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# Social Construction of Physics Education Study Program Students in Integrating Science with Islamic Science Peter L Berger Theoretical Study

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## Abstract

This study aims to analyze how students in the Physics Education Study Program construct their understanding of integrating scientific and Islamic knowledge, based on Peter L. Berger's social construction theory. This study utilized a qualitative approach with a case study method. Data were collected through observations, interviews, and documentation. The data were then analyzed using the interactive model proposed by Miles, Huberman, and Saldana, which includes data condensation, data presentation, and conclusion drawing. The results indicate that the social construction among Physics Education students at UIN Sunan Kalijaga occurs through three processes: externalization, objectivation, and internalization. Externalization occurs when students express ideas, concepts, and opinions during academic discussions, particularly in courses focused on the integration of Islam and Science as well as in related religious studies within organizations. Objectivation happens when their ideas regarding the integration of Islamic knowledge and science gain acceptance during academic discussions, leading to a consensus that it is crucial for physics educators to integrate Islamic teachings with scientific knowledge. Internalization takes place when students develop a sense of awe, wonder, and gratitude for God's creation. They become accustomed to reading verses from the Quran and recognize that religious and Islamic knowledge are interconnected and complementary, rather than separate entities.

Keywords: Islamic Science; Social Construction; Students; Physics Education

## Abstrak

Penelitian ini bertujuan untuk menganalisis konstruksi sosial mahasiswa Program Studi Pendidikan Fisika dalam mengintegrasikan ilmu sains dengan ilmu Islam berdasarkan teori konstruksi sosial Peter L. Berger. Penelitian ini menggunakan pendekatan kualitatif metode studi kasus. Data diperoleh melalui pengumpulan data berupa observasi, wawancara, dan dokumentasi. Seluruh data hasil penelitian yang sudah terkumpul kemudian dianalisis menggunakan teknik analisis data model interaktif milik Miles, Huberman, dan Saldana. Model ini meliputi kondensasi atau pemadatan data, penyajian data, dan penarikan kesimpulan. Hasil penelitian ini menunjukkan bahwa konstruksi sosial yang terjadi pada mahasiswa Pendidikan Fisika UIN Sunan Kalijaga terjadi melalui tiga proses yaitu eksternalisasi, objektivasi, dan internalisasi. Eksternalisasi berlangsung melalui penyampaian ide, gagasan, pendapat pada diskusi akademik seperti pada mata kuliah integrasi Islam dan Sains serta pada kajian keagamaan yang diikuti pada organisasi. Proses Objektivasi berlangsung ketika gagasan mereka tentang integrasi ilmu Islam dan Sains diterima dalam sebuah diskusi akademik, serta mereka sependapat bahwa pendidik fisika penting untuk mengintegrasikan Ilmu Islam dengan Ilmu Sains. Internalisasi terjadi ketika mahasiswa menerima bahwa mereka memiliki perasaan kagum, takjub dan syukur atas ciptaan Tuhan, terbiasa merenungi ayat-ayat Al Quran, serta sadar bahwa ilmu Agama dan Ilmu islam tidak dapat terpisahkan tetapi saling melengkapi.

Kata Kunci: Ilmu Islam; Konstruksi Sosial; Mahasiswa; Pendidikan Fisika

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## INTRODUCTION

The integration of science and religious science is an increasingly important issue in the world of education, especially in universities based on religious values. Religious science, especially Islam, always has a new face of science, one of which is the development of integration and interconnection.[1] The paradigm of interconnection integration was initiated by one of the Professors from the State Islamic University of Yogyakarta named Prof. Dr. M. Amin Abdullah. Science needs to continue to develop by paying attention to moral and ethical values. This paradigm encourages the transformation of science to answer the challenges of the times and the increasingly complex needs of society.[2] The concept of integration and interconnection is a union between religious science and modern science, where the two are not separate from each other, but complement each other. Any science, whether religious science (including Islam and other religions), social sciences, humanities or sciences cannot stand alone.[3]

Physics as a branch of science emphasizes natural laws that are universal and objective. Islamic science, on the other hand, emphasizes sacred values, spirituality, and morality. At first glance, these two approaches seem different and even contradictory. However, from an integrative point of view, science and Islam can actually complement each other in solving various problems in life. As prospective educators, physics education students play an important role in bridging these two perspectives by developing learning and scientific understanding based on Islamic values. As part of the Physics Education course, students are expected not only to have a deep understanding of scientific concepts, but also to be able to relate them to relevant religious values.

The integration of science and religion often faces epistemological and practical challenges. Although science is empirical and objective, religious knowledge is based on spiritual and transcendent beliefs. The conflict between these two fields often causes polarization of student opinions, both those that tend to separate the two fields firmly and those that aim for harmonization. This situation raises fundamental questions about how students construct their understanding of the two fields, especially in an educational environment that expects complementary integration. Many views state that Islam and science are an integral and inseparable relationship.[4] This shows that Islam has a positive attitude towards modern science which is influenced by the flow of information technology, as many scientists have thought deeply

[1] Ihsan Sa'dudin Eka Safitri, "Aflikasi Integrasi Interkoneksi Keilmuan Di Perguruan Tinggi," *Tadrib* V, no. 1 (2019): 122–37.

[2] Muhammad Najihul Huda and Khoirul Huda, "Harmonisasi Agama Dan Kemajuan: Manfaat Integrasi Keilmuan Islam Dalam Era Kontemporer," *Journal of Islamic Education* 10, no. 1 (2024): 146–62, https://doi.org/10.18860/jie.v11i1.24012.

[3] Eka Safitri, "Aflikasi Integrasi Interkoneksi Keilmuan Di Perguruan Tinggi."

[4] Syafrudin, "Integrasi Agama Dan Ilmu Pengetahuan (Sains) Berdasarkan Kajian Epistemologi Bayani, Irfani Dan Burhani," *Jurnal Ilmiah Falsafah* 6, no. 1 (2020): 1–15.



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and even evaluated Islamic education in detail and comprehensively. This opinion shows that there is no dichotomy between Islamic education and science.[5]

Peter L. Berger's theory of social construction views reality as the result of a shared structure constructed through the process of externalization, objectification, and internalization.[6] This perspective provides a solid foundation for understanding how students develop, develop, and internalize their understanding of the integration of science and Islam. The results of interviews with 44 physics education students in the fifth semester of 2023 stated that 71.5% of students still rarely discuss the integration of science and Islamic science. However, 28.5% said that they often discuss the themes of integration of Islam and science from the religious studies they participate in in organizational activities and studies at Islamic boarding schools. In addition, they also take elective courses on the integration of Islamic science and science, Integrated Science which is already listed in the curriculum, discuss with lecturers who are experts in the field of interconnection integration so that at least once a week they discuss and discuss issues related to science and religion.

The research conducted by Sufratman states that the common thread of scientific interconnection integration that occurs in state Islamic universities lies in the symbolic dilemma of scientific integration, the initiation of a vision cannot be separated from the philosophy of science. Lack of efforts to develop a paradigm of scientific integration, especially Islamic science and science in the preparation of curriculum, SAP, and syllabi.[7] Meanwhile, the research conducted by Iqbal Lubis stated that the implementation of the concept of integration of Islam and science at UIN Sunan Kalijaga Yogyakarta is already at the stage of systematic integrated scientific development, starting from the philosophical level and ending at the operational or strategic level of curriculum preparation and learning process.[8] In line with the results of the research conducted by Ramadhanita, it is stated that the application of the integration of interdisciplinary and transdisciplinary sciences in the postgraduate program of UIN Sunan Kalijaga Yogyakarta can be seen in the curriculum applied on this campus, in the form of course titles that are integrated with other sciences and in the postgraduate program of UIN Sunan Kalijaga Yogyakarta where thesis research, theses, and dissertations of UIN Sunan Kalijaga Yogyakarta students are integrated with other sciences and using a comprehensive approach.[9]

[5] Nuryani, Dwi Noviani, and Ely Syawalia, "Dikotomi Ilmu, Islamisasi Sains Dan Spiritualisasi Human Being Dalam Pendidikan Islam," *CONTEMPLATE: Jurnal Ilmiah Studi Keislaman* 3, no. 02 (2022): 1–15.

[6] Ferry Adhi Dharma, "The Social Construction of Reality: Peter L. Berger's Thoughts About Social Realit," *Kanal: Jurnal Ilmu Komunikasi* 7, no. 1 (2018): 10–16, https://doi.org/10.21070/kanal.v.

[7] Sufratman, "Integrasi Agama Dan Sains Modern Di Universitas Islam Negeri Integration of Religion and Modern Sains At State Islamic," *Al-Afkar* 5, no. 1 (2022): 209–28.

[8] M Iqbal Lubis, Ilyas Husti, and Bisri Mustofa, "Implementasi Konsep Integrasi Islam Dan Sains UIN Sunan Kalijaga Yogyakarta," *At-Tarbiyah al-Mustamirrah: Jurnal Pendidikan Islam* 4, no. 1 (2023): 15, https://doi.org/10.31958/atjpi.v4i1.8605.

[9] Ramadhanita Mustika Sari and Muhammad Amin, "Implementasi Integrasi Ilmu Interdisipliner Dan Multidisipliner: Studi Kasus Di Pascasarjana UIN Sunan Kalijaga Yogyakarta," *Prosiding Konferensi Integrasi Interkoneksi Islam Dan Sains* 2 (2020): 245–52.



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Social constructs are influenced not only by academic experience but also by the culture, religion, and social background that surrounds them.[10] However, the reality is that there are still many students who have difficulty understanding and implementing the integration of science and Islam. This may be due to the dominance of the positivistic paradigm in science learning, the limited integrative literature, and the lack of a holistic approach in the physics education curriculum. Therefore, this research is important to understand how physics education students build social structures through the integration of science and Islam, so that the findings of this research can contribute to the development of a more inclusive education model.

This study is needed to answer fundamental questions about how the process of social construction occurs, what factors influence it, and the extent to which Peter L. Berger's theory of social construction can be used to analyze this reality. Through a deep understanding, this research can be used as a basis for efforts to develop science education based on Islamic values that are more relevant using the needs of citizens in the modern era.

## RESEARCH METHOD

This study uses a qualitative approach to the case study method. Researchers use interviews, observations, and documentation in collecting data.[11] This research was conducted at UIN Sunan Kalijaga Yogyakarta on students of the Physics Education study program class of 2022 who are studying in semester V. The students involved amounted to 44 people consisting of 9 male students and 35 female students. Interviews are conducted through structured and unstructured interviews. Structured interviews are conducted through filling out a google form to ensure consistency and ease in data collection and analysis. Meanwhile, unstructured interviews were conducted offline and online to dig deeper answers from the information previously provided by the respondents through google forms. Observations were made when students took part in the Research Methodology course which was carried out every Thursday and Friday, as well as in the Integrated Science Learning course on Tuesday. Documentation is taken from the analysis of the Integrated Science Research and Learning Methodology course. From the data obtained, the researcher analyzed the data using the Miles, Huberman, and Saldana interactive model data analysis technique.[12]

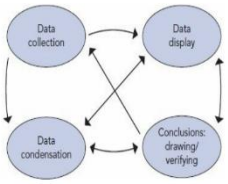


Figure 1. Interactive Model Data Analysis Techniques.

[10] Sulaiman Aimie, "268161-Memahami-Teori-Konstruksi-Sosial-Peter-L-1E36a954," *Jurnal Society* VI (2016): 15–22.

[11] Johnny Salsana Mattew B Miles, A. Michael Huberman, *Qualitative Data Analysis : A Methods Sourcebook*, *SAGE Publications*, vol. 11 (United States of America, 2018).

[12] Mattew B Miles, A. Michael Huberman.



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Figure 1. demonstrate the interactive model data analysis techniques from Miles, Huberman, and Saldana. After all the data is collected, the researcher then analyzes the data through the stages of condensation, presentation, and conclusion to produce comprehensive data. To keep the findings valid, the researcher triangulation the data by matching the data from interviews, observations, and documentation.

## RESULTS AND DISCUSSION

### Externalization Dimension

Based on the results of data analysis obtained through observation, interviews and documentation with the topic of social construction of students of the Physics Education study program in integrating science with religious science. According to Peter L Berger's theory of social construction, there are three important processes in social construction, namely the externalization process, the objectification process, and the internalization process.[13] The externalization dimension is the process by which individuals express their subjective ideas, ideas, or experiences into the social world.[14] The process of student externalization in integrating science and Islam occurs through learning activities and academic discussions. Students often base their views on Islamic values that are relevant to the study of science.[15] They discussed the integration of Islamic science and science in one of the elective courses on the integration of Islamic science and science, discussions with lecturers who are experts in the field of integration of Islamic science with science, religious studies organized by the HMPS (Student Association of Study Programs) Physics Education, as well as for those who live in Islamic boarding schools.

At least once a week they discuss the relationship between Islamic science and science. Interviews with students Respondent 2 and Respondent 9 said that it is important to convey views related to the integration of science and religion in academic activities.[16][17] Respondent 3 said that religious science can help understand the concept of science more deeply. Since studying the integration of religious science and science can cause wonder, reflection, and the search for meaning behind natural phenomena, thus encouraging an exploratory attitude and appreciation for the order of creation.[18] Respondent 9 said that, religious science can help to understand scientific concepts in more depth because it can provide important moral, ethical, and philosophical perspectives in scientific contexts. While science answers the question of how things work, religion often invites us to reflect on why we exist and what the purpose of life is.

[13] L. G. Maulida Rahmawati, "The Terrorism Phenomenon in Peter L. Berger's Social Construction of Reality," accessed December 12, 2024, https://www.ijassjournal.com/2024/V7I6/41466639467.pdf.

[14] Yanyan Huang, "Exploring the Role of Externalization of Shared Values for Sustainability Transformation: Empirical Lessons from China" (PhD Thesis, Wageningen University, 2023), https://library.wur.nl/WebQuery/wurpubs/fulltext/640485.

[15] Anna Babicka-Wirkus et al., "Internalizing and Externalizing Disorder Levels among Adolescents: Data from Poland," *International Journal of Environmental Research and Public Health* 20, no. 3 (2023): 2752, https://www.mdpi.com/1660-4601/20/3/2752.

[16] (R2) Responden2, "Wawancara," 2024.

[17] (R9) Responden9, "Wawancara," 2024.

[18] (R3) Responden3, "Wawancara," 2024.



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Thus, understanding religion can enrich discussions about issues in scientific research, such as the use of new technologies or environmental impacts.[19]

Physics learning associated with Islamic science can be a means to get closer to God. Respondent 3 said that "learning physics can be a means of getting closer to God by revealing the order, beauty, and greatness of the universe as proof of His power and wisdom. It invites humans to contemplate, marvel and be grateful for His creation." The same statement was conveyed by respondent 4 "by viewing physics not only as a science, but also as a vehicle for spiritual reflection, learning physics can strengthen faith and foster a sense of love for God.[20] The existence of a physics concept explains that the universe is vast and has no end where humans are like very small dust, therefore the word gratitude for God's blessings is very important, said respondent 7.[21] Through Qur'an-based physics learning, students are invited to understand natural phenomena as a sign of Allah's greatness, which can strengthen their faith. For example, studying the laws of physics such as studying the laws of gravity or mechanics is often amazed at how everything works so perfectly and in order. This universe has been arranged in a system where the planets rotate according to their axis without colliding with each other. Students can reflect on the order and beauty of God's creation, which leads to gratitude and recognition of His power.[22] In addition to seeing the order of nature as proof of God's greatness, integrating Islamic science with science can also be used to study diversity, complexity, and appreciate God's creation.

Science plays an important role in explaining religious phenomena through several approaches. The integration between science and religion allows the two to complement each other, where science provides empirical evidence that supports religious beliefs.[23] Science has a significant role in explaining religious phenomena, although often its approach differs from a religious perspective. Science focuses on observation, experimentation, and rational explanation of natural phenomena, while religion tends to provide spiritual meaning and context to the human experience. Science has limitations in explaining religious phenomena.[24] Science focuses on things that can be measured and measured, while religion touches more on things that are spiritual and metaphysical.[25] For example, spiritual experiences or miracles may be difficult to explain scientifically. However, science and religion can be integrated. Science helps us understand the physical world, while religion gives meaning and direction to life. Science and religion can complement each other. Science explains how the universe works, while religion provides the meaning and purpose behind the phenomenon.

[19] Responden9, "Wawancara."
[20] (R4) Responden4, "Wawancara," 2024.
[21] (R7) Responden7, "Wawancara," 2024.
[22] (R13) Responden13, "Wawancara," 2024.
[23] Nasser Mansour, "Science Teachers' Views of Science and Religion vs. the Islamic Perspective: Conflicting or Compatible?," *Science Education* 95, no. 2 (March 2011): 281–309, https://doi.org/10.1002/sce.20418.
[24] Per T. Sangild, "Science and Faith to Understand Milk Bioactivity for Infants," *Nutrients* 16, no. 11 (2024): 1676, https://www.mdpi.com/2072-6643/16/11/1676.
[25] Ulrich A. K. Betz, "Science and Religion," in *Science and Religion United*, by Ulrich A. K. Betz (Cham: Springer Nature Switzerland, 2024), 139–226, https://doi.org/10.1007/978-3-031-55094-2_5.



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The process of externalization is a stage of conveying ideas, opinions, and views. In integrating science with Islamic science, Physics education students of UIN Sunan Kalijaga said that they discussed it through the courses they participated in such as the Integrated Science course and the Integration of Islamic Science and Science course. In addition, they also often implement it through discussions and religious studies through the organizations they join. Students feel that it is important to convey the integration between Islamic science and science. Religious science helps you understand the concepts of science more deeply. Physics learning integrated with Islamic science can be a means to get closer to God. In line with the research conducted by Tarmizi in his research results, it is stated that science learning that integrates Islamic science can strengthen and support the belief in God as the creator of the universe. Likewise, Soehadha said that devotion by implementing the integration of Islam with science and technology is an effort to build a paradise in the world and in the world.

**Objective Dimensions**

Objectivity is a process in which an idea, idea, or experience is considered to be real, natural, and independent of the human being who created it.[26] The physics education study program of UIN Sunan Kalijaga has courses that indirectly integrate Islamic Science with Science, including the Integrated Science Learning and Integration of Islam and Science courses that have been listed in the curriculum. Respondent 1 stated that the Integration of Islam and Science course is very important in supporting the integration between science and religion, by showing that the two can go side by side and complement each other. Science in the Islamic view is not only to understand the physical world, but also to get closer to God through a deeper understanding of His creation. By studying both simultaneously, students can gain strong scientific knowledge while enhancing their spiritual understanding, ultimately creating harmony between science and religion in their lives.[27]

Likewise, respondent 3 said that the Integration of Islam and Science course supports the integration of science and religion because it discusses how Islamic principles encourage scientific exploration, harmonize revelation with reason, and explain the contribution of Islamic civilization to the development of science.[28] There is also a philosophy of science course that explores the relationship between the two fields, namely religion and science from a philosophical perspective, helping students understand how science and religion can complement each other and are related.[29] There are also Basic Science courses. This course discusses the relationship between science and religion, especially Islam. Through this course, students can see how the principles of science and religious values can complement and support each other.[30]

[26] Nurfaizah Anwar, Suparman Abdullah, and Rahmat Muhammad, "Studi Pada Mahasiswa Sosiologi Fisip Universitas Hasanuddin," *Jurnal Pendidikan Sejarah Dan Riset Sosial Humaniora* 4, no. 1 (2024): 82–87.
[27] (R1) Responden1, "Wawancara," 2024.
[28] Responden3, "Wawancara."
[29] Responden9, "Wawancara."
[30] Responden13, "Wawancara."



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In classroom learning, the material provided often lists the integration between science and religion. For example, the concept of time can be explained through Einstein's theory of relativity, which is listed in Surah Al-Mu'minun (112-114). In addition, Surah An-Nur (35) describes light as particles that move at high speeds, in line with modern physics theories about light. Religion teaches that the order of the universe is a sign of God's wisdom and power. Physics reinforces this by showing that the laws of nature work with remarkable consistency. Respondents 13 stated that there is a harmony between religious values and principles in the physical sciences. Just like when in the practicum course in the part of making a practicum report in the background, there must be one sentence related to the practicum material that I include. For example, in Islam, we are taught to reflect on the creation of Allah SWT. Physical science, by studying the laws of nature, helps us to understand how the universe works and how everything is created with extraordinary order. This is in line with Islamic teachings that emphasize the importance of thinking and understanding the universe as proof of the power of Allah SWT.[31]

Respondent 1 stated that physics teachers need to integrate religious science with science during learning so that students can form character education and build their scientific attitudes, because this integration is not only a matter of combining two fields of knowledge, but rather showing the connection between science, religion, and daily life, as well as enriching students' learning experiences with more holistic insights.[32] The integration can help students to increase their motivation to learn.[33] Sunan Kalijaga State Islamic University also supports the development of insights into religion-based science in various ways, including organizing Basic Science courses, philosophy of science, holding webinars or seminars related to science and religion.[34] The objectification process is a stage of unifying opinions to get one vote until an agreement is reached. In relation to the implementation of integrating Science with Islamic Science in Physics education students of Sunan Kaljaga State Islamic University, Sunan Kaljaga agreed that its application is carried out when participating in courses that are already in the curriculum. In addition, students stated that it is important for prospective educators, especially Physics teachers, to integrate science and Islamic science during learning. Previous research has stated that divine values or beliefs in religion in learning can be implemented by integrating the curriculum.[35] The integration of science and Islam implemented in learning can improve the quality of student learning.[36]

[31] Responden13.
[32] Responden1, "Wawancara."
[33] Responden13, "Wawancara."
[34] Responden13.
[35] Baskoro Adhiguna and Bramastia Bramastia, "Pandangan Al-Qur'an Terhadap Ilmu Pengetahuan Dan Implikasinya Dalam Pembelajaran Sains," *INKUIRI: Jurnal Pendidikan IPA* 10, no. 2 (2021): 138, https://doi.org/10.20961/inkuiri.v10i2.57257.
[36] Farazdaq Az-zahra, "Integrasi Islam Dan Sains Serta ImplikasinyaDalam Teknologi Pendidikan," *Prosiding Konferensi Integrasi Interkoneksi Islam Dan Sains* 5 (2023): 86–88.



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**Internalization Dimension**

Objectivity, according to Peter L Berger, is a process in which a person can accept social realities that have been agreed upon so that they can be used in society.[37] For many people, religious beliefs provide additional motivation in studying physics, whether through a sense of awe and appreciation for God's creation, a sense of moral responsibility in using knowledge, or an urge to find deeper meaning behind natural phenomena.[38] "Many events or physics materials associated with religion make me feel amazed and grateful," said respondent 6.[39] Religious beliefs can provide strong motivation in learning physics by creating curiosity, integration between science and spirituality, and providing ethical and emotional support. By combining these two aspects, individuals can experience a richer and more meaningful learning experience, as well as find new ways to understand the world around them.[40]

Students often reflect on holy verses related to the concept of physics, for example Surah Al-Kahfi verse 96, this verse can be integrated into physics, namely heat transfer.[41] Surah Al Baqarah verse 29 which explains about the sky and earth with the alternation of night and day. This is an event that exists in nature but has been written in the Qur'an.[42] *As a total of 13 respondents mentioned, "One of the most memorable experiences was when I learned about the Big Bang theory. The verse of the Qur'an surah Al-Anbiya verse 30 which reads (And do the disbelievers not know that the heavens and the earth were once a solid one, then We separated between the two)".* In applying the principles of religious science that examine physical theories, students do it in various ways, including. Studying physical theory can be done in the context of Islam (reading and understanding the Qur'an), meaningful experience (by applying it in daily life), and learning history. Seeing Nature as the Verse of Allah. When studying physics, we are invited to reflect on the order and beauty of the universe, which reflects the greatness of the Creator, using ethical values such as responsibility to the environment, so that we as humans can take care of nature, and reflection or contemplation. Read the article and integrate it.[43]

All respondents also agreed that science helps you understand the majesty of God's creation. Science, especially physics, can help a person understand the majesty of God's creation by revealing the order, beauty, and wonder in the universe so that it often makes them amazed, amazed, and grateful. Science not only provides technical knowledge but also deepens our spiritual understanding of the world around us. By studying God's creation through the lens of science, we can better appreciate His majesty and our responsibility as part of that creation. Revealed that Issac Newton was one of the greatest scientists of all time, Newton saw the order of

[37] Achmad Suhendra Hadiwijaya, "Sintesa Teori Konstruksi Sosial Realitas Dan Konstruksi Sosial Media Massa," *DIALEKTIKA KOMUNIKA: Jurnal Kajian Komunikasi Dan Pembangunan Daerah* 11, no. 1 (2023): 75–89, https://doi.org/10.33592/dk.v11i1.3498.
[38] Responden1, "Wawancara."
[39] (R6) Responden6, "Wawancara," 2024.
[40] (R8) Responden8, "Wawancara," 2024.
[41] Responden4, "Wawancara."
[42] Responden7, "Wawancara."
[43] (R12) Responden12, "Wawancara," 2024.



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the universe as proof of God's majesty.[44] Science increases my gratitude to God for His amazing creation.

Science and religious science are complementary sciences. The two can complement each other by providing a more comprehensive view of the world and life. Science explains how nature works, whereas religion provides a deeper meaning and purpose for our existence.[45] By integrating the two, we can gain a broader understanding of the order of the universe and our role in safeguarding and caring for God's creation. Science and religious science can complement each other in a productive way.[46] Science provides the tools to understand our physical and mental world, while religion offers a moral and spiritual framework that can enrich the human experience. In many ways, collaboration between these two fields can lead to a more holistic understanding of life. One common view is that science focuses on explaining how the universe works, while religion focuses more on questions about the meaning of life, the purpose of humans, and the existence of God.[47] In this context, science and religion can be seen as two different but complementary ways of understanding reality. The Big Bang theory, which is the cornerstone of modern cosmology, explains the origin of the universe. For some people, this theory actually strengthens their belief in a creator, because the Big Bang shows the beginning of everything.

Internalization, according to Peter L Berger's theory, is the stage of tolerance or acceptance of the most opinions on mutual agreement that eventually becomes a culture. In this case, students' religious beliefs can affect their motivation in learning science, especially Physics. Feelings of amazement, awe, gratitude that can finally add to the passion and motivation to learn. Meanwhile, the research conducted by Farazdaq said that learning that integrates Islamic science and science can create students who have a good scientific attitude awareness.[48] Through the integration of Science and Religious Sciences, students often reflect on the verses of the Al Quran related to the concept of Physics. Science helps to understand the majesty of God's creation. Nuryani in the results of her research concluded that science and technology that are connected to religious science can strengthen a person's piety and faith.[49] Students realize that science and religious science complement each other, not contradict each other. Alya Zhulfarani in her research said that learning science must be accompanied by religious science, because science

[44] Responden7, "Wawancara."

[45] Peter Harrison, "'Science' and 'Religion': Constructing the Boundaries," *The Journal of Religion* 86, no. 1 (January 2006): 81–106, https://doi.org/10.1086/497085.

[46] Muhammad Qorib and Ahmad Afandi, "Implementing Prophetic Values in the Islamic Life Guidelines for Muhammadiyah Citizens: A Qualitative Analysis for Transforming Science and Technology," *MIQOT: Jurnal Ilmu-Ilmu Keislaman* 48, no. 1 (2024): 1–25, https://jurnalmiqotojs.uinsu.ac.id/index.php/jurnalmiqot/article/view/1129.

[47] Tamer Koburtay, Dima Jamali, and Abdullah Aljafari, "Religion, Spirituality, and Well-being: A Systematic Literature Review and Futuristic Agenda," *Business Ethics, the Environment & Responsibility* 32, no. 1 (January 2023): 341–57, https://doi.org/10.1111/beer.12478.

[48] Farazdaq Az-zahra, "Integrasi Islam Dan Sains Serta ImplikasinyaDalam Teknologi Pendidikan."

[49] Nuryani, Noviani, and Syawalia, "Dikotomi Ilmu, Islamisasi Sains Dan Spiritualisasi Human Being Dalam Pendidikan Islam."



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without religion is just an empty science.[50] The internalization process built by Physics Education students includes motivation to learn, feelings of awe, amazement and gratitude for God's creation, accustomed to contemplating the verses of the Quran, and being aware that the knowledge of Religion and Islamic science are inseparable but complementary to each other which they can finally apply and practice in their daily lives.

## CONCLUSION

The findings of this study show that the social construction built by Physics students of UIN Sunan Kalijaga Yogyakarta is carried out through three processes, namely, externalization, objectification, and internalization. There are also factors that affect the process of forming social reality such as the level of understanding of Islamic science and science, environmental factors such as those who live in Islamic boarding schools and follow organizations, and social factors such as the influence of lecturers when attending courses. This research not only makes an academic contribution to the development of theory and practice that integrates science and Islam, but also has real implications as a guide for education policy in developing the curriculum. The results of this research are expected to bring great changes in students' perspectives on science so as to make learning more valuable and meaningful. The study was limited to population numbers and samples. This research only focuses on one batch of students which only totals 44 students. It is recommended to future researchers to conduct research with a larger number of research subjects so that they can get more comprehensive results.

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