

ANALYSIS OF TEXTBOOK BASIC PHYSICS 1 USING PARADIGM THE UNITY OF SCIENCES

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Abstract

This study discusses the analysis of basic physics textbooks 1 using the unity paradigm of science. The purpose of this study was to determine the unified strategy of science and to analyze the methods used by the author in bringing up the unified strategies of science in the textbook of basic physics 1 by Hamdan Hadi Kusuma. The approach used is qualitative by using the type of literature study. The data collection technique used is document analysis, the intended document is a basic physics book 1. Data analysis in this study consists of data reduction, data presentation, and drawing conclusions. The results of the analytical research using the paradigm of the unity of science from the three strategies show that the strategy in the textbook "Basic Physics 1" by Hamdan Hadi Kusuma there are two strategies, namely the humanization of Islamic sciences and the spiritualization of modern sciences. The two strategies have methods used by the author including the use of related scientific achievements in understanding teachings, relevance of teachings to social problems, ayatization, and philosophical fusion. Based on the classification of strategies for each material in the textbook, it can be concluded that the six materials in the textbook have conveyed the three strategies of the unified paradigm of science.

Keywords: physics textbook, basic physics, paradigm unity of science.

INTRODUCTION

The low scientific literacy of Indonesian children is caused by many factors related to the educational process, including: (a) the methods used in education, (b) the determination of models, approaches, methods, learning strategies, and others, (c) the selection of learning resources, (d) student learning styles, (e) learning infrastructure, and other variables. These factors are very interesting for research related to learning science and become material for educational research. The factors above that are directly related to students, one of which is learning resources, from textbooks or from other sources. There are many analyzes in textbooks currently circulating, so it is necessary to do, mainly analysis related to the unity of sciences. Adisendjaja (2009), Stake and Easley in their research journal stated that 90% of science teachers use books in teaching methods. Textbooks play a

big role for science educators, not only as learning aids but also as a participation in the education of the younger generation. Educators and students do need learning resources for the learning process, so it is recognized that one of the determining factors for improving the quality of learning is improving the quality of learning resources. The need to apply character education based on Islamic teachings, to avoid things that are not in harmony with the spirit and principles of Islam in character education, this needs to be applied to character education based on the paradigm of the unity of science. The paradigm of the unity of science is a pattern that explains that everything is a whole that comes from Allah SWT and through His revelation will lead to Allah, directly or indirectly (Fanani, 2015). According to the paradigm of the unity of science, there is a dialogue between science and other sciences to bring the reviewer to know and get closer to Allah. A person is expected to be able to fully unite God by applying the paradigm unity of sciences.

A person who adheres to monotheism (i.e. putting and remembering that everything is left to Allah) will have a good attitude towards Allah, so that emotional regulation is good and healthy in his soul (Suliswidiawati, 2019). People who are very good at regulating emotions are people who are mentally healthy. Emotional intelligence is part of a person's ability to regulate, while emotional intelligence from the results of this research that has been carried out proves that there is a relationship with the quality of one's character. Therefore, the application of the unity of science paradigm is expected to help improve the quality of character in one's life.

The basis of religious knowledge and science is the wholeness that comes directly or indirectly from Allah through His revelation (Fanani, 2015). In essence, science and religion are both knowledge possessed by God to be bestowed on humans. Science is the result of scientists' analysis of nature which is God's creation to show signs of His greatness. The religious knowledge that is raised in science will not reduce the level of scientific knowledge but will direct science to be physically and spiritually prosperous, which makes for a better understanding if you bring science into the science of religion (Darmana, 2014). The unity of science is a paradigm that explains all the basic knowledge that originates from and leads to God through His revelation, either directly or indirectly, a whole that cannot be separated. As Al-Alim, the sciences dialogue with each other and aim at one goal to bring the reviewer to know and get closer to Allah (Fanani, 2015).

Textbooks are important learning resources to achieve the competencies listed in the Basic Competencies and Core Competencies (Government Regulation Number 32 of 2013 concerning National Education Standards). The ability and effectiveness of learning textbooks that have been adapted to students' needs (Attachment to Regulation of the Minister of Education and Culture Number 22 of 2016 concerning Standards for Primary and Secondary Education Processes). Students are expected to get learning materials or obtain information through textbooks that are guaranteed to be accurate in addition to the teacher.

Based on this, an analysis of textbooks is needed as a guarantor of the development

of the quality of education in Indonesia. Many studies have been conducted on the analysis of textbooks in Indonesia, both based on curriculum, level of readability, processing skills, and so on. Research on book analysis based on unity of sciences, especially for physics books, is still rarely done. Increased understanding of science will be expected after choosing the right book, especially on unity of sciences.

The integration of science with Islamic values is essentially needed in order to overcome the view that religious science and science are separate or independent sciences. Efforts are being made to do this by presenting physics learning resources that combine general science and religious knowledge, namely learning resources that are integrated with the unity of science. Based on the explanation above, researchers are encouraged to analyze the paradigm of the unity of science in physics textbooks. Researchers in this case are motivated to carry out research with the title *Analysis Of Basic Physics Textbook 1 Using The Paradigm Unity Of Sciences*.

RESEARCH METHODS

This study uses a qualitative approach. The type used in this research is literature study. According to Syaibani (2012) literature study is the collection of information by a researcher related to a topic or problem, future or ongoing research. This study uses data collection techniques, namely document analysis. Document analysis is a research in the form of qualitative research in which there is a document interpretation procedure in it. Document interpretation is done in order to obtain a description of a research topic (Bowen, 2009). The document referred to in this research is the basic physics book 1. Document analysis is carried out in the following stages:

1. All contents of the textbook are read and fully understood.
2. Classify physics textbooks based on unified science strategies.
3. Presenting the relationship between the method used and the theory of the unified paradigm of science.

Data analysis in this study used content analysis. Miles and Huberman stated that qualitative data analysis activities were carried out, interacted and continued to completion, so that the data became saturated. Activities in data analysis are data reduction (data reduction), data display (data presentation), conclusion drawing/verification.

RESULTS AND DISCUSSION

This study aims to determine the unity of science strategy and analyze the method used by the author in bringing up the unified strategy of science in Hamdan Hadi Kusuma's basic physics textbook 1 which uses the type of literature study research with content analysis method. Based on the results of the analysis of the strategy of the unity of science, the strategy of the unity of science has emerged where in the basic physics textbook 1 the strategies for humanization of Islamic sciences and the spiritualization of modern sciences are the most, but there are other strategies that are not shown at all in the basic physics

textbooks. namely the local wisdom revitalization strategy.

1. Classification of Basic Physics Textbooks 1 on Materials of Quantities and Measurements

Based on the results of the analysis conducted in the basic physics textbook 1 by Hamdan Hadi Kusuma, two strategies were used, namely the humanization of Islamic sciences and the spiritualization of modern sciences. Making this sundial, he is known as a prayer timer, it shows scientists utilizing and understanding the teachings of science. The demands of the Islamic world are driven by religious needs, this statement is the relevance of teachings to the importance of time with social problems, namely the demands of life in making clocks in the Islamic world with religious needs. Statements that include matters relating to modern science which are treated properly and given divine value, namely letters that have been described as a way of philosophical fusion.

2. Classification of Basic Physics Textbooks 1 on Motion Kinematics Material

The analysis of motion kinematics textbooks is classified in the paradigm of the strategy of the unity of science, there is one strategy that is raised, namely the strategy of spiritualization of modern sciences. The method that appears in the spiritualization strategy of modern sciences is philosophical fusion which explains the journey that must be taken. That explanation, the verse which is used for the divine foundation or foothold regarding motion, travel, or displacement and so on does not actually have direct relevance to the physical concept of motion kinematics.

3. Classification of Basic Physics Textbooks 1 on Motion Dynamics Materials

The analysis of this motion dynamics text book is classified in the paradigm of the strategy of the unity of science, there is one strategy that is raised, namely the strategy of spiritualization of modern sciences. The concept of physics that explains about moving by hand is a force that is given to move something so that it changes the position of the movement. The concept reminds that there are blessings from Allah SWT and grateful for the blessings given so that they will be protected from all evil from those who do evil. The method that appears in the spiritualization strategy of modern sciences is ayatization. According to the explanation, the verse used for the divine foundation or footing actually does not have direct relevance to the physical concept of motion dynamics.

4. Classification of Basic Physics Textbooks 1 on Work Materials and Energy

The analysis of this work and labor material textbook is classified in the paradigm of the strategy of the unity of science, there is one strategy that is raised, namely the strategy of spiritualization of modern sciences. The method that appears in the spiritualization strategy of modern sciences is ayatization which explains the concept of work, namely if the object is at rest, then its kinetic energy is zero. The concept has something to do with kinetic energy and motion. The explanations in Surah Al-Baqarah verse 110, Al-Baqarah verse 267, and Surah Ar-Ruum verse 23 talk about establishing prayer, paying zakat, and trying to find some of God's gifts, which are a human obligation as a form of devotion to Allah SWT. so actually can not be said with the concept of physics. The explanation of the verses used for the divine foundation or footing does not have direct relevance to the

physical concepts of work and energy.

5. Classification of Basic Physics Textbooks 1 on the Elasticity of Materials

Analysis of the textbook material elasticity of this material is classified in the strategy of the paradigm of the unity of science, there is one strategy that is raised, namely the strategy of spiritualization of modern sciences. The method that appears in the spiritualization strategy of modern sciences is ayatization which explains the concept of elasticity of materials, namely expansion, the impermanent nature of materials will change shape when there is a force that influences it. The explanation of this statement that iron has been softened means that iron is made soft, meaning that it still has a connection with the concept of elasticity of the material, because iron can be softened by increasing its heat. The previously non-elastic properties of iron become elastic by being able to be shaped, beaten and so on, this has relevance between verses related to the physical concept of elasticity of materials.

6. Classification of Basic Physics Textbooks 1 on Momentum and Impulse Materials

The analysis of this momentum and impulse textbook is classified in the paradigm of the unified science of science, there is one strategy that emerges, namely the strategy of spiritualization of modern sciences. The method that appears in the spiritualization strategy of modern science is ayatization which explains the concept of momentum, one of which is shock, the occurrence of collisions caused by external forces. The explanation of the word shock in Surah Al-Hajj verses 1 and 2 talks about the shock of the Day of Judgment, so actually it cannot be said to be a physical phenomenon, because it has not happened and as human beings we also do not know the description of the shock on the Day of Resurrection and can only guess. Physics basically must be accompanied by authentic evidence or observed phenomena. In fact, this cannot necessarily be directly related to the material of momentum and impulse that is known physically, unless the verse of the Qur'an talks about earthquakes which have already existed phenomena and relates them to physics. The word shock from Surah Al-Hajj is that there are incidents of neglect of women who breastfeed their children, women who die in their wombs, and people who are drunk who are actually not drunk, these events are all more social phenomena not just physical phenomena.

CONCLUSION

Based on the results of the analysis and discussion, it can be concluded as follows: The strategy for the unity of science in basic physics textbook 1 includes two strategies, namely the humanization of Islamic sciences and the spiritualization of modern sciences. The method used by the author of the book in developing a unified strategy of science includes the use of related scientific achievements in understanding teachings, relevance of teachings to social problems, ayatization, and philosophical fusion.

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