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INTEGRATION OF RELIGION AND SCIENCE IN BIOLOGY COURSES AT SMA 4 PADANGSIDIMPUAN

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ABSTRACT

This study aims to examine the integration of religion and science in Biology learning at SMA 4 Padangsidimpuan, by highlighting the problems, objectives, and application of qualitative research methods in analyzing the relationship between the two. The integration of religion and science in education is often considered difficult, especially in Biology lessons which are usually seen as contradictory to religious teachings. Therefore, this study aims to determine how Biology teachers at SMA 4 Padangsidimpuan connect religious values in science teaching, and how students respond to this approach. This study uses a qualitative approach with a case study type. Data were collected through observation, in-depth interviews with Biology teachers, and analysis of curriculum documents and teaching materials applied. In addition, interviews were also conducted with students to determine their views and attitudes towards Biology learning that combines religious elements. The results of the study indicate that Biology teachers at SMA 4 Padangsidimpuan integrate religious values with Biology materials by connecting the natural phenomena studied with religious concepts, such as creation by God, the balance of nature, and human responsibility in protecting the environment. The methods used include discussion, reflection, and providing real examples that link religious teachings with scientific theories. In conclusion, the integration of religion and science in Biology learning at SMA 4 Padangsidimpuan provides a more comprehensive understanding for students, where they not only learn scientific concepts, but also appreciate the relationship between science and religious teachings in their lives. This approach enriches students' insights and fosters positive attitudes towards both fields.

INTRODUCTION

Education that integrates religion and science is increasingly gaining attention in various countries, including Indonesia. In schools, especially in science subjects such as Biology, differences of opinion often arise between scientific principles and religious teachings. This is due to the general view that religion and science are two separate things, even contradictory. This phenomenon is a major challenge for educators in teaching science subjects based on scientific theory to students who also have strong religious beliefs.

At the secondary education level, especially at SMA 4 Padangsidempuan, the integration of religion and science in Biology lessons is still rarely applied explicitly. Biology, which studies life, deals with topics that can be adapted to religious concepts, such as the creation of living things, biodiversity, and the complexity of ecosystems. However, many Biology teachers find it difficult to connect these two fields in the teaching process without causing conflict between the two.

While religion teaches that God is the creator of all things, including life, Biology explains that the phenomena of life can be understood through scientific processes, such as the theory of evolution, natural selection, and genetic inheritance. The tension between these two views often becomes an obstacle to learning. Therefore, this study is important to explore how the integration of religion and science can be applied in Biology learning at SMA 4 Padangsidempuan, so that students gain a more holistic understanding of the relationship between religion and science. The main objective of this study is to explore and analyze how the integration of religion and science is applied in Biology learning at SMA 4 Padangsidempuan. In more detail, this study aims to: Find out how Biology teachers at SMA 4 Padangsidempuan connect religious values with Biology material. Analyze students' views and attitudes towards Biology teaching that combines religion and science. Various previous studies have examined the topic of the integration of religion and science in education, but this study has fundamental differences in terms of focus and context. Most previous studies have focused more on theoretical approaches or the influence of religion on general views of science, without examining in depth the application of this integration in Biology teaching at the secondary education level.

For example, Mohammad Shafiq (2014) conducted a study on the relationship between science education and religion in Pakistan. This study shows that many students consider religion and science as two separate fields and cannot be combined in teaching. Shafiq suggested the importance of the role of teachers in bridging these two things to avoid conflict between scientific knowledge and religious teachings. This study is general and does not focus on a specific subject, such as Biology.

Another study by Abdul Aziz (2015) in Indonesia examined the implementation of religious integration in the education curriculum in Islamic schools. Aziz focused more on the application of a religious approach in general subjects, but did not discuss in depth how Biology subjects related to natural phenomena can interact with religion. This general study provides an overview of practice, but does not specifically examine the implementation of religious integration in the field of natural sciences.

In addition, Rita Kurniawati's (2017) study in West Java focused on students' views on the relationship between religion and science in everyday life. The results of this study indicate that many students do not see any conflict between religion and science, but they do not make many connections with the science learning they receive at school. Although it provides an overview of student perceptions, this study does not explore how teachers integrate religion and science in Biology teaching specifically.

Different from previous studies, this study focuses more on the practical application of the integration of religion and science in Biology learning at SMA 4 Padangsidimpuan. This study will examine how Biology teachers connect religious concepts with Biology materials in the classroom, as well as how students react to teaching that integrates the two fields. Therefore, this study is expected to provide a more applicable contribution in the development of teaching methods that combine religion and science, especially in the context of education in Indonesia.

The first is an introduction that describes the background of the problem, problem formulation, objectives, and significance of the research. The second will discuss a literature review that includes previous research related to the integration of religion and science in education and relevant theories. The third explains the research methods used, including qualitative approaches and case study designs. The fourth will present the results and data analysis and discussion of the research findings. The fifth contains conclusions and recommendations for the development of Biology learning that integrates religion and science at SMA 4 Padangsidimpuan.

METHOD

This research was conducted with a qualitative approach using a case study design. This approach was chosen to explore in depth how the integration of religion and science is applied in Biology teaching at SMA 4 Padangsidimpuan. Through this approach, it is expected to obtain a complete understanding of teaching practices that combine religious values with scientific concepts, as well as how students and teachers respond to the integration process. The case study approach is considered the most appropriate because it allows researchers to specifically explore the phenomena that occur in a particular educational context, namely at SMA 4 Padangsidimpuan.

This study involved two main groups of subjects. The first group is Biology teachers, namely four teachers who have experience in integrating religious values in the Biology teaching process. They were chosen because they have the understanding and competence to link scientific concepts with religious teachings in classroom learning. The second group is students in grades X, XI, and XII who have taken Biology lessons that contain elements of integration between science and religion. The selection of students was carried out purposively, considering their experience in participating in the learning.

To obtain rich and in-depth data, three data collection techniques were used, namely in-depth interviews, participant observation, and document analysis. Interviews were conducted directly with teachers and students. Interviews with teachers were semi-structured to explore how they implement the integration of religion and science in learning activities, as well as their views on the benefits and challenges of such teaching. Meanwhile, interviews with students were conducted more openly to explore their understanding, responses, and views on the relationship between science and religion in Biology learning. All interviews were recorded and transcribed for further analysis.

In addition, observations were conducted directly in the classroom during the learning process. In this observation, the researcher observed how teachers delivered Biology material while linking it to religious values, and how students responded and interacted in a learning atmosphere that combined the two fields of science. Observations were conducted in several learning sessions to capture variations in methods and strategies used by teachers.

The series of data obtained were also supplemented with document analysis, such as syllabus, RPP (Lesson Implementation Plan), and teaching materials used in Biology learning. This analysis aims to trace the extent to which the integration of religion and science has been designed in formal learning documents.

This study is limited to the context of Biology teaching at SMA 4 Padangsidempuan and only involves teachers and students who are directly involved in the learning process. Therefore, the results of this study are not intended to be generalized to other schools or different educational contexts, but rather to provide an in-depth picture of the practice of integrating religion and science in the specific context studied.

RESULT AND DISCUSSION

Biology Teaching Integrating Religion and Science

This study revealed that in SMA 4 Padangsidempuan, Biology teaching significantly integrates religious values with scientific concepts. Biology teachers discuss natural phenomena taught in Biology lessons with religious teachings, especially Islam. For example, in discussing the creation of living things, biodiversity, and ecosystem balance, teachers explain that all of these are part of God's creation, which is a sign of His greatness. In addition, they also emphasize the importance of preserving nature as a mandate from God.

Teachers at SMA 4 Padangsidempuan try to explain scientific knowledge and religious values in their teaching simultaneously. For example, in discussing the theory of evolution, teachers provide scientific explanations regarding the mechanisms of evolution, but still relate them to religious views regarding the creation of living things. In this way, students are invited to see that science and religion do not have to be considered contradictory, but rather two different ways of understanding the universe.

In addition to verbal explanations, teachers also use learning media that describe nature and God's creation to strengthen students' understanding. Images or videos of the beauty of nature and natural processes are used to show that science and religion both contribute to understanding the world. In this way, students can see the connection between science and spirituality.

Challenges in Integrating Religion and Science

Although teaching Biology that combines religion and science has many benefits, there are several challenges faced by teachers. One of the biggest challenges is the

perception that religion and science are often in conflict, especially on certain topics, such as the theory of evolution.

Teachers at SMA 4 Padangsidimpuan realize how difficult it is to bridge these two dimensions. Some students who have a strong understanding of religion feel that certain scientific concepts, such as the theory of evolution, are not in accordance with their religious teachings. However, teachers try to explain that science and religion should not be seen as two things that are in conflict. Science can explain how God created the universe, while religion explains why and for what the universe was created.

In addition, another challenge faced is the lack of teaching materials that explicitly connect science and religion. Many teaching materials used do not directly cover the relationship between the two, although philosophically many topics in Biology can be linked to religious teachings. This forces teachers to be more creative in developing teaching materials that are able to integrate the two.

Lack of adequate training for teachers is also an obstacle in implementing this integration. Although many teachers try to incorporate religious values in Biology lessons, they feel less confident or not prepared enough to teach material that connects science and religion. This indicates the need for more further training for teachers to improve their understanding and skills in teaching both simultaneously.

The Role of Teachers in Integrating Religion and Science

The role of teachers in integrating religion and science is very important. Teachers not only function as transmitters of material, but also as facilitators who help students understand the relationship between scientific knowledge and their religious beliefs. At SMA 4 Padangsidimpuan, Biology teachers strive to create a learning environment that supports the integration of religion and science. They not only teach scientific facts, but also emphasize spiritual values that can be applied in students' daily lives.

Teachers at this school realize that the goal of education is not only to provide scientific knowledge, but also to help students understand the deeper relationship between religion and science. Some teachers even include spiritual reflection sessions after each lesson to help students connect science learning with religious teachings. This shows that teaching that integrates religion and science can help students form a more holistic worldview.

In addition, the use of group discussion methods also allows students to share their views on the relationship between religion and science. Teachers play a role in facilitating these discussions, providing space for students to express their concerns or confusion regarding topics that may feel contradictory between religion and science, such as the theory of evolution. Teachers then help students find common ground between their scientific and religious views.

However, the effectiveness of this integration is highly dependent on the readiness of teachers to adapt more inclusive teaching methods, which are not only based on the

formal curriculum, but also take into account spiritual values that are relevant to students' lives.

Student Responses to the Integration of Religion and Science

Students at SMA 4 Padangsidempuan showed a positive response to Biology teaching that integrates religion and science. Many students felt that this approach gave them a more comprehensive understanding of the world around them. They expressed that they found it easier to understand scientific concepts when taught in the way that they were taught with religious teachings, because they could see the relationship between the two.

Most students felt more confident with scientific theories after realizing that religion and science do not need to be considered as two opposing things. For example, in discussing the theory of evolution, students received a clear scientific explanation, but were also given an understanding that their religious views on the creation of living things remained relevant and did not conflict with the scientific concept.

However, some students still felt confused or doubtful about the integration of religion and science, especially when discussing topics that were considered to be contrary to their religious teachings. Although this is only a small portion of students, it shows that the integration of religion and science can be accepted by many students, there are still challenges in ensuring that all students can understand and accept the integration well.

Impact of Integration on Student Understanding

The results of the study show that Biology teaching that integrates religion and science has a positive impact on student understanding, both in terms of scientific knowledge and in the spiritual dimension. Students who engage in learning that combines religion and science display a deeper understanding of the relationship between humans, nature, and God.

This integration between religion and science helps students to not only understand how natural phenomena occur, but also why these phenomena occur and what they mean for human life. They also learn that humans have a responsibility to maintain the balance of nature, because nature is a mandate from God. Thus, this teaching forms an attitude that cares more about the environment and teaches students to appreciate the greatness of God in His creation.

Overall, the integration of religion and science into Biology learning at SMA 4 Padangsidempuan provides students with a broader and more holistic understanding of the world, which includes not only scientific aspects, but also spiritual and moral dimensions.

CONCLUSION

Based on the research findings on the integration of religion and science in Biology teaching at SMA 4 Padangsidempuan, it can be concluded that the implementation of this approach is carried out consistently and in a structured manner. In practice,

Biology teachers combine Islamic teachings with scientific materials taught in class, such as topics on the creation of living things, biodiversity, and ecosystem balance. Through this approach, students are not only invited to understand scientific concepts academically, but also to appreciate the spiritual meaning behind the natural phenomena being studied. The harmony between science and religion enriches students' perspectives in seeing the relationship between science, life, and their belief in God.

Teachers play a very important role in this integration process. They are not only tasked with conveying scientific information, but also as facilitators in linking each scientific concept with religious values. In this way, teachers create a learning atmosphere that encourages students to understand that science and religion are not two opposing entities, but rather two complementary approaches to understanding the universe. However, in this teaching process, there are still challenges. One issue that is quite prominent is the existence of certain scientific materials, such as the theory of evolution, which are felt to be in conflict with the religious understanding of some students. This shows that the integration of these two fields of science requires a wise and in-depth pedagogical approach.

Another challenge lies in the limited teaching materials that explicitly combine religious values with scientific concepts. As a result, teachers must work harder in developing learning strategies that can bridge the two aspects harmoniously. The need for professional training is also felt to be quite urgent so that teachers can continue to develop their competence in implementing the integration of religion and science more effectively and responsively to the diversity of student understanding.

Students' responses to this approach are generally quite positive. They find it easier to understand Biology material when it is presented in the context of values that are close to their personal beliefs. This kind of learning not only strengthens academic understanding, but also fosters spiritual awareness in students. They begin to see science as a window to knowing and admiring the greatness of God, and understand the importance of preserving His creation. However, not all students can immediately accept this integration without confusion, especially when faced with scientific concepts that seem to contradict their religious understanding. Therefore, the role of teachers is very important in providing in-depth and balanced explanations so that students can understand both perspectives more critically and openly.

Overall, the integration of religion and science in Biology teaching at SMA 4 Padangsidempuan has a significant impact on the way students understand lessons and life. Not only do their cognitive abilities develop, but also their spiritual attitudes and concern for the environment. The integration of religious values in Biology learning has formed students' holistic view of the universe as God's creation that must be appreciated and protected.

As a form of future development, it is recommended that the school provide greater support in the form of training for teachers and the provision of more integrative teaching materials. In addition, it is also important to create an open discussion space in the classroom, so that students can express their views and build a more

complete and balanced understanding between science and religion. Thus, education is not only a means to understand the world, but also a way to strengthen spiritual and moral values in students.

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