains Book published by Yudistira, and Keajaiban Sains published by Quadra. That each book has dominant aspects of the nature of science (NoS) with its advantages. So textbook users can adjust which aspect of NoS they want to develop by choosing the appropriate science teaching materials.

The nature of science in the 2013 Curriculum thematic textbooks, almost all aspects have an average percentage, which is 33%-67%. All aspects of science in this thematic textbook have a lower rate than non-thematic books. The highest aspect of science in thematic textbooks is the product aspect, with a percentage of 87%. Thus, it can be said that this thematic book good qualification in the product aspect. Even so, the rate of this product aspect is still lower than the three non-thematic books. The high product aspect shows that the thematic books used as the primary source of science subjects in elementary schools contain more concepts and theories. At the same time, the weakness of this thematic book is in the theoretical and law aspects, with a percentage of 25%. Theories and laws explain natural phenomena and the mechanism of the relationship between realistic sensations and the relationships, observations, perceptions of natural phenomena, which are usually accompanied by mathematical formulas in terms of law (Adi & Widodo, 2018). This comparison shows that the material concepts presented in the book are less related to natural phenomena that can be found in the surrounding environment. An explanation of cause and effect accompanied by mathematical formulas in law is still lacking.

Non-thematic textbooks, namely Jelajah Sains Books Grade 6 which published by Yudistira, have advantages in the product, theory, and law aspects, with each getting a percentage of 100%. However, this book has weaknesses in attitude and creativity with a rate of 0%. There is no test description in this book that aims to improve the attitude and creativity. Meanwhile, in several aspects of NOS, there are basic aspects that must be developed so that students are better able to conceptualize scientific and tentative creativity (Akerson et al, 2009). Textbooks that make children think creatively by carrying out scientific attitudes can be brought up by the presence of an editor who asks students to carry out active activities such as experimenting, exploring, or practicum.

Aspects of the nature of science in non-thematic textbooks, namely the ESPS IPA book Grade 6 which published by Erlangga, have advantages in product, subjective, and socio-cultural aspects. The product aspect with a percentage of 100% shows that this Erlangga Publisher's science book is very good at instilling product aspects. This book has weaknesses in the process aspect with 29% and aspects of the scientific method with a percentage of 20%. This percentage is the lowest compared to other textbooks. This shows that Erlangga Publisher's textbooks are not good at instilling the nature of science in aspects of the scientific process and method. However, in another category, Erlangga Publisher's books have an average of the nature of science in the excellent category.

The non-thematic textbook, namely Keajaiban Sains Books Grade 6 which Published by Quadra, has advantages in products, attitudes, empirical facts, processes, and scientific methods. Product aspects and empirical facts with a percentage of 100% indicate that the book is very good at instilling the nature of science in product aspects and practical realities. This book has weaknesses in the creative, socio-cultural, and subjective elements. The



percentage of the essence of science in this aspect is less than 30%. This shows that the textbook publisher Quadra explains the concept of science material completely and presents many empirical facts that can support students' understanding of the material being studied.

Table 3. Average Percentage of 10 Aspects of the Nature of Science

Thematic Student Books Grade 6, Curriculum 2013	Jelajah Sains Book Grade 6 (Yudistira)	ESPS Book Grade 6 (Erlangga)	Keajaiban Sains Book Grade 6 (Quadra)
48 %	45 %	63 %	62 %

The analysis conducted on four types of science textbooks for class VI shows that there are two significant differences based on the percentage of the availability of aspects of the nature of science. The average percentage of the highest aspect of the nature of science in the four textbooks is on the product aspect, which is 97%. While the lowest average percentage aspect in the textbook is the creativity aspect by 25%. This is the same as explained by Adi & Widodo (2018), if the low scientific literacy that contains the competence of the nature of science is caused because almost all science textbooks focus on scientific knowledge only while scientific investigations, scientific thinking, and social aspects of science are often ignored. Suppose it is seen from the difference in the availability of all aspects between thematic and non-thematic science textbooks for class VI, which are presented in table 3. The percentage of science aspects is more significant in non-thematic or partial teaching materials (textbooks that are separated from other subjects). The percentage difference is around 14% except when compared to non-thematic books published by Yudistira. Thematic books are still in the higher category, which is 3%.

Teaching material is one of the essential things used by teachers in the learning process. Based on the results of the survey in Figure 1 that the 2013 Curriculum Thematic Student Book is used as the leading learning resource by both teachers and students in elementary schools, even though if you look at the results of the analysis that has been carried out, the average content of aspects of the nature of science which is the foundation of science learning in textbooks thematic has only in medium category. So this can be a note for teachers not to use only one learning resource but to choose a variety of learning sources that support the nature of science. In addition to teaching materials, understanding the nature of science can be developed in various ways. One of which is that implementing practicum will increase students' enthusiasm for science, train thinking skills, deal with problems, and instill a positive attitude. Students need to learn how to apply science instead of studying reality, concepts, generalizations, theories, and laws of science (Windyariani, 2017). In addition, teachers can also make LKPD teaching materials independently where the preparation takes into account aspects of the nature of science.

Conclusion

The conclusions obtained from the results of this study are Thematic Textbooks and Class VI Non-Thematic Science Textbooks have their respective advantages and disadvantages based on the nature of science. The content of all aspects of science in textbooks Thematic is lower than non-thematic textbooks. The essence of science is the highest in thematic books, namely in the product aspect of 97% and the weakest in creativity by 25%. The nature of science in the product aspect has good criteria in the elementary school grade VI science textbooks to develop student knowledge well. At the same time, the aspect of creativity lacking in books so far can be an illustration for teachers to build learning activities that are more creative and make science teaching materials that contain elements of the invention by a higher percentage.



Recommendation

The results of this study can be used as a basis for teachers choosing textbooks suitable for teaching science in grade VI elementary school by paying attention to various aspects of the nature of science. In addition, for the writers of science books, this study becomes an input to pay attention to content knowledge to the appropriate and accommodating various aspects, including the nature of science. For other researchers, elements of the nature of science become an essential thing to be investigated both in the material component and mastery of concepts.

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