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Integration Method of Religious Character Values in Chemistry Learning
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Received: Month xx, 201x Accepted: Month xx, 201x Online Published: Month xx, 201x ABSTRACT
Science and religion are closely related because they both come from one source, namely God

Science and religion are closely related because they both come from one source, namely God Almighty. The concept of the integration of science and religion must be implemented in the form of integrating religious characters in the science learning process. The purpose of this study is to find out what learning methods are used by teachers in integrating religious character values in chemistry learning. This research is a literature research conducted by reviewing the literature, both in the form of books, journal articles and popular scientific writings about methods of integrating religious character values in chemistry learning. The main data sources are taken from journal articles that discuss the integration of religious characters in chemistry learning. The journal articles that became

the main data source were 10 articles obtained from the Google Scholar website using the keyword "integration of religious characters in chemistry learning". The research data were analyzed descriptively and qualitatively. A critical study was also carried out on the various literatures to obtain the correct conclusion. The results of the study concluded that religious character values can be integrated in chemistry learning in various ways/methods according to the creativity of the teacher. In their article, the researchers did not clearly and unequivocally mention the name of the learning method used to integrate religious characters in chemistry learning. Based on this conclusion, it is recommended that other research is needed to develop a learning model that integrates religious character values in chemistry learning.

Key word: integration of science, integration of science-religion, chemistry learning, religious character, integrated-interconnection

INTRODUCTION

According to the Law of the Republic of Indonesia Number 12 of 2012 concerning Higher Education, in chapter 10 paragraph (1) it is stated that, "Clumps of science and technology are a collection of trees, branches and branches of science that are arranged systematically". The explanation referred in the cluster of science and technology is stated in paragraph (2) with the following editorial: "The cluster of science and technology as referred in paragraph (1) consists of: the clump of religious sciences, the clump of humanities, the clump of social sciences, the clump of natural sciences, the family of formal science and the family of applied sciences." In paragraph (2) it is clearly stated that the clump of religious knowledge is considered to be a clump of knowledge within a large clump of science and technology [1]. Based on the law, it is clear that religious science (religious) is part of the science and technology cluster (science and technology). So it is very clearly understood that science and religion are a unity of knowledge that does not need to be separated, both support and complement each other. This law is the legal basis for the implementation of learning at Islamic Religious Colleges (PTKI). The existence of a close relationship between science and religion is undeniable. Maksudin (2015) states that the existence of science for religion serves as an affirmation and reinforcement of religion for its adherents, because science is able to reveal the secrets of the universe and its sides, so that it will increase solemnity and solemnity in worship and muamalah. Science is useful for obtaining peace of life individually and collectively in society, as a nation and state and even in participating in realizing world order. Therefore, the benefits of science are extraordinary and will make humans close to God, live more enjoyable, happy, and prosperous lives [2]...

If the linkages and attachments between science and religion can be accepted as truth and formally strengthened through the legal basis of the Law of the Republic of Indonesia Number 12 of 2012 concerning Higher Education that religious knowledge is one family with science and technology, it will have an impact on how teach it. Because religious science is one clump with science and technology, science learning must also integrate the content of religious knowledge. In the context of character education, the learning of the sciences must also integrate religious character education in the learning process.

In the national education system, if faith is made the core of national education, the implications include, among others, the task of faith education is not only the task of teachers of religious subjects, but also the task of the school, namely the duties of the principal, the duties of teachers of religious subjects, the duties of teachers of general subjects., administrative staff, sellers in the school canteen, the duties of school guards, and the duties of parents [3]. Instilling religious character values is not only the duty and responsibility of certain subject teachers, but also should be the duty and responsibility of all subject teachers.

According to Minister of Education and Culture Regulation Number 36 of 2018 concerning amendments to Minister of Education and Culture Regulation Number 59 of 2014 concerning the 2013 Curriculum for Senior High Schools/Madrasah Aliyah, it is stated that the first objective of the 2013 curriculum is related to religiosity (faith). Spiritual or religious attitudes have been stated in Core Competence-1 (KI-1), but are not actualized in learning activities. The formulation of objectives and

indicators of competency achievement only covers aspects of knowledge, attitudes and skills. Aspects of attitudes lead more social attitudes, while spiritual attitudes receive less attention [4]. Thus, the cultivation of religious character values should also be carried out by every subject teacher [5]. Science and religion do not contradict each other, on the contrary, they can interact in harmony. The science of religion and science both come from the same source, namely Allah SWT. Religion and science complement each other increase our faith. So both the science of religion and the science of science are both knowledge of Allah. Studying these two sciences is a recommendation and even an obligation for us [8]. Ibn Rushid wrote, "Truth (revelation) cannot contradict wisdom (philosophy, rational method with proof); on the contrary, both must agree and support each other" [7]. The existence of science for religion serves as a confirmation and reinforcement of religion for its adherents, because science is able to reveal the secrets of the universe and its sides, so that it will increase solemnity and solemnity in worship and muamalah. Science is useful for obtaining peace of life individually and collectively in society, as a nation and state and even in participating in realizing world order. Therefore, the benefits of science are extraordinary and will make humans close to God, live more enjoyable, happy, and prosperous lives [2].

In the field of chemistry learning, so far chemistry is mostly taught as knowledge, while the religious aspect is still rarely taught by teachers [5]. In fact, if explored in depth, there will be many lessons and blessings from every chemical process [8]. Chemistry also studies the basic laws of chemistry which are part of sunnatullah (natural laws). Therefore, chemistry should also teach religious character values (spiritual values) when studying the basic laws of chemistry [9].

According to the author's search, there have been many reports of research results and scientific publications on the integration of religious character values in chemistry learning. Various efforts have been made by chemistry educators and researchers to integrate religious character values in chemistry learning. How do chemistry educators teach the values of religious character that are integrated and fused in chemistry learning? This research will reveal the answer to this question. This research is different from previous studies. What is new (novelty) from this research compared to previous researches by other researchers? This study will analyze and critically examine previous research reports on the application of the method of integrating religious character values in science learning (including chemistry) and make a resume of the types of learning methods used to integrate religious character values in the learning process. The integration of religious character values in the chemistry learning process is very important for educators to form students who think rationally but are very religious. Saputro (2020:27) states that chemistry learning that integrates religious characters will produce students who are strong in chemistry but are very religious. It will also produce youth figures who are very scientific but also spiritualists, as well as prospective scientific scientists who are also very pious and humble (humble) [9]. Mujamil Qomar (2014: 190) states in a very beautiful sentence that it will produce students who are superior in faith, intellectually superior, elegant in character and good in deeds [10].



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The purpose of this study is to identify and inventory the types of learning methods used to integrate religious character values in chemistry learning. The benefit of the findings of this research is that it is hoped that it will become a reference for educators and researchers on how to integrate religious character values in science learning, especially chemistry learning. With the resume of the types of scientific and religious integration learning methods, it will be easier for educators to choose which scientific and religious integration learning methods are suitable to be used in their learning.

METHODS

This research is a qualitative research and is included in the category of library research, namely the data and study materials used come from library sources, both in the form of books, encyclopedias, journals, and others [11]. The main data sources are journal articles that discuss methods on how to integrate religious character values in chemistry learning. Journal articles were obtained through a search on the website https://scholar.google.com by typing the keyword "integration of religious characters in chemistry learning". Documents obtained from the search results are then carried out a selection process using the parameters of the type of field of science, document type, topic suitability, and ease of access. More complete method of obtaining data sources can be seen in the schematic Figure 1.

Data analysis used descriptive qualitative method by analyzing text data contained in journal articles documents that became the sample or main data source. Because there are so many text data in the sample article documents, not all information can be used as research data. Thus, in data analysis researchers need to "separate" the data [12], which is a process that focuses on part of the data and

ignores other parts. The existence of the text that is the focus of study is determined to be between three parts of the document, namely the research method section, the discussion section, or the introductory section.

Figure 1. Schematic of Research Procedure.

RESULTS AND DISCUSSION

Results

This study is a qualitative research with the main data source coming from journal articles that examine the integration of religious character values into chemistry learning. The data of this research is in the form of text about the name of the learning method used to integrate religious character values in the chemistry learning process. The research sample was obtained by searching on the Google Scholar website using the keyword "Integrasi karakter religius dalam pembelajaran kimia". The results of the article search display on the Google Scholar website are as shown in Figure 2.

Figure 2. Display of Google Scholar Website Search Results with the keyword "integration of religious characters in chemistry learning".

From the search results obtained 5,240 journal articles which are then taken 10 articles that appear at the top with the consideration that these articles are the most accessed by people. The ten selected articles were then checked for conformity with the research theme. The ten selected articles were then carried out a critical analysis of the contents of the journal articles about the methods were used by the authors to teach religious characters in chemistry learning.

The main data of this study is qualitative data in the form of sentence text in the data source which states the method of integrating religious character values in the chemistry learning process. This method uses non-numeric data in the form of words, pictures, or symptoms or events that are described in a narrative and argumentative manner [13]. It has been critical that the data analysis was carried out on the sentence text and then the data obtained was then tabulated, analyzed and concluded as a result of the research.

Based on a search on journal articles obtained by focusing on the method of how the authors integrate or teach religious character values in chemistry learning, the results can be presented in Table 1.

Table 1. Finding Data on the Method of Integrating Religious Character Values in Chemistry Learning.

No. Quotation Data/statement Method Name Reference

1 The integration of character education in chemistry learning is carried out by integrating religious character indicators with existing basic competencies in chemistry learning, so as to obtain new indicators that can be used to measure the character of students. There is no explicit mention of the method name. [14]

- 2 Researchers want to apply the integration of IMTAQ values to the atomic structure material because this application will affect the character and motivation of students. There is no explicit mention of the method name. [15]
- 3 This classroom action research was conducted in two cycles by applying Context Rich Problems to improve students' religious character and student learning outcomes. The teacher guides students to study chemistry religiously with a CRP approach that is in accordance with the CRP steps. The method used in the improvement at this planning stage is using the lecture method and the demonstration

method accompanied by the arguments of Allah SWT. Context Rich Problems + religious proposition [16]

4 The integration of Islamic values of students in this hydrocarbon material includes several things, namely 1) quoting several verses of the Qur'an related to hydrocarbon material accompanied by an explanation of their meaning, 2) Inserting Islamic values in the material and 3) Providing a case which contains Islamic values to be lived and pondered deeply by students. There is no explicit mention of the method name. [17]

5 To realize the integration model of science and Islam in educational institutions, the following stages are held, among others: 1. Making the holy book the basis or main source of knowledge., 2. Expanding the boundaries of Islamic study material and avoiding the dichotomy of science., 3. Growing a person with ulul albab character., 4. Tracing verses in the Koran that talk about science. There is no explicit mention of the method name. [18]

6 The learning method used is experimentation in the practicum group, and the teacher's example for the value of responsibility as well as habituation to religious values by praying when starting learning activities. The name of the method is not explicitly stated. [19]

7 In learning chemistry, most of the material in chemistry is abstract. Therefore, it is necessary to have a good understanding by applying interactive media in order to achieve good character education in accordance with the objectives of the national education system in Indonesia. The name of the method is not explicitly stated. [20]

8 Prospective teachers add the integration of Islam and chemistry explicitly in the components of indicators, learning objectives, learning activities, and assessments. The name of the method is not explicitly stated. [21]

9 The integration between science and religious values lies in the scientific content in the Qur'an. The name of the method is not explicitly stated. [22]

10 Efforts to "Islamize knowledge" for Muslims who have long been left behind in modern world civilization have their own dilemma. The dilemma is whether to wrap Western science with the label "Islamic" or "Islamic"? Or do you strive to transform religious normativity, through its main references to the Qur'an and Hadith, into its historical reality empirically? Both are equally difficult if their efforts are not based on the basis of epistemological criticism. The name of the method is not explicitly stated. [23]

Discussion

The data of this research is in the form of text about the learning method used to integrate the values of religious character in the chemistry learning process, which is contained in the literature that is the research sample. The data was taken from the first 10 articles that were selected based on the order in which they appeared on the Google Scholar search engine. The ten journal articles that appear in the Google Scholar search results are the literatures that are accessed the most by people. The more an article is accessed by the reader, the article will occupy a position where the sequence number of its appearance is getting smaller, alias appears the earliest. This is in line with the results of a study conducted by Infront Webworks which showed that websites that are on the first page of Google searches get 95% of website traffic, while the next page receives only 5% of website traffic (Dewaweb, 2021).

Based on the results of an analysis of the text in 10 (ten) sample literatures, it was found that only 1 (one) literature mentioned the name of the learning method used, but the learning method did not aim to integrate religious character values because the method used was added with religious

arguments. to teach his religious character. While the other 9 (nine) literatures did not mention the names of the learning methods used to teach integrated religious character values in chemistry learning.



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The first step in the process of searching for the name of the method of integrating religious characters in chemistry learning in the sample articles was carried out in the research methods section. If the first step does not find the data you are looking for, the search process continues to the second step, which is looking for the discussion section. If the second step has not found the data, then proceed to the third step, which is looking for data in the introduction. By carrying out the stages of searching the data, data was obtained on how to integrate religious characters in chemistry learning as shown in Table 1.

Based on the summary of Table 1 above, it appears that there is a phenomenon of the researcher's ambiguity in describing the method of integrating religious character values in chemistry learning. Only a few authors of journal articles explicitly explain the steps on how they integrate the content of religious values in learning chemistry. In fact, almost none of the authors expressly and clearly mentions the name of the integration method used. Researchers or journal article writers mostly only convey the effect of integrating religious characters on students' attitudes, but how their strategies or steps to integrate religious characters in the learning process are less clearly stated. This finding resulted in the journal articles being less able to provide benefits for the practice of implementing the integration of religious characters in the chemistry learning process. Research reports as a form of dissemination of research results which are expected to be a source of reference for teachers on how to integrate religious characters in the learning process, do not provide the intended information. From the results of analyzing the texts of journal articles, it was found that researchers used different ways to integrate religious character values into chemistry learning activities. There are researchers who take a way to integrate indicators of religious character with basic competencies so as to obtain new indicators.

"The integration of character education in chemistry learning is carried out by integrating religious character indicators with the basic competencies in chemistry learning, so as to obtain new indicators that can be used to measure the character of students" [14].

From this statement, it is clear that the method of integrating religious characters in chemistry learning is not clearly stated how to do it and what are the stages of its implementation. In this article, the author did not develop a method on how to integrate religious characters in teaching Hydrocarbon chemistry at SMK, but developed a questionnaire instrument for measuring religious characters. So in this journal article the researcher does not explain the name of the learning method to integrate religious characters in chemistry learning because the researchers did not develop learning methods.

In the second article, the author also did not mention the name of the learning method used to integrate religious character values into the chemistry learning process. The author of the article only stated the reasons why they wanted to integrate religious character into their learning process as follows:

"Researchers want to apply the integration of imtaq values to the atomic structure material because this application will affect the character and motivation of students. In studying the atomic structure, we will discover the secrets of Allah's verse, namely about the order and balance in the atom" [15].

This research is a quasi-experimental design using the Posttest-Only Group Design. In the research method section, apart from not mentioning the name of the learning method used, the author also did not provide an explanation of the steps in integrating imtaq (religious) values in the learning of atomic structure material. The author only states that there is a difference in treatment between the experimental class and the control class as follows:

"The experimental group and control group will each be given a posttest. The experimental group was given the integration treatment of imtaq values on the atomic structure of the material, while the control group was not given the integration treatment of imtaq values. The test for the motivation and religious character of students is carried out after the subject matter is given to find out how the results of the motivation and religious character of all students are" [15].

In the third article, the author mentions the name of the learning method used to integrate religious character values. But it turns out that the learning method used is only to teach chemistry while religious characters are taught by inserting religious arguments related to the subject matter. "This classroom action research was conducted in two cycles by applying Context Rich Problems to improve students' religious character and student learning outcomes. The teacher guides students to study chemistry religiously with a CRP approach that is in accordance with the CRP steps. The method used in the improvement at this planning stage is to use the lecture method and the demonstration method accompanied by the arguments of Allah SWT." [16].

Based on the text of the statement in the article, it can be understood that the researcher also did not mention and did not use special learning methods to integrate religious character values in the chemistry learning process. In addition, the researcher also did not explain the steps to integrate religious characters in the learning process.

In the fourth article, the author describes several steps to integrate religious character values in the chemistry learning process, although he also does not mention the name of the learning method used.

"Integrating the Islamic values of students in this hydrocarbon material includes several things, namely: 1). quoting several verses of the Qur'an related to hydrocarbon material accompanied by an explanation of their meaning, 2). Inserting Islamic values in the material, and 3). Provide a case that contains Islamic values to be lived and pondered deeply by students" [17].

The steps in the fourth article are in accordance with Saputro's (2011) steps in integrating religious character values into chemistry textbooks.

"Integrating religious values in textbooks can be done in several ways, namely: 1). Write the basmalah sentence in the introduction to the book (Mulyadi Kartanegara, 2007), 2). Starting each chapter with a

quote from the Qur'anic verses related to the theme or concept to be discussed, 3). Explaining the meaning of quotations from the Qur'anic verses and related to the problems that will be discussed in the chapter, 4). Provide descriptions of reflections on cases in the discussion of books that can encourage the formation of awareness and the glorification of God's greatness, for example the formation of water molecules from hydrogen and oxygen atoms is only possible because of the mercy of Allah SWT, 5). Showing figures of Muslim scientists who have contributed to developing science as a way to revive the scientific tradition that has been carried out by Muslim scientists in the past, 6). Insert aphorisms that can be taken from words of wisdom or the hadiths of the Prophet Muhammad [24].

Based on the quote from the article [17] and the article [24] above, it appears that there is a very close relationship because the steps presented by the author of the fourth article have been contained in the article written by (Saputro, 2011). This shows that there is a relationship between the steps of integrating religious character values in the learning process with the presentation of textbooks. Some of the arguments that support this author's statement are:

- 1. In the learning process requires textbooks as a source of learning for students or a source of reference for teachers.
- 2. If the presentation of the material in the textbook has followed the learning steps (syntax) of a particular learning method, then the steps of the learning process can just follow the flow of presenting the subject matter in the textbook.
- 3. Textbooks that have been prepared following the syntax of the learning method can be used directly in the learning process of students, especially the independent learning process which does not require a teacher assistant.

The author of the fifth article also explains the steps taken to integrate religious character into the learning process not much different from the author of the fourth article, namely:

"In order to realize the model of integration of science and Islam in educational institutions, the stages are held, among others, as follows: 1). Making the scriptures as the basis or the main source of knowledge., 2). Expanding the boundaries of Islamic study material and avoiding the dichotomy of science., 3). Growing a person with ulul albab character. 4. Tracing verses in the Qur'an that talk about science" [18].

While the author of the sixth article only invites the habit of reading prayers to integrate religious characters in the learning process.

"The learning method used is an experiment in a practicum group, and an example from the teacher for the value of responsibility and habituation to religious values by praying when starting learning activities" [19].



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The steps taken by the author of the sixth article actually narrowed the meaning of religious character education into a ritual of worship, namely praying. The author equates religious character education with teaching religious rituals. A too narrow understanding of the meaning of religious character education with worship rituals shows that there are still teachers who do not understand about religious character education, especially how to implement integrated religious character education in teaching and learning activities in schools.

The author of the seventh article stated that, "In learning chemistry, most of the material in chemistry is abstract. Therefore, it is necessary to have a good understanding by applying interactive media in order to achieve good character education in accordance with the objectives of the national education system in Indonesia" [20]. While the author of the eighth article stated that, "Prospective teachers add the integration of Islam and chemistry explicitly in the component indicators, learning objectives, learning activities, and assessments" [21]. The author of the ninth article added that, "The integration between science and religious values lies in the scientific content in the Qur'an" [22]. While the author of the tenth article talks more about the concept of Islamization of science which is still a dilemma for Muslims.

"Efforts to "Islamize knowledge" for Muslims who have long been left behind in modern world civilization have their own dilemma. The dilemma is whether to wrap Western science with the label "Islamic" or "Islamic"? Or do you strive to transform religious normativity, through its main references to the Qur'an and Hadith, into its historical reality empirically? Both are equally difficult if their efforts are not based on the basis of epistemological criticism" [23].

Referring to the findings above, it can be concluded that there is no clear standardized learning

method on how to teach integrated religious characters in the chemistry learning process. This conclusion is in line with the findings of Firmansyah, Van Hayus, & Saputro (2019) which states that the chemistry textbooks are used by teachers at MA and SMAIT in Surakarta in the learning process have not integrated the values of faith (religious) characters [25]. Meanwhile, Krisna Merdekawati (2015) found that the implementation of character education through chemistry learning still requires improvement and strengthening. Teachers already know the urgency of character education, but its implementation has not been carried out in an integrated manner [26]. Meanwhile, the findings of Sahputra & Yunita (2015) regarding the integration of character education in chemistry learning at SMAN in Pontianak indicate that the results of the analysis of the syllabus and lesson plans show that teachers do not complete their lesson plans with indicators of integrating character education [27]. Based on the data analysis and discussion of the findings above, it can be revealed a trend in the world of education that every researcher or educator has their own method of integrating religious characters in chemistry learning. Therefore, the authors suggest the need for research on standard methods of integrating religious character values in chemistry learning. It is necessary to conduct an in-depth study of the integration of science and religion and how to teach it. **Research Limitations**

The data sources for this research are Indonesian-language journal articles because the keywords to search for them are in Indonesian. Therefore, the conclusions of this study are limited to the learning process in Indonesia that uses Indonesian. Because it is possible that there are Indonesian educators and researchers who publish their research articles in foreign languages that are not accommodated by the search keywords on the Google Scholar website in this study, the results of these studies do not include the scope of the conclusions of this study.

CONCLUSION

Based on the discussion above, it can be concluded that religious character values can be integrated in chemistry learning in various ways/methods according to the creativity of the teacher. The results of the study found that 90% of the literature that became the sample data did not mention the name of the learning method used in the learning process to integrate religious character values. In their article, the researchers did not clearly and unequivocally mention the name of the learning method used to integrate religious characters in chemistry learning. Based on this conclusion, the authors recommend that it is necessary to lead other research to develop a learning model that integrates religious character values in chemistry learning.

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