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POTENTIAL FOR IMPLEMENTING BIOLOGY LEARNING BASED ON THE QUR'AN IN HUMAN REPRODUCTIVE SYSTEM MATERIAL

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ABSTRACT

The phenomenon of free sex is increasing due to the lack of understanding of the human reproductive system and religious values. The effort to overcome this is by integrating biology learning on the concept of the human reproductive system with the values contained in the Qur'an. This study aims to analyze the potential application of Qur'an-based biology learning on human reproductive system material. The type of research used is descriptive qualitative with a sample of MGMP biology teachers in the Mranggen sub-district using a random sampling method. Supporting data sources came from the opinions of students, teachers and the Head of Madrasah at MTs Al Furqon. The data collection techniques used were questionnaires, observations and interviews. The results of observations on teachers, students, madrasah head and infrastructure at MTs Al Furqon show the potential to implement Qur'an-based biology learning on human reproductive system material. It is hoped that later, it can also be implemented in other biological concepts.

INTRODUCTION

Student development changes according to the characteristics at each stage. As an educator, it is necessary to understand the characteristics of students at each stage. Understanding student development will enable us to actualize students' competencies (Octavia, 2021). According to psychologist Hurlock (1980), there are several stages of human development, one of which is adolescence (Sitorus, 2012). Adolescence starts from the age of fifteen to eighteen years. Adolescence is a transitional period from childhood to adulthood (Anshory AM et al., 2016). In adolescence, it has characteristics that are different from other phases. In this phase, a person can experience several

physical and psychological changes. In these changes, physical growth and sexual maturation will accelerate. The beginning of adolescence is referred to as puberty, which is characterized by increased sex drive (Fatmawaty, 2017). Sex drive that is not controlled correctly will lead to deviant behaviour, such as free sex in adolescents (Candra Purnama et al., 2020).

The phenomenon of free sex in adolescents today has increased. Perkumpulan Keluarga Berencana Indonesia (Indonesian Family Planning Association) Central Java survey that 63% of teenagers in several big cities have had premarital sex. Unwanted pregnancy in Central Java also increases every year; in 2014, as many as 67 adolescents who came to counselling increased to 2013 as many as 63 adolescents who came to counselling. One of the causes of the increase in the number is caused by the lack of understanding of adolescents about sex education. According to Survey Demographic dan Kesehatan Indonesia (Indonesian Demographic and Health Survey) about Kesehatan Reproduksi Remaja (Adolescent Reproductive Health), the level of knowledge of adolescents about reproductive health is still low with the results of 73 46% of male adolescents and 75 6% of female adolescents aged 15-19 years in Indonesia do not know enough knowledge about reproductive health (Aryani et al., 2022).

The lack of knowledge of Indonesian adolescents about sexual and reproductive health is an issue that needs to be studied in depth. An incomplete understanding of sex has the potential to encourage adolescents to take risky actions and trigger misunderstandings. During adolescence, education about sexual issues is crucial to prevent adolescents from seeking information from unreliable or erroneous sources (Buaton et al., 2019). This education can be done in school learning, namely on the concept of the human reproductive system.

In the human reproductive system concept, there is material about understanding the introduction of human reproductive organs, the process of fertilization, pregnancy, disorders in the reproductive system and efforts to prevent them. The material of the human reproductive system is real material that occurs in life. Based on the syllabus, the sub-materials in the human reproductive system taught to students include the organs of the human reproductive system, as well as disorders and diseases that occur in the human reproductive system. In the sub-material of organs in the human reproductive system, students learn about the structure, name, and function of the organs in the human

reproductive system. In this sub-material, students also learn about the menstrual cycle that female students experience. In addition, this sub-chapter also learns about pregnancy and foetal development, which cannot be separated from the life around the learners.

In the implementation of learning the human reproductive system, there are several obstacles, including for students, it is a taboo subject and makes them uncomfortable to know (Hera, 2018). In addition, the teaching tends to be theoretical and rarely developed by linking it with environmental and social problems. This causes much information about reproductive organs and sexuality to be obtained from inappropriate sources (Aryani et al., 2022). Therefore, adolescents need correct information about reproduction and reproductive health so that they are expected to have responsible attitudes and behaviours regarding their organs and reproduction (BKKBN, 2012).

The cause of the increase in free sex is also caused by the lack of religious values (Anwar et al., 2019). Religious education should be sought so that the teachings of religion are not only known but also truly understood and lived so that it can give rise to a great desire to live by the will of God Almighty. One approach to overcoming the problem of free sex is to develop and restore human nature, namely using Islamic religious education (Maya, 2012). The function of Islamic religious education includes, among others, fostering a sense of faith that develops habits of good deeds and noble morals. Cultivating Islamic religious education values is an effort to realize students' character development (Daradjat, 2016). Islamic religious learning is the formation of personality in students that is reflected in their behaviour and mindset in everyday life (Syafi'i et al., 2018). The mindset of students can be developed by making Islamic law in everyday life and learning references. The source of Islamic law as a foundation and guidance is the Qur'an (Iryani, 2017).

Using the Qur'an in learning attempts to combine or integrate the Qur'an and the concepts in science (biology) that students will study. The merging or integration of these two things is an effort to apply Islamic values to science (Amri, 2017). Integration can be done by using moral values contained in the verses of the Quran associated with the concepts being studied. It can also be done by using verses of the Qur'an that explain a phenomenon or theory that students are learning in the material of the human reproductive system, namely about the theory of human creation described in the Qur'an, which is relevant to the process of fetal development that students are studying. The integration of

religious and general science is an attempt to dissolve the polarism between religion and science caused by the mindset of division between religion as an independent source of truth and science as an independent source of truth (Daulay, 2022). Integrating the Qur'an into learning is expected to instil spiritual values in students.

The results of research that has been conducted by a researcher on the integration of biology and the Qur'an in biology learning in Madrasah Aliyah Kota Tangerang Selatan show that the integration of biology and the Qur'an carried out by students in biology learning shows a good category with a percentage of 62.53% (Rodiana, 2021). The results of the good category indicate the potential to integrate the Qur'an into biology learning. This implies that the integration of the Qur'an in biology learning also has the potential to be implemented in one of the concepts in biology, namely the material of the human reproductive system. Integrating the Qur'an in learning biology on the material of the human reproductive system can equip students to face the adolescent phase. This study describes the potential implementation of Al Quran-based biology learning on Human Reproductive System material.

MATERIALS AND METHODS

The type of research used is descriptive qualitative, with data collection carried out directly at the research location (field research) to obtain information related to the potential for implementing Al-Qur'an-based biology learning. The sample of this research was 10 biology teachers in Mranggen District, with the sampling technique used was random sampling to represent teachers' opinions regarding the potential for implementing Al-Qur'an-based biology learning. This research also uses data from students, teachers and principals at MTs Al Furqon. The stages carried out in this research process are divided into 3: pre-field, fieldwork, and data analysis.

In the pre-field stage, a madrasa is selected that suits what is needed, namely at MTs Al Furqon; the next step is to take care of permits and see the State's of the learning situation. The fieldwork stage involves participating in activities in the field and carrying out the required data collection activities. This is preliminary or mini research as initial data about potential implementation before implementing and developing Al-Qur'an-based biology learning.

The data collection techniques used were questionnaires, interviews, observation and documentation. A questionnaire was given to MGMP teachers to find out their opinions about the potential for implementing Al-Qur'an-based biology learning. The results of open interviews with MGMP biology teachers in Mranggen District also support the data from the questionnaire. Data sources were also obtained from madrasa heads, biology subject teachers and MTs Al Furqon students to determine the potential for implementing Al-Qur'an-based biology learning. Observations were carried out to analyze biology subject teachers' learning tools. Documentation method to obtain documentary data, for example, the condition of the madrasah, madrasah facilities and markets, as well as observations of lesson plans or in the Independent Curriculum called teaching modules related to the potential for implementing Al-Qur'an-based biology learning in the human reproductive system material.

The data was analyzed using the analytical description techniques with the interactive model of Miles and Huberman (1992). The research instruments, including interview sheets, questionnaires, and observation sheets, were rigorously validated by experts. The data analysis techniques employed included data reduction, data presentation, data verification, and conclusion. The data, which included the results of questionnaires, interviews, and observations, was categorized to facilitate processing and provide more precise details. The data was presented in the form of descriptive descriptions and analyzed to reveal an interactive relationship between the three data sources. Conclusions were drawn by comparing the data, ensuring comprehensive and accountable information.

RESULTS AND DISCUSSION

The implementation of Al-Qur'an-based biology learning is a collaborative effort that integrates content from Al-Qur'an verses related to concepts studied in the human reproductive system. This research, which involved questionnaires and interviews with MGMP biology teachers in the Mranggen District, as well as data from biology teachers, Madrasah Heads, and students at MTs Al Furqon Mranggen, describes the potential for implementing This learning.

The following is the teacher's opinion regarding the potential for implementing Al-Qur'an-based biology learning on the diagram below.

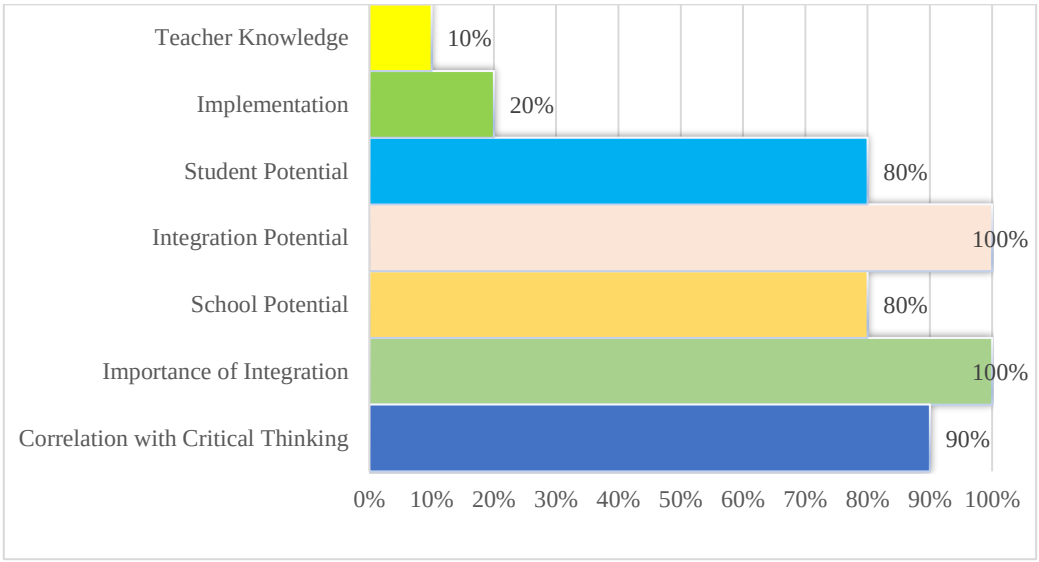

Figure 1. Diagram of the results of a teacher's opinion questionnaire regarding the potential for implementing Al-Qur'an-based biology learning

The results of a questionnaire from 10 MGMP biology teachers in the Mranggen sub-district showed information about teachers' knowledge of Al-Qur'an-based biology learning. Teachers have heard or know about Al-Qur'an-based biology learning with a percentage of 10%, with 20% of teachers having implemented Al-Qur'an-based biology learning. Teachers think there is potential for students to take part in biology learning based on the Qur'an with a percentage of 80%. As many as 100% of teachers think that the material on the human reproductive system can be integrated with the Qur'an. As many as 80% of teachers believe that biology learning based on the Qur'an has the potential to be implemented in their respective schools. The teacher thinks it is essential to integrate material on the human reproductive system with the Qur'an with a percentage of 100%. According to the teacher, there is a correlation between biology learning based on the Qur'an and increasing students' critical thinking skills with a percentage of 90%.

The interview results with the biology MGMP teacher in the Mranggen sub-district, namely Mrs AN, stated that MT students have great potential to obtain biology learning based on the Qur'an because they can generally read and write the Qur'an. According to Mrs UH, biology learning based on the Qur'an is excellent because there is evidence of real events in nature in the Qur'an.

According to Mr MR, the Head of the Madrasah at MTs Al Furqon Mranggen, he explained as follows: with the existence of biology learning based on the Qur'an will improve students' understanding of the material so that it will affect the learning outcomes and achievements of students, such as during the Madrasah Science Competency (KSM) with HOTS type questions that connect the Qur'an and science group material. Based on the results of the interview with an MT Al Furqon student named AJ, he explained that so far, he had never used the Qur'an in learning and did not know that in the Qur'an, there were concepts that they were studying. According to the teacher of Al Qur'an Hadith, Mr SF, the Al Qur'an is used as a source of learning by proving the meaning of the verses and their contents.

The Al Qur'an contains verses about natural phenomena such as earthquakes, floods, landslides, the solar system, and the theory of human creation. The student and teacher interviews show that biology learning has great potential to be implemented in schools/madrasahs. Before implementing a learning model, one must also see the condition of a school, including infrastructure and media or supporting learning resources. Observation activities were carried out directly on infrastructure at MTs Al Furqon during preliminary research / *mini-research*. The results obtained are that, in general, all infrastructure facilities already exist, especially those needed in Al-Qur'an-based Biology learning, such as Al-Qur'an interpretation, LCD projector, and internet network already owned by MTs Al Furqon.

From the results of the questionnaire to several MGMP teachers, teachers have heard or know about Al-Quran-based biology learning with a percentage of 10%, and with a rate of 20% of teachers have implemented Al-Quran-based biology learning. This means that not many teachers know about Al-Quran-based biology learning. Teachers who have implemented it in learning are also still few. According to teacher RYL, the teaching carried out so far is still conventional, with lectures and discussions. Innovation is needed to improve the quality of learning in the classroom, such as in methods, approaches and media. learning (Pratiwi et al., 2022; Raihanah, 2022; Widyaningrum & Rahmanumeta, 2016). Biology learning based on the Qur'an is one of the innovations in learning, so teachers must know its characteristics.

The Qur'an and science are two interrelated things. The verses contained in the Qur'an are implicitly related to science (Iskandar et al., 2020; Iryani, 2017). The Qur'an

and biology are in harmony and do not contradict each other regarding source, purpose, method, or content. In terms of source, the story of the Qur'an comes from revelation, which is included in the Aaliyah verse, while biology comes from nature, which is included in the kauniyah verse (Iryani, 2017; Rizqi & Bintari, 2015). The concepts of biology, science, technology, and praise for people of knowledge are discussed extensively in the Qur'an.

The Qur'an has several verses related to the human reproductive system. Q.S. Al Mu'minun verses 12-14 about the process of human creation; Q.S. A'basa:19 about male reproduction, Q.S. Al Insan:2 about fertilization; Q.S. Azzumar:6 about fetal development; Q.S. Al Baqarah:222 about menstruation. In preventive measures against the transmission of sexual diseases, it has been explained in Q.S. Al Isra':32 about the prohibition of approaching zina; Q.S. Annur:30&31 to guard one's gaze with the opposite sex. These verses provide understanding and strengthening of faith to students so that they will form better people in distancing themselves from despicable acts.

According to Mr AS, a teacher of the Qur'an and Hadith at MTs Al Furqon, the Qur'an is commonly used in learning by proving the meaning of the verses and their contents, and in the Qur'an, there are verses about natural phenomena as studied in biology learning. The method used is to prove the meaning of the verses and their contents, and in the Qur'an, there are verses about natural phenomena as studied in biology learning. This proves that the Qur'an should also be used in biology learning by integrating the Qur'an and biology (Ahmad et al., 2020). Combining biology and the study of the Qur'an does not weaken one or both but instead strengthens the essence of both. Both studies are signs of the greatness of Allah SWT.

In the context of developing biology learning based on the Qur'an, it can be achieved through various methods such as curriculum innovation and application of character education. (Ahmad et al., 2020; Ayunda, 2023; Yaqin et al., 2020).Other methods are internalization and the formation of a conducive learning environment, as well as enrichment of literacy and digital content that is easily accessible to educators and students while still integrating it with the values of the Qur'an (Sudarmanto et al., 2023). Biology learning based on the Qur'an is an approach to learning that integrates the values contained in the Qur'an with the concepts in biology. The Qur'an teaches humans to use

reason in thinking and orders humans to examine the universe to discover Allah's power and the signs of Allah's greatness (Fakhry, 2010; Lailiyah, 2020).

Students will gain many benefits when integrating the Quran with biology. By understanding the theory of human creation and everything related to the human reproductive system in the Qur'an, humans can believe in it and take wisdom from every verse. Understanding the process of reproduction and embryology is a fundamental step in knowing and understanding the miracle of the human creation process (Raharusun, 2021). The human reproductive process is a gift from Allah SWT. We must maintain its sanctity. The Qur'an also examines the commands and prohibitions to prevent negative behaviour related to the human reproductive system. Among them is adultery in the Qur'an, Surah Al-Isra' verse 32 (Khumaerah, 2017; Nurkholisoh & Mukarom, 2021; Rozi, 2022). The verse explains to humanity the prohibition of committing adultery, especially for teenagers whose faith is vulnerable so that they easily engage in negative behaviour such as free sex. The approach of integrating the Qur'an into learning the human reproductive system is expected to equip students to be able to behave positively to prevent the impact of free sex and other harmful behaviour (Dewi, 2019).

If students have obtained these abilities, there are other positive impacts. Namely, students will better understand the material in the biology concept, improving student learning outcomes and achievements in the competition arena, such as the Madrasah Biology Competition (KSM) organized by the Ministry of Religion. This is also reinforced by the statement made by Mr Kamad MTs Al Furqon, who hopes it will impact student achievement. Statement This is also reinforced by the opinion of MGMP teachers, 90% of whom stated that integrating the Quran in learning biology correlates with students' critical thinking skills. Integrating the Quran into learning biology will increase students' critical thinking skills (Nawawi & Wijayanti, 2018). Biology learning based on the Qur'an is an approach to learning that integrates the values contained in the Qur'an with the concepts in biology. This approach can provide students with an understanding of natural phenomena in the context of Islam and then link or integrate biological concepts with the values and norms contained in the Qur'an.

CONCLUSION

Based on the results of the teacher questionnaire, a percentage of 100% of teachers stated that there is potential for integration of the Qur'an in biology learning, particularly on the material of the human reproductive system. This is supported by the existence of verses that explain the process of human creation. Some verses state the prohibition of adultery as a basis for students to prevent harmful actions such as free sex in adolescents. From this information, it is clear that there is potential to integrate the Qur'an into biology learning on the material of the human reproductive system. The process of integration would involve identifying relevant verses, discussing their implications in the context of biology, and incorporating them into the curriculum. From the results of the questionnaire, a percentage of 80% of teachers have opinions about student potential, with the potential profile of madrasah students who must be able to read the Qur'an greatly supporting the smoothness of the learning process. With the existing potential, it can be concluded that there is potential for implementing biology learning based on the Qur'an on the material of the human reproductive system.

It is hoped that this approach can be applied to madrasah students and to all schools at all levels of education in Indonesia. The integration is not only limited to the human reproductive system material but also to other biological materials. The implementation of Al-Quran-based biology learning is realized, so there needs to be socialization among teachers and students about the benefits of Al-Quran-based biology learning. These benefits include a deeper understanding of the biological processes described in the Qur'an, a more holistic approach to education, and the promotion of moral values. With the hope that these students will be able to study more about the Al-Quran and biology so that more material can be integrated into learning.

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