Methods of integrating Islamic values in teaching biology for shaping attitude and character

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Abstract. Learning is expected to develop the potential of learners to have the spiritual attitude: moral strength, self-control, personality, intelligence, noble character, as well as the skills needed by themselves, society, and nation. Implementation of role and morale in learning is an alternative way which is expected to answer the challenge. The solution offered is to inject student with religious material Islamic in learning biology. The content value of materials teaching biology includes terms of practical value, religious values, daily life value, socio-political value, and the value of art. In Islamic religious values (Qur'an and Hadith) various methods can touch human feelings, souls, and generate motivation. Integrating learning with Islamic value can be done by the deductive or inductive approach. The appropriate method of integration is the amtsal (analog) method, hiwar (dialog) method, targsih & tarhib (encouragement & warning) method, and example method (giving a noble role model /good example). The right strategy in integrating Islamic values is outlined in the design of lesson plan. The integration of Islamic values in lesson plan will facilitate teachers to build students' character because Islamic values can be implemented in every learning steps so students will be accustomed to receiving the character value in this integrated learning.

1. Introduction
Value is one's conviction to act by his or her choice [1]. Religious value is the value of one's actions and thoughts based on his or her religious belief. Islam has Qur'an and hadith as a value in daily acting and thinking because it is believed to be the grace and guidance of Allah SWT (Subhanallahuwataala) to be saved in the life of this world and the hereafter. The Qur'an and hadith as divine revelations are the main sources and references of faith, the guidance of life, which is believed to be true to form characteristic to be a good person and contains the elements of learning for all human beings. O mankind! There hath come to you a direction from your Lord and healing for the (diseases) in your hearts, and for those who believe, a guidance and a Mercy [2]. Some other verses of Qur'an that contain learning are surah Al Qomar verses 17, 22, 32 and 40, Surah Yusuf verse 111, Surah An Nahl verse 13.

The value of the Qur'an and the hadith is not only related to the worship, society, and way of life of the people of Islam but the value of science can be studied, and it guaranteed the truth [3]. The value of knowledge in the Qur'an is Islamization of science [4], which then western people relate it to Islamic values. This proves that there is a relationship between science and Islam. In other words, the value in the Qu'ran can be a source of literacy of Muslim community and the world of science [5].
Four educative methods in teaching the value of the Qur'an, besides iqra', according to An Nahlawi, are: *amtsal method* (analogy), *hiwar method* (dialog), *targhib and tarhib method* (encouragement and warning) [6], the meaning of hadiths can also be a literacy in learning science [7].

Biology is a part of science that has a source of literacy from nature as qauniyah: verses or signs that form around that created by Allah SWT in the form of objects, events, and so on that exist in nature and qauliyah: verse which is spoken by Allah SWT in the Qur'an. The integration of aspects of Islamic values in science potentially helps the students to acquire the attitude and character in understanding the advantages, disadvantages, the truth in the context of daily social life in the community. Cooperation between science teachers and religion teachers is needed to give a similar perception to student [8] to be a source that can enrich student in understanding their religion [9]. Learning biology has scientific characteristics that cover products, processes, attitudes, and technologies, and that it can be a strategic tool for developing the various aspects of learning (cognitive, affective, and psychomotor) that are fundamental in building students' character and morale [10].

The role of teachers in learning begins with the preparation of planning the lesson according to teacher's expected goals [11]. Competency, personality, and religiosity also need to be possessed by teachers to transfer the values to their students [12]. Biology teachers need to understand the content (subject matter) covering the facts, concepts, principles, laws, and theories [13] and the pedagogical skills to help students learn and solve the problems of science [14]. The integration of subject matter and Pedagogical Content Knowledge (PCK) as an intersection is a concept that must be understood [15]. Islamic value based learning is a form of a set of learning programs that integrates islamic values into daily practice. The implementation is also expected to encourage the synergy between to Islamic knowledge and science that can avoid the dissociation between those two [16]. This is what the teacher should be able to in applying PCK.

2. Methods

This study uses literature review, collecting information relating to Islamic values (the value of the meaning of the Qur'an and the meaning of hadith) and its teaching methods. Qur'an teaching methods include: *Iqro method* is a method of teaching with the study of the content of Qur'an and hadith values related to the concept of biological. *Amsal (analogy)* method is a verbal analogy of the value of the Qur'an and the hadith by the biological concept. *Hiwar (dialog)* is a method of teaching by taking the core of dialogue between the prophet and his companions, the dialogue between the prophet and the angel of God related to the concept of biology. The *targhib and tarhib method* (encouragement and warning) are the value of which is related to the explanation that everything their rule and the measure. An exemplary method is a way to get value through existing examples according to Qur'an and hadith suggestions, with this method students are invited to think critically analytically determine the good examples as a role model and the unnecessary thing to be avoided. Variables in this research is a strategy to implement the value of Islam (Qur'an and hadith) in the step of teaching biology to students. This article explores how to integrate Islamic values from the Qur'an dan hadith in preparing lesson plans related to the value of teaching materials of biology. The appropriate method of Quranic teaching is integrated at the learning stage.

The formulation of the lesson plan is using daily lesson plan by inquiry approach, problem-based learning and discovery. The structure of the daily lesson plan must follow the rules according to the pattern of the Regulation minister of education Republic Indonesia no 22 of 2016. The chart of integration of Islamic values in learning can be seen in Figure 1.
3. Result and discussion

3.1. Lesson planning

Lesson planning is an act of setting learning objectives, preparing of teaching materials, learning resources, and also selecting suitable media [17], selecting of approaches, learning strategies, arranging class environment, designing learning score and outcomes as an assessment system and designing learning procedures in order to guide learners in order to optimize the learning process to develop the all three domains, cognitive, affective and psychomotor in the form of learning scenarios according to the learning approach used [18]. In planning all the learning process, one needs to master the theory of learning descriptively.

There are four cycles of planning the lesson, which are annual planning, term planning, unit planning and daily planning [19]. The implementation of daily teaching consists of preliminary, core and closing [20]. The preliminary stage contains motivation, opinion, as well as exploring the initial knowledge of the students. The core activity is related to the formulation of problems, observation and data collection and also problem-solving. Closing activity is related to making a summary of the lesson, reflections on activities that already implemented and reflecting students' feedback towards learning outcomes and evaluation [21].

3.2. The Islamic value learning method with the concept of biology

The set of Quranic values is related to broad spectrum, exhaustive and comprehensive biology means to explain and confirm in association with learning psychology, ethical, legal and community [22]. This explanation can be found in the Qur'an which means: And indeed, we have certainly made the Qur'an easy for remembrance, so is there any who will remember? [2].

The method of amsa (analogy) is a verbal analogy by likening something. It is described by a similar thing mentioned in the Qur'an which means: This parable we make for man and no one understands it except the knowledgeable one [2]. The analogy can embed critical, analytical, creative and transformative thinking, helping students envision the concepts and processes which also known as building new ideas and act as a source of scientific investigation [23]. The value of the Qur'an that can be integrated as an example is: The parable of those who take guardians besides Allah is as the parable of the spider that makes for itself a house, and most surely the frailest of the houses is the spider's house did they but know [24]. Students are invited to think how weak the spider's house if we do not ask for protection in God then our soul is weak like spider's house.

Figure 1. The concept of integrating to islamic values into the learning steps

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The hiwar or dialogue method is a method between the Prophet and his companion or with the angels, the example is shown in the Prophet's dialogue with his companion which means: From Abu Hurairah, a man came to the prophet SAW Then said: O Messenger of Allah, I have a son, he has a black Skin (but his skin isn't black) then Prophet SAW Asks Do you have a camel? Yes. What color is it? Brown Is there a gray color? Yes, Why? Perhaps it is influenced by your ancestors, then Rasululah prohibits the person from denying his son [2]. This hadith is the empirical basis of the genetic science of the existence of a fetus which inheriting the qualities of both parents with different percentages. The dialogue can make the children quickly understand the pattern of life in community to develop their communication skills. With discussion, students are invited to think analytically in understanding a problem. This method can be used at the time of apperception to arouse student's understanding or during the core activities and reflections to help the student solve the problems.

The targhib and tarhib method (encouragement and warning) are the value of which is related to the explanation that everything is the rule and the measure. Indeed everything We (Allah) create with qadar (size, rules) [2] if violated then threats or sanctions will be accepted. One example of learning that has a value prohibition in the Qur'an: Forbidden to you (for marriage) are your mothers, your daughters, your sisters, your father's sisters, your mother's sisters, your brother's daughters, your sister's daughters [2]. The explanation of the surah implies that marriage by blood relation is forbidden because it poses a risk of autosomal recessive genetic disorder that caused by an increase in homozygous frequency so that the patient carries two copies (alleles) of the same gene, which can create specific recessive gene mutation [25]. Implementation of this method can be integrated into the core activities and closing activities as a form of confirmation of the concept and reflection of learning as a warning. Students will better understand how existing rules need to be obeyed to avoid threats and existing sanctions, especially rules and sanctions from God.

An exemplary method is a way to get value through existing examples, with this method students are invited to think critically analytically determine the good examples as a role model and the unnecessary thing to be avoided. If you are drinking, then do not breathe in the glass, and when urinating or defecating, then do not touch the genitals using the right hand [24]. Scientific facts show that H$_2$O (water in a glass) and carbon dioxide or CO$_2$ (the air we breathe through the mouth) will produce Carbonic Acid or H$_2$CO$_3$, this compound is dangerous for the body if it is inside the body. Prohibition should not touch the genitals with the right hand because this hand is usually used to hold food. No one among you should eat with his left hand, or drink with it, for the Satan eats with his left hand and drinks with it [26]. Value of teaching biology consists of several values that are the value of the benefit, religion, daily education, socioeconomic and value of art. The value of benefit in the form of biology concepts for human life both biotic and abiotic, here is the example of animals: In cattle too there is a lesson for you: from within their bodies We(Allah) produce milk for you to drink, besides this you gain numerous other benefits some of them you eat [2], cattle provide many benefits to humans. Religious values can be studied in term of a regularity of natural law giving human consciousness to think who governs and creates, this sign is indicated in the Qur'an. It is He Who sends down rainwater from the sky and in addition to that produces vegetation of all kinds: He brings forth green crops producing grain piled up.... [2].

The value of daily education can be understood in the transport of extravascular and intravascular on plant transportation system, the system of daily life traffic, the implementation of the fast lane and slow lane traffic is one of its application. The social value depicted in plants is that plant produces oxygen not only for itself but also for other living beings. It is a moral message for human beings to do good to others, The best people are those who are kind and benefit others [24]. It is clarified in the Qur'an: If you persevere in doing good, you will but be doing good to yourselves [3]. The beauty of various colors of plants and animals both anatomically or morphologically is the inspiration for the design of artistic value.

The explanation above proves that all knowledge is a unity that comes from the God through His revelation either directly or indirectly, tied in a unity of the Qur'an and the Sunnah of the Prophet. Albert Einstein said that "Religion without science is blind, science without religion is lame." The
dominant power of religion draws connections between religious knowledge and science so that the entire value of science can be assessed from religious values. Science as an interconnected entity derived from the revelation of God both obtained through prophets, critical thinking, as well as universal integrated natural exploration to improve the quality of life and human civilization. The existence correlation between the sciences that are rooted and the revelation (revealed by modern science) and local wisdom produce new, more humanistic and ethical sciences that are beneficial to the development of the dignity and quality of the nation and the preservation of nature.

3.3. Technical integration of Islamic values at learning stage
Technical integration of Islamic values can be explained in Table 1.

| Learning Steps | Learning stage | Learning activities | The method integration of Islamic values |
|----------------|----------------|--------------------|-----------------------------------------|
| Opening        | Preliminary    | Demonstrating,     | Hiwar, Iqra, amtsal                      |
|                | Motivation     | story events,      |                                         |
|                | Apperception   | observing phenomena,|
|                | Student opinion| questioning        |                                         |
| Core           | Problem        | Doing Experiment, | Iqra, hiwar, amtsal, targhib and tarhib |
|                | formulation    | simulation, model  | giving a good example                    |
|                | Data collection| classification,    | (confirmative), embedding moral and      |
|                | Data analysis, | discussion,        | character.                               |
|                | Resolving      | brainstorming,     |                                         |
|                | problems       | observation.       |                                         |
|                | Data           | Scientific and     |                                         |
|                | communication  | inquiry and discovery or (project-based learning) approaches |
| Closing        | Consolidation  | Application concept,| Targhib & tarhib                        |
|                | Evaluasi       | Reflection and feedback, | Iqra                                    |

4. Conclusion
The moral character and message of Islamic values (Qur'an and Hadith) can be integrated into teaching biology. Technical integration of Islamic values (Qur'an and Hadith) implemented in the learning step in the initial activities, core activities and on the final activities. In the early activities of Islamic values (Qur'an and Hadith) as the motivation of teaching the concept of biology with hiwar, iqra, and amtsal methods.

At the core learning activity stage of Islamic values (Qur'an and Hadith) as the explanation of the value of Islam with the concept of biology with Iqra, hiwar, amtsal, targhib and tarhib methods, example method (as confirmation) moral and character. At the final activity stage of learning of Islamic values (Qur'an and Hadith) as a reflection of understanding the concept of biology with Targhib & tarhib method, Iqra method.

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