



INTEGRATION METHOD OF RELIGIOUS CHARACTER VALUES IN CHEMISTRY LEARNING

Agung Nugroho Catur Saputro^{1,2*}, Nurfina Aznam³, and Crys Fajar Partana³

¹ Chemistry Education Study Program, Faculty of Teacher Training and Education, Universitas Sebelas Maret, Surakarta, Indonesia
Jl. Ir. Sutami No.36, Ketingan, Surakarta, Central Java, 57126, Indonesia

² Doctoral Student of Chemistry Education Study Program, Faculty of Mathematics and Natural Sciences, Universitas Negeri Yogyakarta, Yogyakarta, Indonesia
Jl. Colombo Yogyakarta No.1, Sleman, Yogyakarta, 5528, Indonesia

³ Department of Chemistry Education, Faculty of Mathematics and Natural Sciences, Universitas Negeri Yogyakarta, Yogyakarta, Indonesia
Jl. Colombo Yogyakarta No.1, Sleman, Yogyakarta, 5528, Indonesia

*Correspondence, telp. +6281329023054, email: anc_saputro@yahoo.co.id

Received: October 7, 2020

Accepted: April 29, 2022

Online Published: April 30, 2022

DOI : 10.20961/jkpk.v7i1.55601

ABSTRACT

Science and religion are closely related because they come from one source, namely God Almighty. Therefore, the concept of the integration of science and religion must be implemented in the form of integrating religious characters in the science learning process. This study aims to identify and inventory the learning methods used to integrate religious character values in chemistry learning. This research is conducted by reviewing the literature, both in books, journal articles and popular scientific writings, about methods of integrating religious character values in chemistry learning. The main data sources are from journal articles that discuss the integration of religious characters in chemistry learning. The journal articles that became the main data source were ten 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 literature to obtain the correct conclusion. According to the teacher's creativity, the study results concluded that religious character values can be integrated in chemistry learning in various ways/methods. However, 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.

Keywords: *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, chapter 10

paragraph (1) states that "Clumps of science and technology are a collection of trees, branches and branches of science that are

arranged systematically". The explanation referred to 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 a clump of knowledge within a large clump of science and technology [1]. Therefore, 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 implementing learning at Islamic Religious Colleges (PTKI).

The existence of a close relationship between science and religion is undeniable. The existence of science for religion serves as an affirmation and reinforcement of religion for its adherents because science can reveal the secrets of the universe and its sides so that it will increase solemnity and solemnity in worship and muamalah. Furthermore, science helps obtain peace of life individually and collectively in society, as a nation and state, and even 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].

Suppose 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. In that case, it will impact how to 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, faith is 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, school guards' duties, and parents' duties [3]. Moreover, instilling religious character values is the duty and responsibility of certain subject teachers and 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 to 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 comes from the same source, namely Allah SWT. Religion and science complement each other and increase our faith. So both the science of religion and science are both knowledges of Allah. Therefore, studying these two sciences is a recommendation and an obligation for us [6]. Ibn Rushid wrote, "Truth (revelation) cannot contradict wisdom (philosophy, rational method with proof); on the contrary, both must agree and support each other" [7].

In chemistry learning, chemistry is taught chiefly as knowledge, while the religious aspect is still rarely taught by teachers [5]. However, every chemical process will be many lessons and blessings [8]. Moreover, chemistry also studies the fundamental laws of chemistry, which are part of sunnatullah (natural laws). Therefore, chemistry should also teach religious character values (spiritual values) when studying the fundamental laws of chemistry [9].

Many reports of research results and scientific publications have been on integrating religious character values in chemistry learning. Using a Qur'an-based science curriculum can improve students' personality to become religious, know Islamic science, and have good behaviour [10]. Science learning integrated with Islamic values significantly influences student learning outcomes [11]. The integration of Islam-Science can be used as the basis for developing a chemical IEP (*Individualized Education Program*) by searching for verses from the Qur'an and the Hadith of the Prophet Muhammad that are related to and support chemical materials. The study also concluded that almost all chemistry topics could be integrated with Islamic values [12]

This study will analyze and critically examine previous research reports on applying 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. Integrating religious character values in the chemistry learning process is very important for educators to form students who reason but are very religious. Chemistry learning that integrates religious characters will produce students who are strong in chemistry but are very religious. It will also produce young figures who are very scientific and spiritualists and prospective scientific scientists who are also very pious and humble (humble) [9]. In a beautiful sentence, chemistry learning that integrates religious characters will produce students who are superior in faith,

intellectually superior, elegant in character, and good in deeds [13].

This study aims to identify and inventory the 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

METHODS

This research is qualitative and is included in the category of library research. The data and study materials used come from library sources, both in books, encyclopedias, journals, and others [14]. The main data sources are journal articles that discuss methods to integrate religious character values in chemistry learning. Journal articles were obtained by searching 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 field of science, document type, topic suitability, and ease of access. The complete method of obtaining data sources can be seen in the schematic Figure 1.

Data analysis used a descriptive qualitative method by analyzing text data in journal articles documents that became the sample or main data source. Because there are so much 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 [15], which is a process that focuses on the part of the data and ignores other parts. The existence of the text that is the focus of the

religious character values in science learning, especially chemistry learning. Furthermore, 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 for their learning.

study is determined to be between three parts of the document, namely the research method section, the discussion section, and the introductory section.

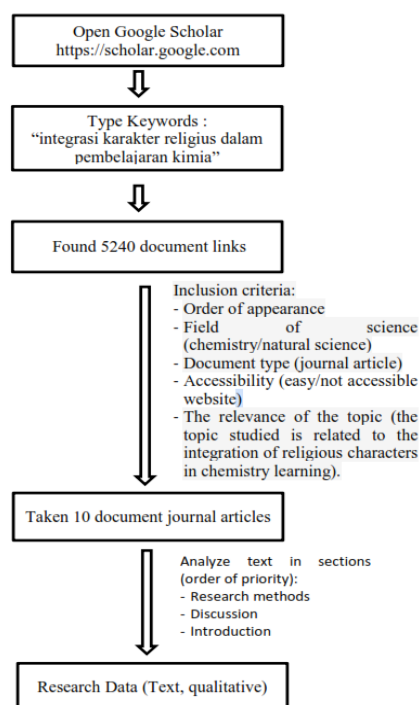


Figure 1. Schematic of Research Procedure.

RESULTS AND DISCUSSION

Results

This study is 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 search results obtained 5240 articles, but not all articles are closely related to search keywords. Therefore, only articles that support the research objectives are taken as research data. Then obtained ten articles that most closely match the search keywords. The ten selected articles were then carried out a critical analysis of the journal articles' contents about the authors' methods of teaching religious characters in chemistry learning. The ten selected articles were then carried out a critical analysis of the journal articles' contents about the methods used by the

authors to teach religious characters in chemistry learning.

The main data of this study is qualitative 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, symptoms, or events described in a narrative and argumentative manner [16]. Therefore, it has been critical that the sentence text's data analysis was carried out. Then the data obtained were then tabulated, analyzed and concluded as a result of the research.

Based on a search of journal articles that focus on 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 to obtain new indicators that can be used to measure students' character.	There is no explicit mention of the method name.	[17]
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.	[18]
3	This classroom action research was conducted in two cycles by applying Context Rich Problems to improve students' religious character and student learning outcomes. First, the teacher guides students to study chemistry religiously with a CRP approach that follows 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	[19]
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	There is no explicit mention of the method name.	[20]

	material and 3) Providing a case which contains Islamic values to be lived and pondered deeply by students.		
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. They are 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.	[21]
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.	[22]
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 to achieve good character education by the objectives of the national education system in Indonesia.	The name of the method is not explicitly stated.	[23]
8	Prospective teachers explicitly integrate Islam and chemistry in the components of indicators, learning objectives, learning activities, and assessments.	The name of the method is not explicitly stated.	[24]
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.	[25]
10	Efforts to "Islamize knowledge" for Muslims who have long been left behind in modern world civilization have their dilemma. The dilemma is whether to wrap Western science with "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 based on epistemological criticism.	The name of the method is not explicitly stated.	[26]

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 ten articles based on the closest match to the search keyword. In addition, the ten journal articles that appear in the Google Scholar search results are the literature that is accessed the most by people. Therefore, the more the reader

accesses an article, 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 on the first page of Google searches get 95% of website traffic, while the next page receives only 5% of website traffic [27].

Based on the results of an analysis of the text in 10 (ten) sample literature, it was found that only 1 (one) literature mentioned the name of the learning method

used. However, 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. At the same time, the other 9 (nine) pieces of literature did not mention the names of the learning methods used to teach integrated religious character values in chemistry learning.

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

Based on the summary of Table 1 above, 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 how they integrate the content of religious values in learning chemistry. Almost none of the authors expressly 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 that are expected to be a source of reference for teachers on integrating 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. Some researchers take a way to integrate indicators of religious character with basic competencies 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 to obtain new indicators that can be used to measure students' character" [17].

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 to integrate religious characteristics in teaching Hydrocarbon chemistry at Vocational high school but developed a questionnaire instrument for measuring religious characteristics. 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. Instead, the author of the article only stated the reasons why they wanted to integrate the 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. Moreover, in studying the atomic structure, we will discover the secrets of Allah's verse, namely about the order and balance in the atom" [18].

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 explain the steps in integrating imtaq (religious) values in the learning of atomic structure material. Instead, 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

material's atomic structure. In contrast, the control group was not given the integration treatment of imtaq values. The test for the motivation and religious character 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" [18].

In the third article, the author mentions the name of the learning method used to integrate religious character values. Nevertheless, 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 by 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." [19].

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 into the learning process.

In the fourth article, the author describes several steps to integrate religious character values into the chemistry learning process. However, 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: 1). they were 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 with Islamic values to be lived and pondered deeply by students" [20].

The steps in the fourth article follow [11] steps in integrating religious character values into chemistry textbooks.

"Integrating religious values in textbooks can be done in several ways 1) write the basmalah sentence in the introduction to the book, 2). Then, it starts 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 discussed in chapter 4). Next, 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). Next, it shows figures of Muslim scientists who have contributed to developing science to revive

the scientific tradition carried out by Muslim scientists in the past, 6). Finally, insert aphorisms that can be taken from words of wisdom or the hadiths of the Prophet Muhammad [28].

Based on [20] and [28], it shows a relationship between the steps of integrating religious character values in the learning process and the presentation of textbooks. Several arguments that support this writer state that the learning process requires textbooks as a learning resource for students or as a reference for teachers. For example, the presentation of material in a textbook has followed the learning steps (syntax) of a particular learning method. In this case, the learning process steps follow the flow of presenting the subject matter in the textbook. Therefore, textbooks compiled following the learning method's syntax can be directly used in the student learning process, especially the independent learning process that does not require a teacher assistant.

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

"To realize the model of integration of science and Islam in educational institutions, the stages are held, among others, as follows: 1). They make the scriptures the basis or the main source of knowledge. 2). Expanding the boundaries of Islamic study material and avoiding the dichotomy of science., 3). They are growing

a person with ulul albab character. 4. Tracing verses in the Qur'an that talk about science" [21].

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" [22].

The steps taken by the author of the sixth article 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 teachers still do not understand 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, "In learning chemistry, most of the material in chemistry is abstract. Therefore, it is necessary to have a good understanding by applying interactive media to achieve good character education according to the objectives of the national education system in Indonesia" [23]. While the author of the eighth article stated, "Prospective teachers add the integration of Islam and chemistry explicitly in the component indicators, learning objectives,

learning activities, and assessments" [24]. The author of the ninth article added that "The integration between science and religious values lies in the scientific content in the Qur'an" [25]. In comparison, the author of the tenth article talks more about the 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 dilemma. The dilemma is whether to wrap Western science with "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 epistemological criticism" [26].

from the discussion above it can be concluded that there is no clear, standardized learning method on teaching integrated religious characters in the chemistry learning process. This conclusion is in line with the findings that teachers who use the chemistry textbooks at Islamic Senior High School in Surakarta in the learning process have not integrated the values of faith (religious) characters [29]. Another finding states that the implementation of character education through chemistry learning still requires improvement and strengthening. Teachers already know the urgency of character education. However, its implementation has not been integrated [30], influenced by the view that the content of religion is only in

religious subjects, while the general sciences have no religious content. Even though this should not be the case, religious values can also be easily found [31]. At the same time, another finding states that the integration of character education in chemistry learning at Senior High School in Pontianak indicates the results of the analysis of the syllabus and lesson plans. Teachers do not complete their lesson plans with indicators of integrating character education [32].

Based on the data analysis and discussion of the findings above, it can be revealed that a trend in education is that every researcher or educator has a method of integrating religious characters into chemistry learning. Although there are several offers of methods for integrating science and religion in education, they are generally in the form of policies at the institutional level or educational curriculum [33],[34]. In contrast, at the implementation level of the learning process, there are still science learning methods that use the paradigm of integration of science and religion. These is the findings of this study. Therefore, it is necessary to conduct an in-depth study of the integration of science and religion and how to teach it

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 teacher's creativity. 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.

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. Furthermore, because some Indonesian educators and researchers may 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.

REFERENCES

- [1] Kementerian Agama RI, *Pedoman Implementasi Integrasi Ilmu di Perguruan Tinggi Keagamaan Islam (PTKI)*. Jakarta: Direktorat Pendidikan Tinggi Keagamaan Islam, Direktorat Jenderal Pendidikan Islam. Kementerian Agama Republik Indonesia, 2019.

- [2] Maksudin, *Paradigma agama dan sains nondikotomik*. Yogyakarta: Pustaka Pelajar, 2013.
- [3] Abd. Majid, *Pendidikan berbasis ketuhanan: Membangun manusia berkarakter*. Bogor: Ghalia Indonesia, 2014.
- [4] Darmansyah, "Teknik Penilaian Sikap Spritual dan Sosial dalam Pendidikan Karakter di Sekolah Dasar 08 Surau Gadang Nanggalo," *Jurnal Al-Ta'lim*, vol. 21, no. 1, pp. 10–17, 2014, doi: <http://dx.doi.org/10.15548/jt.v21i1.67>.
- [5] K. I. Supardi, *Pembelajaran kimia terintegrasi karakter religius*. Semarang: Unnes Press, 2017.
- [6] A. N. C. Saputro, "Agama dan Sains, Selaras atau Berseberangan?," in *Mengurai Konflik Agama dan Kitab Suci: Tinjauan Teologis, Historis dan Arkeologis*, Bondowoso: LICENSI, 2021, pp. 167–181.
- [7] N. Guessoum, *Memahami sains modern: Bimbingan untuk kaum muda muslim [The young muslim's guide to modern science]*. Jakarta: Qaf Media Kreativa, 2020.
- [8] A. N. C. Saputro, "Analisis Nilai-nilai Religius dalam Konsep Ikatan Kimia pada Pelajaran Ikatan Kimia SMA," *SAINMAT, Jurnal Matematika, IPA dan Pembelajarannya*, vol. 2, no. 12, pp. 51–64, 2008.
- [9] A. N. C. Saputro, *Menggagas Pendidikan Berbasis Nilai*. Sukabumi: Haura Utama, 2020.
- [10] A. M. Latief and I. F. Rohmah, "The use of science curriculum based on al-qur'an in improving the quality of student personality," *International Journal of Development Research*, vol. 7, no. 9, pp. 15585–15588, 2017.
- [11] N. Purwati, S. Zubaidah, A. D. Corebima, and S. Mahanal, "Increasing Islamic Junior High School Students Learning Outcomes through Integration of Science Learning and Islamic Values," *International Journal of Instruction*, vol. 11, no. 4, pp. 841–854, Oct. 2018.
- [12] J. Suprihatiningrum, "Islam-Science Integration Approach in Developing Chemistry Individualized Education Program," *Journal of Education and Learning*, vol. 11, no. 4, pp. 338–351, 2017, doi: [10.11591/edulearn.v11i4.7002](https://doi.org/10.11591/edulearn.v11i4.7002).
- [13] M. Qomar, *Menggagas pendidikan Islam*. Bandung: PT. Remaja Rosdakarya, 2014.
- [14] L. H. Aminuddin, "Integrasi Ilmu dan Agama: Studi Atas Paradigma Integratif Interkoneksi UIN Sunan Kalijaga Yogyakarta," *Kodifikasia: Jurnal Penelitian Islam*, vol. 4, no. 1, Art. no. 1, Dec. 2010, doi: [10.21154/kodifikasia.v4i1.746](https://doi.org/10.21154/kodifikasia.v4i1.746).
- [15] J. W. Creswell, *Research Design: Pendekatan Metode Kualitatif, Kuantitatif, dan Campuran [Terjemahan dari buku Research Design, Qualitative, Quantitative, and Mixed Methods Approaches, Fourth Edition, Sage Publication, Inc, 2014]*, 4th ed. Yogyakarta: Pustaka Pelajar, 2018.
- [16] F. Mufid, "Integrasi Ilmu-ilmu Islam," *Equilibrium*, vol. 1, no. 1, pp. 55–71, 2013, doi: [10.21043/equilibrium.v1i1.200](https://doi.org/10.21043/equilibrium.v1i1.200).
- [17] L. S. Ningrum, K. I. Supardi, J. Jumaeri, and S. Haryani, "Pengembangan Karakter Religius Peserta Didik Melalui Pembelajaran Kimia Materi Hidrokarbon SMK," *Jurnal Inovasi Pendidikan Kimia*, vol. 14, no. 1, Art. no. 1, Jan. 2020.

- [18] N. Khatimah, K. Khaeruman, and Y. Khery, "Pengaruh Integrasi Nilai-nilai Imtaq pada Materi Struktur Atom Terhadap Motivasi dan Karakter Religius," *Prisma Sains: Jurnal Pengkajian Ilmu dan Pembelajaran Matematika dan IPA IKIP Mataram*, vol. 2, no. 2, pp. 121–127, Dec. 2014, doi: 10.33394/j-ps.v2i2.1066.
- [19] S. Wahyuni, K. Khaeruman, and Y. Khery, "Pengembangan Karakter Religius Siswa Melalui Penerapan Context Rich Problems yang Terintegrasi dalam Pembelajaran Kimia pada Materi Ikatan Kimia," *Prisma Sains: Jurnal Pengkajian Ilmu dan Pembelajaran Matematika dan IPA IKIP Mataram*, vol. 2, no. 2, pp. 128–136, Dec. 2014, doi: 10.33394/j-ps.v2i2.1067.
- [20] L. S. Ningrum, S. Haryani, and K. I. Supardi, "Kajian Integrasi Nilai-Nilai Karakter Islami Peserta Didik dalam Materi Hidrokarbon di Sekolah Menengah Kejuruan," *Jurnal Pendidikan Sains Indonesia*, vol. 8, no. 2, Art. no. 2, Oct. 2020, doi: 10.24815/jpsi.v8i2.15633.
- [21] N. D. Sari and R. Vebrianto, "Pengembangan Multimedia Interaktif Pembelajaran Kimia Materi Koloid Terintegrasi Nilai-nilai Keislaman: Studi Literatur," *Seminar Nasional Teknologi Informasi Komunikasi dan Industri*, no. 0, Art. no. 0, May 2017.
- [22] Yunita, R. Sahputra, and Erlina, "Deskripsi Pengintegrasian Pendidikan Karakter pada Pembelajaran Kimia di SMA Negeri Se-Kota Pontianak," *Jurnal Pendidikan dan Pembelajaran Khatulistiwa*, vol. 2, no. 12, Art. no. 12, Dec. 2013, Accessed: Aug. 24, 2021.
- [23] J. I. R. Astari, "Pengoimalisasi Pendidikan Karakter dalam Pembelajaran Kimia yang Efektif dan Efisien dengan Media Interaktif," *J-PEK (Jurnal Pembelajaran Kimia)*, vol. 3, no. 1, Art. no. 1, Jun. 2018, doi: 10.17977/um026v3i12018p024.
- [24] Z.Zain, & R. Vebrianto, R. "Integrasi keilmuan sains dan islam dalam proses pembelajaran rumpun IPA". *Seminar Nasional Teknologi Informasi Komunikasi dan Industri* pp. 703-708,2017.
- [25] D. Kurniasari, N. I. Simponi, and A. K. Haqiqi, "Integrasi Nilai-nilai Keislaman pada Reaksi Redoks dan Elektrokimia terhadap Rahasia Kekuatan Benteng Besi Zulkarnain," *Walisongo Journal of Chemistry*, vol. 2, no. 1, Art. no. 1, Jun. 2019, doi: 10.21580/wjc.v3i1.3875.
- [26] M. Herman, "Integrasi dan Interkoneksi Ayat-ayat Al-Quran dan Hadist dengan Ikatan Kimia," *Jurnal Education and Development*, vol. 9, no. 2, pp. 317–327, Apr. 2021, doi: 10.37081/ed.v9i2.2537.
- [27] T. Semerádová, & P. Weinlich, "Using Google Analytics to Examine the Website Traffic". In *Website Quality and Shopping Behavior*, pp. 91-112,2020. Springer, Cham.
- [28] A. N. C. Saputro, "Pengintegrasian Nilai-nilai Religius dalam Buku Pelajaran Kimia SMA/MA sebagai Metode Alternatif Membentuk Karakter Insan Mulia pada Siswa," *Proceeding Biology Education Conference: Biology, Science, Environmental, and Learning*, vol. 8, no. 1, Art. no. 1, 2011.
- [29] H. T. Firmansyah, E. S. Van Hayus, and S. Saputro, "Pengembangan Buku Ajar Kimia Berbasis Keimanan untuk MA dan SMA-IT," *Jurnal Pendidikan Kimia*, vol. 8, no. 2, Art. no. 2, Dec. 2019, doi: 10.20961/jpkim.v8i2.29034.

- [30] K. Merdekawati, "Implementation of Character Education in Chemistry Learning". In *the 1st International Seminar on Chemical Education*, 2015..
- [31] S. Anwar and R. Elfiah, "Science and Religious Integration (Implications for the Development at UIN Raden Intan Lampung)," *J. Phys.: Conf. Ser.*, vol. 1155, p. 012095, Feb. 2019, doi: 10.1088/1742-6596/1155/1/012095.
- [32] A. P. Asmara, "Kajian Integrasi Nilai-Nilai Karakter Islami Dengan Kimia Dalam Materi Kimia Karbon". *Jurnal Pendidikan Sains (JPS)*, vol.4,no.2,pp 1-11,2016.
- [33] N. A. Hamdan, A. L. Samian, and N. Muslim, "Islamic Science Paradigm is a Science and Religious Integration," *International Journal of Civil Engineering and Technology (IJCIET)*, vol. 9, no. 10, pp. 1298–1303, 2018.
- [34] N. Ali, "Integrating Science and Religion in the Curriculum of Indonesian Islamic Higher Education: A Case Study of UIN Malang," *International Journal of Innovation, Creativity and Change*, vol. 13, no. 9, pp. 948–960, 2020.