





Al-Qur'an-Based Paradigm in Science Integration at The Al-Qur'an Science University, Indonesia



Authors:

Mohammad Muslih¹ 
 Yuangga K. Yahya^{2,3} 
 Sri Haryanto⁴ 
 Aufa A. Musthofa⁵ 

Affiliations:

¹Department of Aqidah and Islamic Philosophy, University of Darussalam Gontor, Ponorogo, East Java, Indonesia

²Department of Comparative Study of Religions, Faculty of Ushuluddin, University of Darussalam Gontor, Ponorogo, East Java, Indonesia

³Department of Islamic Studies Ph.D. Programme, Graduate School, Islamic University, Sunan Kalijaga, Yogyakarta, Indonesia

⁴Department of Early Childhood Islamic Education, Faculty of Tarbiyah, Al-Qur'an Science University of Central Java, Wonosobo, Indonesia

⁵Department of Arabic Language Teaching, Faculty of Tarbiyah, University of Darussalam Gontor, Ponorogo, East Java, Indonesia

Corresponding author:

Yuangga Yahya,
 yuangga4@unida.gontor.ac.id

Dates:

Received: 21 Sept. 2023
 Accepted: 18 Jan. 2024
 Published: 22 Mar. 2024

Read online:



Scan this QR code with your smart phone or mobile device to read online.

The discourse on the integration of science and Islam is being realised through the establishment of various Islamic religious universities in Indonesia. One of the Islamic universities that accommodates this discourse is the Al-Qur'an Science University, Central Java, Indonesia (UNSIQ). This study aims to examine the basic concept of scientific integration at the UNSIQ and critically analyses the academic tradition and research development patterns based on the Lakatos research development pattern, both of which are hard-core and auxiliary hypotheses. This research shows that the scientific base at the UNSIQ has been structured in an awareness that supports the establishment of a distinctive academic tradition and scientific culture in the framework of al-Qur'an-based academic knowledge. However, research as auxiliary hypotheses in building scientific paradigm is still limited in certain disciplines and needs to be improved. This needs to be a common concern in order to increase the scientific base of the Syajarah al-Qur'an into a solid scientific paradigm.

Contribution: This research figured out that the scientific base at the UNSIQ has been structured in an awareness that supports the establishment of a distinctive academic tradition and scientific culture, but this scientific base needs to be supported by research plan and researches in various disciplines. Thus, those researches become the auxiliary hypotheses to build a particular scientific paradigm of this university.

Keywords: scientific integration; philosophy of science; Lakatos; Islamic University; UNSIQ Wonosobo.

Introduction

The discourse on the integration of science and religion has become the concern of many Islamic thinkers and universities in Indonesia recently. Syed Naquib al-Attas (Al-Attas 1993), Isma'il Raji al-Faruqi (Al-Faruqi 1982), and Ziauddin Sardar are three prominent Islamic thinkers who are widely used as references in the pattern of integration of Islam and science in universities in Indonesia (Mas'ud, Fuad & Zaini 2019; Mufid 2014). The difference between the two concepts lies only in the background of the urgency of an Islamisation; al-Attas views it from external factors, namely Western civilisation, while al-Faruqi views it from internal factors (Soleh 2017; Taufik & Yasir 2017). As for Ziauddin Sardar, there are differences from his opinion with the two mentioned concepts. Sardar criticised al-Faruqi's model of Islamisation of science and provided a solution: the Islamisation of science must depart from building an Islamic epistemology. This is in order to create a contemporary Islamic science as a counter to modern Western science (Soleh 2017). The idea of Islamisation of science from al-Attas and al-Faruqi was then implemented in the form of the establishment of the International Islamic University of Malaysia (IIUM), which was followed by the International Islamic University of Islamabad (IIUI) (Hashim & Ssekamanya 2014; Rufai 2016).

However, the above theory of integration of science and religion is not absolutely practised in Islamic universities in Indonesia. This discourse is often carried out in Islamic universities in Indonesia. The transformation of Islamic Higher Institutions (IAIN) into Islamic Universities (UIN) is also inseparable from this discourse, with their respective trademarks and various implementations (Muslih 2017). The majority of Islamic universities in Indonesia have initiated various models of Islam and science integration (Muslih 2017; Nata 2019). The discourse of scientific integration has become a focus in the development of educational institutions in Indonesia in the last two decades (Mas'ud et al. 2019). Sunan Kalijaga State Islamic University of Yogyakarta uses the integration-interconnection paradigm (Abdullah 2014), Syarif Hidayatullah

How to cite this article: Muslih, M., Yahya, Y.K., Haryanto, S. & Musthofa, A.A., 2024, 'Al-Qur'an-Based Paradigm in Science Integration at The Al-Qur'an Science University, Indonesia', *HTS Teologiese Studies/Theological Studies* 80(1), a9459. <https://doi.org/10.4102/hts.v80i1.9459>

Copyright: © 2024. The Author. Licensee: AOSIS. This work is licensed under the Creative Commons Attribution License.

Note: Historical Thought and Source Interpretation.

State Islamic University of Jakarta uses the dialogue integration paradigm, Maulana Malik Ibrahim State Islamic University of Malang uses the tree of knowledge paradigm (Miftahuddin 2019), Sunan Gunung Djati State Islamic University of Bandung uses the revelation paradigm to guide science with the analogy of a wagon wheel (Hanifah 2018), Sunan Ampel State Islamic University of Surabaya uses the Twin Towers paradigm (A'la et al. 2016), and Sultan Maulana Hasanuddin State Islamic University of Banten uses the integration-comparative-diffusion paradigm (Muzhiat & Kartanegara 2020). The Al-Qur'an Science University in Central Java, Indonesia (hereinafter UNSIQ), is no exception. The university, which was founded in 2001, carries the integration of the sciences with the Qur'an as a scientific basis and the basis for character building. This can be seen from the vision that was carried out, namely to create a transformative, humanist, and Qur'ani University (Administrator n.d.).

However, Nata (2019) revealed that various models of the integration approach of Islamic science and religion in universities in Indonesia still stop at the theoretical aspects, and the practical aspects of their operations have not been clearly seen. In addition, there are also parties who integrate knowledge by means of re-actualisation, reinterpretation, reformulation, contextualisation, and transformation without laying down the methodological framework and approach. The scientific integration model implemented at the IIUM and the IIUI is also considered to have a missing link at the core of the project, namely knowledge (Hussien, Mamat & Ssekamanya 2019; Rufai 2016). The great ideals of the project are practically difficult to implement in courses, research, and knowledge production. Apart from the lack of even distribution of academic staff's understanding of this model, there is minimal collaboration with wider parties such as Muslim scientists, humanists and scientists, as well as other parties in refreshing understanding of the Islamisation of science (Chande 2023). Meanwhile, the UNSIQ applied synergy to the four main pillars, namely *kyai* [religious leaders], bureaucracy (*umara'*), entrepreneurs, and academics (*ulama*). This is UNSIQ's advantage compared to the two universities, even Islamic universities, in Indonesia in implementing the principle of integration, because integration is not limited to the knowledge component but also to external stakeholders. Besides that, the integration system between traditional Islamic boarding school (*pesantren*) and higher education institution also made this university stand out among another Islamic universities in Indonesia (Sukawi 2020). Therefore, this study aims to examine the implementation of scientific integration between science and the Qur'an which was carried out by the UNSIQ. The university has launched a vision to become a transformative, humanist, and Qur'anic university by placing the Qur'an as a scientific basis and a foundation for thinking in analysing various sciences (Administrator n.d.). In analysing it, this research uses the perspective of the Lakatos' research methodology.

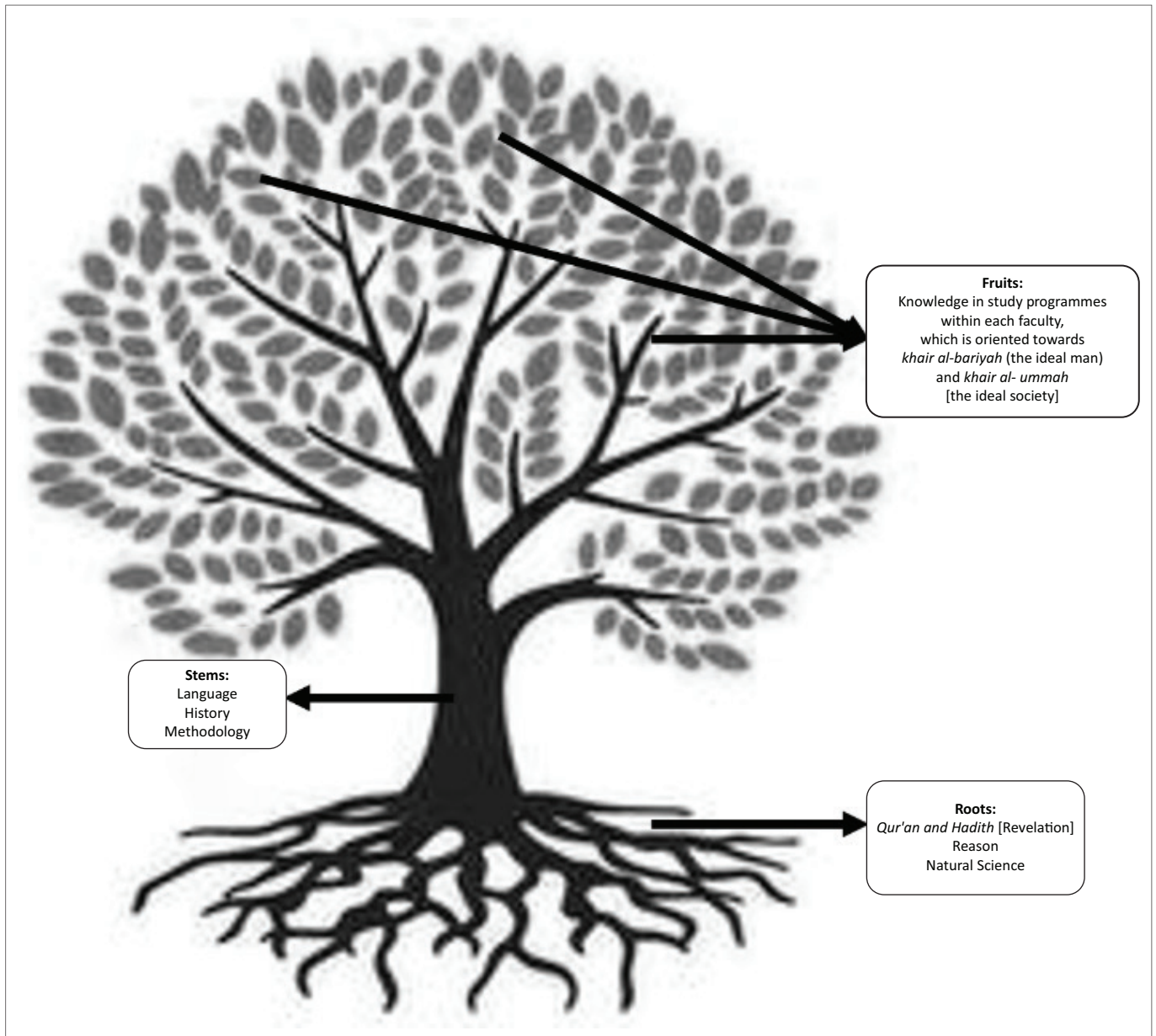
Research method

This research is a qualitative research with a philosophy of sciences perspective, especially research programme methodology. According to Lakatos (1970), this perspective is a methodological structure that guides the development of future research and has several methodological rules called 'heuristics'. Heuristics are conceptual frameworks that are a consequence of scientific language. In the research programme, there are at least three elements, which are: *firstly*, 'hard-core'; *secondly*, 'protective-belt' which consists of auxiliary hypotheses (supporting hypotheses), and *thirdly*, 'a series theory', namely linking theory in which a theory is the result of a development or auxiliary clause from a pre-existing theory (Lakatos 1970; Muslih 2017, 2020). Based on this theory, it is necessary to examine the basic elements that are the core of the Syajarah Al-Qur'an scientific paradigm at UNSIQ as hard-core and lecturer research, especially research with the theme of the relationship between the Al-Qur'an and science, which has been published between 2015 and 2020 in online journals as auxiliary hypothesis, which forms a protective belt for the Al-Qur'an-based science and technology development paradigm, which is UNSIQ's scientific paradigm.

The Syajarah al-Qur'an paradigm as the scientific base of the Al-Qur'an Science University, Wonosobo, Central Java, Indonesia

The scientific building at the UNSIQ Wonosobo is built on the concept of (*Syajarah al-Qur'an*) (cf. Figure 1), or a scientific tree based on the Qur'an (Sukawi 2016a). The Qur'an is placed as the basis for the entire scientific structure at the UNSIQ. This scientific tree is the embodiment of QS 14:24–25, where a good tree has strong roots and is sourced from the Qur'an and Qur'anic spirituality (*al-ruh al-Qur'aniyah*) (Sukawi 2016a). This tree has branches that soar to the sky and have useful fruits. These branches and fruits are likened to the other disciplines taught at this university.

Syajarah Al-Qur'an serves as a building model for assessment and development as well as orientation of academic and scientific cultural life in its various dimensions. The building was inspired by the tree concept as stated in the Qur'an 24:35 (Sukawi 2020). From this verse, various concepts that have an important role in the development and sustainability of the UNSIQ can be summarised. Some of these concepts are: *firstly*, the UNSIQ is a form of transformation of the pearl of the *pesantren*—traditional Islamic boarding school in Indonesia—traditions which is referred to as a *pesantren* transformation model university. *Secondly*, scientific development in its various dimensions as a whole and comprehensively comes from all the power possessed by humans, namely the power of the senses, the power of reason, the power of imagination, the power of thought and intuition. These various powers come from the same source, namely spirituality at the level of the *al-fitrah* and *al-ruh* dimensions.



Source: Sukawi, Z., 2020, *Transformasi UNSIQ Dalam Membangun Peradaban Harmonis, Sinergis, Dan Integratif* (UNSIQ transformation in building a harmonious, synergistic and integrative civilization), UNSIQ Press, Wonosobo

FIGURE 1: Syajarah al-Qur'an as scientific paradigm in the Al-Qur'an Science University, Central Java, Indonesia.

Thirdly, the science developed is based on a harmonious-synergistic-integrative paradigm that emphasises neither the East nor the West (*la syarqiyyah wa la gharbiyyah*), so that it is free from the confines of secularisation, desecralisation, and scientific dichotomy. This is symbolised by the synergy of the UNSIQ figures, Kyai Muntaha al-Hafidz as an East figure and Kyai Abdurrahman Mas'ud and Kyai Zamakhsyari Dhofier as representatives of the West figures because of their educational experiences in Australia and America. The two mindsets do not overlap each other but synergise the advantages of the East and the West in their visions and thoughts (Sukawi 2020).

In discussing the integration of science between the West and the East, this university takes the example of how Ibn Sina and Ibn Rushd's works were adopted by Western civilisation,

which is secular and has no spiritual foundation. However, the UNSIQ presents a solution based on the development of knowledge based on the Qur'anic spirituality, which is harmonious, synergistic, and integrative. This is supported by the epistemology of the *Syajarah al-Qur'an* which can integrate it well, beautifully, and harmoniously. The goals of Western science, which is oriented 'to exchange the quality of human life' and Eastern science, which is oriented 'to exchange the quality of human being', are harmonised and synergised into 'to exchange the quality of human life and being' (Sukawi 2020).

The concept of *Syajarah al-Qur'an* which is the scientific building of the UNSIQ has several differences with similar concepts, for example, the tree of knowledge which is a scientific paradigm at Maulana Malik Ibrahim State Islamic

University of Malang. These differences can be seen from the basis of determination, historicity, symbolisation, implementation, goals, performance, content, and keywords used. In performance and content, the *Syajarah al-Qur'an* consists of three dimensions, namely roots, trees and stems, and fruit. The root dimension contains *al-Qur'an and Hadith* [revelation], reason, and natural science, which are integrated with three spiritualities: theocentric, anthropocentric, and cosmocentric. The three models of spirituality are connected harmoniously, synergistically, and integratively in this university (Sukawi 2020).

The tree and stem dimensions contain language, history, and methodology. Language in this context is a response to the language of science, culture, and civilisation (*lisan al-qoum*), which is always changing and developing according to space and time. Historically, what is meant here is that the dynamic process of developing science always considers three dimensions of time: the past, present, and future. All of them will be strengthened with the methodology as a scalpel in conducting exploration, testing, innovation, and revitalisation (Sukawi 2016a, 2020). The fruit that is expected from the tree of the Qur'an is oriented to the results of physical and spiritual efforts by adhering to the four pillars as stated in Qur'an 2:151. Psychologically, the tree will give birth to a person who is healthy, superior, and great so that he can become *khalifatullah* [vicegerent of Allah] on earth and become *khair al-bariyah* [the ideal man]. Sociologically, the tree creates *khair al-ummah* [the ideal society]. As for scientifically, it can give birth to scientific development through research, utilisation, and the discovery of new theories in accordance with each scientific discipline (Sukawi 2020).

In its operational practice, the *Syajarah al-Qur'an* becomes a model for study and development as well as an orientation to scientific cultural life that originates from QS 24:35. The study and development process is based on the synergy and harmonisation of the verses of the al-Qur'an, the prophetic tradition, the studies of *mufasssir* [interpretation of al-Qur'an experts], *muhadditsin* (*hadith experts*), and *'ulama* with the phenomena of life which are always changing and developing. The implication of the concept of *Syajarah al-Qur'an* is to provide a foundation, guidance, and direction to the academic community in the development of science, academic culture, scientific traditions and the university atmosphere, in which there are symbolic themes for developing science and technology in life (Sukawi 2020:171–172). The symbolic themes contained in QS 24:35 are *nūr* [light], *misykāt* [niche], *mishbāh* [lamp], *zujājah* [glass], blessed tree, and *nūr 'ala nūr* [light upon light]. The five themes based on al-Ghazali's interpretation in *Misykat al-Anwar* are linked to the five spiritual powers of humans, namely the sensory soul (*hissi*), imagination (*khayali*), rational power (*'aqli*), reflective power (*fikri*), and power that is purely based on prophecy (*qudsi* or *nabawi*) (Labib 2021; Sukawi 2020). This paradigm is what underlies academic and non-academic activities, where the Qur'an becomes a source of scientific culture and synergises and harmonises with various

scientific disciplines to answer the challenges of life's phenomena.

Before discussing scientific integration, the UNSIQ has established itself by integrating various systems within it. This integration can be seen in the integration of Islamic boarding schools and modern education, the development of spiritual, emotional, and intellectual potential, skills between Western and Eastern traditions, the integration of Islam, the state, and Indonesian wisdom, as well as the integration of the four main pillars, namely *kyai* [religious leaders], bureaucracy (*umara'*), entrepreneurs, and academics (Sejarah YPIIQ n.d.; Sukawi 2016b).

All of these integrations and collaborations are guided by the principles of the *pesantren* tradition. This tradition includes three main principles. The first principle is, *al-Muhafadhatu ala al-qadim al-salih wa al-akhdu bi al-jadid al-ashlah*, which means guarding over old traditions that are still relevant and integrating them with new, better traditions (Asroah 2011). The second principle is *tafaqquh fi al-din wa al-takhalluq bi al-akhlaq al-karimah*, which means deepening religious knowledge and having noble character. The third principle is *thalabu al-'ilmi faridhatun 'ala kulli muslimin wa muslimatin*, which means studying is a *fardhu 'ain* obligation for all Muslims (Sukawi 2016a).

From the vision mentioned, one of the main missions carried out by the UNSIQ is to transform the values of the Qur'an in life. The goal of education aimed at by the UNSIQ is to produce human resources who are able to transform the values of the Qur'an creatively and innovatively in order to help provide solutions to the problems of people's lives. The research and service developed also focus on integrating the values of the Qur'an and science to implement Islam *rahmatan lil 'alamin* [blessing for all creatures] (Administrator n.d.). This integration is intended to strengthen the scientific base (*'ilmiyah*) of the academic community in it on the basis of the 'natural' character of the Qur'an as a solution to the dichotomy of general science and religion after the golden age of Islam (Hamzah 2018). In other words, the learning process at the UNSIQ prioritises a spiritual introduction based on the Qur'an to educate students to have a handle on life and in the learning process of other disciplines (Sakir 2016).

The main figure at this university is Kyai Muntaha Hafidz. He took the initiative to establish innovation and scientific development in the Qur'an. One of his ideas was to establish a higher education institution with the characteristics of the al-Qur'an (Firdausa 2019; Sukawi 2020). In the organisation of these various educational institutions, Kyai Muntaha Hafidz placed the Qur'an and *al-hadith* as his main view of life or worldview (Sari 2006). According to him, this spiritual foundation is the guide for a Muslim in applying the values of science and technology, and has also become the main focus of the education pattern at UNSIQ (Sari 2006). This is where the spirituality understood by the UNSIQ academic community lies. The spirituality that inspires and

becomes the foundation for the establishment, management, and development of the UNSIQ is qur'anic-based *al-ruh al-Qur'aniyah* [spirituality], which is harmonious, synergistic, and integrative (Sukawi 2016a, 2020). This spirit comes from the views, mindset, attitudes, and behaviour of KH. Muntaha al-Hafidz as the central figure in the establishment of the UNSIQ.

From the explanation above, it can be concluded that the scientific basis for integrating modern science and the Qur'an has become the spirit of scientific development at the UNSIQ. This can be seen from the learning outcomes that are carried out and the curriculum that supports them. The various learning achievements of graduates from all study programmes and prescribed subjects make the vision of scientific integration a common awareness of the academic community at the UNSIQ.

A critical reading on research development pattern

As stated in Republic of Indonesia Law Number 14 of 2005 concerning Teachers and Lecturers, as professional educators, one of the main tasks of lecturers is to develop science, technology, and art through education, research, and community service. These studies also play an important role in strengthening the scientific base at the UNSIQ which uses the concept of '*Syjarah al-Qur'an*'. Several publications and research projects by the UNSIQ lecturers have also begun to strengthen the scientific base. To assist the analysis process, researchers divided the research into three categories of theistic science, namely the research category that seeks the conformity of scientific discoveries with the verses of the al-Qur'an, the research category that focusses on the application of modern science in understanding the verses of the al-Qur'an, and the research category that focusses on revealing character values in the al-Qur'an and their implementation in modern life (Muslih 2016). First and second categories are aimed at illustrating the uniqueness of the al-Qur'an, while the third category focusses on the effect of the al-Qur'an on the user.

The first scientific publication entitled 'The Concept of Gravity in the Perspective of the Qur'an and Science (Study of Surah al-Hajj verse 65)' was written by Muchotob Hamzah and Badriyatul Muniroh who came from the Islamic Education Study Program and the Physics Education Study Program (Hamzah & Muniroh 2016). This study compared the theory of gravity from the perspective of physics with the views of the Qur'an on the theory, especially those mentioned in Qur'an Surah al-Hajj verse 65. This study uses an analysis of the meaning and definition of gravity from a scientific perspective. Then it analysed the interpretation of the verse and its relation to the prevailing theory of gravity. The results of this study indicate that the Qur'an does not explain this concept in detail and only provides a global understanding. If physics learning in high school focusses on physical analysis, it needs to be equipped with the spiritual meaning and wisdom behind these events.

A similar study entitled 'Meteorology in the Perspective of the Qur'an and Modern Science' was written by Nurul Mubin in 2020 (Mubin 2020). Nurul Mubin is a lecturer in the Islamic Education Study Program, Faculty of Tarbiyah and Teacher Science. This research focussed on meteorological studies which include wind, cloud, rain, and lightning phenomena. This study is dominated by the classification of verses related to the phenomena mentioned above and then the interpretation of these verses. The results of this study conclude that various modern scientific discoveries related to natural phenomena have been confirmed by the Qur'an through its verses, both *qauliyah* [written words on the Qur'an] and *kauniyah* [Allah's words that spread out the Qur'an] verses. This also shows evidence of the truth of the revelation of the Qur'an.

Both studies were strengthened by the research 'Science and Technology in the Perspective of the Qur'an' by Asep Sunarko, a lecturer at the Arabic Language Education Study Program, Faculty of Tarbiyah and Teacher Science (Sunarko 2015). The research shows the sources of knowledge and ways of obtaining knowledge, as well as the evidence of knowledge in the Qur'an. This study concludes that the development of science must be in accordance with the guidelines of the Qur'an. If it is not, then it cannot provide benefits to humans and can even cause harm. In addition, knowledge can not only be achieved with the human mind, but it is also necessary to bring the heart to believe and do *dhikr* [remembering Allah] and *dzaug* [spiritual feelings] to feel. The three studies above fall into the first category of research by the UNSIQ lecturers which focusses on the study of modern scientific theory in the Qur'an.

The second category of research by the UNSIQ lecturers consists of several scientific publications by the lecturers that focus on the application of modern science in studying the Qur'an and al-Hadith. One of them is a study entitled 'Vector Analysis in the Prayer Movement on Health' conducted by Sri Jumini and Chakimatul Munawaroh from the Physics Education Study Program (Jumini & Munawaroh 2018). This study aimed to analyse the vector in the prayer movement as seen from the standing, *takbiratul ihram, ruku', sujud up to salam*. After being analysed by vector analysis, the benefits of these various movements were sought from a health perspective. The results of this study indicate that all prayer movements in one *raka'at* have a number of angles of 3600 and have the same number as the tawaf movement. From a health point of view, all these movements if done properly and perfectly from standing up to greetings (*sal m*) can provide benefits to the body.

A similar study entitled 'Study of Thought and Backbiting for the Health of the Human Body (Teaching the Concept of Vibration and Waves)' conducted by Nelly Azizah from the Physics Education Study Program also falls into the same category (Azizah 2018). This study aims to show the lessons learned from the prohibition of backbiting and evil suspicion from a health perspective, especially cardiovascular and

mental health. This research shows that prejudice and backbiting can cause anxiety and stress that have an impact on physical and mental health. This anxiety can cause high blood pressure and an accelerated heart rate according to the concept of vibration in the body in physics. As for the concept of waves indicating heart disease that is not immediately resolved, causing the rupture of blood vessels and disrupting the circulatory system.

The next research is a study entitled 'Early Determination of *Fardhu* Prayer Time with Circulation of the Sun', which was carried out by Ahmad Khoiri, a lecturer in Physics Education at the Faculty of Tarbiyah and Teacher Sciences (Khoiri 2017). This research used the deductive method and the *tahlily* [analysing] method. The deductive method is used to derive physical theories from the general to the more specific, and the *tahlily* method is used to explain the related verses of the Qur'an and reveal the meaning behind them. This study concluded that the determination of the beginning of prayer with the position of the sun in the sky is interconnected between modern science and the Qur'an. In fact, from this research, modern scientific knowledge, especially regarding the circulation of the sun can help a Muslim determine the start of the *fardhu* prayer time.

Another piece of research applied to community service activities is 'Design of a Mobile Verifier for Sacrificial Animals Using a QR Code Based on the ZXING Library' (Baihaqy, Asnawi & Fatimah 2020). This research was conducted by M. Alif Muwafi Baihaqy, Muhammad Fuat Asnawi, and Siti Fatimah from the Informatics Management Program and Informatics Engineering Program. This research facilitated the process of trading sacrificial animals and minimises human error, which has implications for losses for consumers and traders. With this system, the animal trading process can include detailed animal data and track records, which can be accessed via Android mobile.

The third category of research is research that focusses on the formation of the Qur'anic character. The first research entitled 'The Growth of Islamic Character through Physics Learning based on Science-Islam Integration' was conducted by Ahmad Khoiri, Qori Agussuryani, and Hartini from the Physics Education Study Program (Khoiri, Agussuryani & Hartini 2017). This study applied physics learning to class IX students of al-Qur'an Vocational High School based on the integration of science and Islamic values and reflection on the results of the evaluation of learning. This study showed that learning based on Islamic-science integration can improve student learning outcomes, attitudes, and social attitudes. Moreover, the character values that are instilled during the learning process require students to have an Islamic character in the form of honesty.

The next research is a study entitled 'Growing Scientific Attitudes Through Thematic Studies of Science QS *al-Mu'minun* Verses 12–14 Using Journal Qur'an Techniques' conducted by Desy Putri Hanifah from the *Madrasah Ibtidaiyah*

Teacher Education Study Program (Hanifah 2020). This research is the result of a reflection on science courses and the Qur'an in the 6th semester of the Islamic Elementary School Teacher Education study program. The verse that becomes the object of the research is the verse that explains the origin of human events. This study concluded that the technique of al-Qur'an journalling can be an alternative to studying the Qur'an thematically according to the branch of science. During the learning process, there are several attitudes that are well stimulated, such as gratitude, obedience, faith, and so on, as well as scientific attitudes such as honesty, confidence, scepticism, curiosity, and so on.

Another similar study entitled 'Internalization of Character Values in Learning *'Ilm al-Ashwat* (Case Study Against Arabic Language Education Students UNSIQ Wonosobo)' was conducted by Chairani Astina and Rifqi Aulia Rahman from the Arabic Language Education Program (Astina & Rahman 2018). This study analysed the character values contained in the '*ilm al-Ashwat* [Arabic phonology] course that supports the achievement of the UNSIQ spirit, namely Qur'ani, transformative, and humanist. This study concludes that the character values that are internalised in the first semester student in Arabic Language Education Program at the UNSIQ are divided into two categories. The first is the character values implied in the learning methods such as self-confidence, responsibility, love of reading, respect for achievement, and curiosity. The next set of character values is further implied in the learning materials which include honest, disciplined, communicative, and religious attitudes.

From the explanation above, it can be concluded that the research projects in the first category focus on proving the facts of modern science in the Qur'an. This research model can be said to be a beginner research model because it only contains a definition of a concept from a scientific discipline and compares it with verses in the Qur'an that have similar problems. In fact, not infrequently, because the Qur'an is global and not a book of science. This research model is in line with the thinking model of Harun Yahya and Maurice Bucaille, which is directly referred to by the majority of research in category one. This model aims to determine the suitability of scientific findings with the verses in the Qur'an (Muslih 2017). In this case, when the Qur'an and science introduce the same issue, many parties conclude that the two can be brought together and even merged. In this phase, many commentators leave the realm of science and enter the realm of scientific findings and methodologies. On the other hand, there are also scientists who bring their findings and methodologies to the area of the Qur'an and look for verses that justify these findings or those findings that strengthen the 'truth' of the Qur'an (Muslih 2017). In fact, science is something that has the potential to be wrong and the Qur'an is an area where there is no doubt about it. From this, if the findings change because of other findings that have accumulated, then the verses of the Qur'an that support these findings are wrong and need to be corrected. In this first study, the

majority of researchers came from Islamic scholarship or from the perspective of the Qur'an, namely from the study programmes of Islamic Education and Arabic Language Education, although there were still collaborative efforts with Physics Education lecturers.

The second category of research focusses on the application of modern science to studying the Qur'an and al-Hadith. This research model appears to be a continuation of the first category of research and applies modern scientific theory to analysing verses of the Qur'an or al-Hadith. Other forms of research show the application of modern science such as the science of the sun's circulation and the use of QR codes in selecting sacrificial animals. This second research model is practical and applicable, and allows modern science to run side by side without the need to compare theories in science to be confirmed by the verses of the Qur'an. This second model of research is mostly done by lecturers in Physics Education, Information Management, and Informatics Engineering study programmes. Unlike the two previous research models, the third research focusses on the formation of the Qur'anic character from various disciplines taught, both in courses and high school subjects. This research model tries to reveal the Qur'anic character values contained in learning activities. This research model strengthens the Qur'anic spiritual base which is the spiritual basis at the UNSIQ as enshrined in the example of Kyai Muntaha al-Hafidz. This research model is dominated by lecturers from the Faculty of Tarbiyah and Teacher Science.

From this analysis, the first model of research can be categorised as basic research to stimulate communication and dialogue between the Qur'an and science. The second model of research can be categorised as research that becomes auxiliary hypotheses in the encounter of science and the Qur'an. The third research model is also a supporting hypothesis for the formation of Qur'anic characters in the learning process that runs at the UNSIQ. In addition, research on the theme of scientific integration is still limited to a few study programmes. As the researchers found, the majority of themed research came from the Faculty of Tarbiyah and Teacher Science, especially the 'Physics Education Study Program'. As for other science faculties, such as the Faculty of Technology and Computer Sciences, the Faculty of Medical Sciences, the Faculty of Economy, the Faculty of Language and Literature, and the Faculty of Communication and Social-Politics Sciences, there is still a lack of research on the theme which indirectly supports the scientific base at the UNSIQ.

On the other hand, these works have only appeared in the last 5–10 years. When compared with the UNSIQ which has been established since 2001, the direction of research development and strengthening of the unique scientific base of the UNSIQ are quite late. Two major seminars were also held in 2017 and 2018. The above studies also ranged from 2010 and above. Thus, this is a special concern for the development of the UNSIQ in the future, especially in order to strengthen the scientific base so that it can become a scientific paradigm and animate all study programmes in it.

This is in line with the reflection of Mahfudz Junaedi, Dean of the Faculty of Syariah and Law UNSIQ 2017–2021 who said that this university needed to sharpen the methodology for integrating modern science and the Qur'an systematically. According to him, the scientific base at the UNSIQ needs to be reconstructed in order to lead to changes in the ongoing process of an integrated curriculum that needs to be enriched with research that strengthens the scientific base at the UNSIQ (Junaedi 2017).

Conclusion

From the beginning of its establishment and the name it carries, the UNSIQ has prioritised the integration between modern science and the Qur'anic Science. This is inseparable from the historical side of the founder and also from the needs of the people, which indicates the existence of this scientific integration. Al-Qur'an is placed as the basis of character in the development of science and technology. The synergy initiated also combines science development based on a harmonious-synergistic-integrative paradigm that emphasises the integration of East-West civilisation and combines the traditional wisdom of Islamic boarding schools with modernity in the university system. However, in order for the scientific base to become a scientific paradigm, it must meet the requirements. From the author's observations, the scientific base at the UNSIQ has been structured in an awareness that supports the establishment of a distinctive academic tradition and scientific culture. This is reflected in the achievements of graduates that have been declared and also in the curriculum that has been set. However, research as an auxiliary hypothesis has not been widely carried out by the academic community in it as the work of lecturers discussing this theme is still minimal. Existing research is also still limited in certain faculties and is not evenly distributed. This could be because there is no research development plan that supports the strengthening of the UNSIQ's unique scientific base or the existing research development plans that have not been properly socialised to all academic staff and implemented in their academic works. Therefore, as a consequence of building scientific buildings, it is necessary to reactivate the spirit of research with the theme of integrating science and the Qur'an in various disciplines as stated in the UNSIQ's vision so as to be able to build a unique scientific paradigm of the UNSIQ. As a suggestion, establishing a scientific paradigm needs to consider the possibility of its implementation in various research and scientific studies. Apart from that, socialisation and shared perceptions of academic staff are the most important things in unifying thinking paradigms so that the various research produced mutually strengthens the scientific paradigm and not vice versa, actually weakening the prevailing scientific paradigm as happens in Malaysia and Pakistan.

Acknowledgements

The authors would like to thank the Indonesia Endowment Funds for Education (LPDP) and Postgraduate Program,

University of Darussalam Gontor for supporting the implementation of this research.

Competing interests

The authors have declared that no competing interest exists.

Authors' contributions

M.M. and Y.K.Y. contributed to the implementation of the research and the writing of the manuscript. S.H. and A.A.M. contributed to the implementation of the research and the analysis of the results.

Ethical considerations

This article followed all ethical standards for research without direct contact with human or animal subjects.

Funding information

This research was funded by the Indonesia Endowment Funds for Education (LPDP), Ministry of Finance of Republic of Indonesia.

Data availability

Data sharing is not applicable to this article as no new data were created or analysed in this study.

Disclaimer

The views and opinions expressed in this article are those of the authors and do not necessarily reflect the official policy or position of any affiliated agency of the authors, or the publisher.

References

- A'la, A., Huda, M.S., Mukaffa, Z., Mudlofir, A., Suhartini, S. & Said, I.G., 2016, *UINSA Emas: Menuju World Class University (Golden UINSA: Toward World Class University)*, UIN Sunan Ampel Press, Surabaya.
- Abdullah, M.A., 2014, 'Religion, science and culture: An integrated, interconnected paradigm of science', *Al-Jami'ah* 52(1), 175–203. <https://doi.org/10.14421/ajis.2014.52.1.175-203>
- Administrator, n.d., *Visi, Misi, Dan Tujuan UNSIQ (Vision, mission, and goals of UNSIQ)*, viewed 03 August 2023, from <https://unsiq.ac.id/page/detail/visi-misi-dan-tujuan-unsiq>.
- Al-Attas, S.M.N., 1993, *Islam and secularism*, ISTAC, Kuala Lumpur.
- Al-Faruqi, I.R., 1982, *Islamization of knowledge: General principles and work plan*, International Institute of Islamic Thought, Virginia.
- Asrohah, H., 2011, 'The dynamics of Pesantren: Responses toward modernity and mechanism in organizing transformation', *Journal of Indonesian Islam* 5(1), 66–90. <https://doi.org/10.15642/JIIS.2011.5.1.66-90>
- Astina, C. & Rahman, R.A., 2018, 'Internalisasi Nilai-Nilai Karakter Dalam Pembelajaran 'Ilm Al-Ashwat (Studi Kasus Terhadap Mahasiswa Pendidikan Bahasa Arab UNSIQ Wonosobo) (Internalization of Character Values in Learning 'Ilm Al-Ashwat (Case study of UNSIQ Wonosobo Arabic language education students))', *Manarul Qur'an: Jurnal Ilmiah Studi Islam* 18(2), 80–100. <https://doi.org/10.32699/mq.v18i2.941>
- Azizah, N., 2018, 'Kajian Buruk Sangka Dan Ghibah Bagi Kesehatan Tubuh Manusia (Telaah Konsep Getaran Dan Gelombang) (Study of harm and backbiting for the health of the human body (Examination of the concept of vibrations and waves))', in S. Jumini, Firdaus, S. Sarah, A. Khoiri, Fatiatun & N.P. Adi (eds.), *Seminar Nasional Pendidikan Fisika FITK UNSIQ*, pp. 144–151, UNSIQ Press, Wonosobo, July 04, 2020.
- Baihaqy, M.A.M., Asnawi, M.F. & Fatimah, S., 2020, 'Rancang Bangun Mobile Verifikator Hewan Layak Qurban (Design of a mobile verifier for animals eligible for Qurban)', *Jurnal Penelitian dan Pengabdian Kepada Masyarakat UNSIQ* 7(2), 194–201. <https://doi.org/10.32699/ppkm.v7i2.1202>
- Chande, A., 2023, 'Global politics of knowledge production: The challenges of Islamization of knowledge in the light of tradition vs secular modernity debate', *Nazhruna: Jurnal Pendidikan Islam* 6(2), 271–289. <https://doi.org/10.31538/nzh.v6i2.3502>
- Firdaus, Z., 2019, *Undergraduate Thesis 'Tradisi Penulisan Mushaf Alquran Akbar Di Yayasan Pendidikan Ilmu-Ilmu Al-Qur'an (YPIIQ) Wonosobo (Studi Living Qur'an) (The tradition of writing the Great Qur'an Mushaf at the Wonosobo Al-Qur'an Sciences Education Foundation (YPIIQ) (Living Qur'an Study))*, IAIN Kudus, Kudus.
- Hamzah, M., 2018, 'Integrasi Al-Qur'an Dan Sains (Basis Karakter Alamiyah Dan Ilmiah) (Integration of Al-Qur'an and science (Based on natural and scientific character))', in S. Jumini, Firdaus, S. Sarah, A. Khoiri, Fatiatun & N.P. Adi (eds.), *Seminar Nasional Pendidikan Fisika FITK UNSIQ (National Seminar on Physics Education)*, pp. 20–23, UNSIQ Press, Wonosobo, July 04, 2020.
- Hamzah, M. & Muniroh, B., 2016, 'Konsep Gaya Tarik (Gravitasi) Dalam Perspektif Al-Qur'an Dan Sains (Kajian Surat Al-Hajj Ayat 65 (The concept of gravity in the perspective of the Qur'an and science (Study of Surah Al-Hajj Verse 65))', *SPEKTRA: Jurnal Kajian Pendidikan Sains* 2(2), 100–132. <https://doi.org/10.32699/spektra.v2i2.13>
- Hanifah, D.P., 2020, 'Menumbuhkan Sikap Ilmiah Melalui Kajian Tematik Sains QS Al-Mu'minin Ayat 12-14 Menggunakan Teknik Qur'an Jurnal (Developing a scientific attitude through science thematic study of QS Al-Mu'minin verses 12–14 Using Qur'an techniques journal)', *SPEKTRA: Jurnal Kajian Pendidikan Sains* 6(2), 156–167. <https://doi.org/10.32699/spektra.v6i2.160>
- Hanifah, U., 2018, 'Islamisasi Ilmu Pengetahuan Kontemporer (Konsep Integrasi Keilmuan Di Universitas-Universitas Islam Indonesia (Islamization of contemporary science (Concept of scientific integration in Indonesian Islamic universities))', *TADRIS: Jurnal Pendidikan Islam* 13(2), 274–294. <https://doi.org/10.19105/tjpi.v13i2.1972>
- Hashim, R. & Ssekamanya, S.A., 2014, 'Islamization of human knowledge in theory and practice: Achievements, challenges and prospects in the IUUM context', *IUUM Journal of Educational Studies* 1(1), 1–11. <https://doi.org/10.31436/ijes.v2i1.30>
- Hussien, S., Mamat, A. & Ssekamanya, S.A., 2019, 'The perceptions, practices, and challenges of the integration of knowledge amongst the academic of international Islamic University Malaysia (IIUM)', *Al-Shajarah: Journal of Islamic Thought and Civilization of the International Islamic University Malaysia (IIUM)* 24(1), 287–307.
- Jumini, S. & Munawaroh, C., 2018, 'Analisis Vektor Dalam Gerakan Shalat Terhadap Kesehatan (Vector analysis in prayer movements for health)', *SPEKTRA: Jurnal Kajian Pendidikan Sains* 4(2), 123–134. <https://doi.org/10.32699/spektra.v4i2.53>
- Junaedi, M., 2017, 'Perjumpaan Sains (Filsafat) Dan Agama: Refleksi On Going Process Studi Islam Di PTAI (The encounter of science (Philosophy) and religion: Reflections on the going process of Islamic studies at Islamic universities)', *Manarul Qur'an: Jurnal Ilmiah Studi Islam* 17(1), 96–108. <https://doi.org/10.32699/mq.v17i1.925>
- Khoiri, A., 2017, 'Penentuan Awal Waktu Shalat Fardhu Dengan Peredaran Matahari (Early determination of Fardhu Prayer times based on the circulation of the sun)', *SPEKTRA: Jurnal Kajian Pendidikan Sains* 3(1), 23–64. <https://doi.org/10.32699/spektra.v3i1.21>
- Khoiri, A., Agussuryani, Q. & Hartini, P., 2017, 'Penumbuhan Karakter Islami Melalui Pembelajaran Fisika Berbasis Integrasi Sains-Islam (Developing Islamic character through physics learning based on science-Islam integration)', *Tadris: Jurnal Keguruan dan Ilmu Tarbiyah* 2(1), 19–31. <https://doi.org/10.24042/tadris.v2i1.1735>
- Labib, H.A., 2021, 'Tafsir Sufistik tentang Cahaya: Studi Kitab Misykat al-Anwar Karya al-Ghazali (Sufistic interpretation of light: Study of the Book of Misykat al-Anwar by al-Ghazali)', *An Nuur* 11(1), 1–13. <https://doi.org/10.58403/annuur.v11i1.22>
- Lakatos, I., 1970, 'Falsification and the methodology of scientific research programmes', in I. Lakatos & A. Musgrave (eds.), *Criticism and the growth of knowledge*, pp. 91–196, Cambridge University Press, Cambridge.
- Mas'ud, A., Fuad, A.Z. & Zaini, A., 2019, 'Evolution and orientation of Islamic education in Indonesia and Malaysia', *Journal of Indonesian Islam* 13(1), 1–20. <https://doi.org/10.15642/JIIS.2019.13.1.21-49>
- Miftahuddin, M., 2019, *Model-Model Integrasi Ilmu Perguruan Tinggi Keagamaan Islam: Studi Multi Situs Pada UIN Jakarta, UIN Yogyakarta, Dan UIN Malang (Models of science integration in Islamic religious higher education: Multi-site study at UIN Jakarta, UIN Yogyakarta, and UIN Malang)*, Diandra Kreatif, Yogyakarta.
- Mubin, N., 2020, 'Meteorologi Dalam Perspektif Al-Qur'an Dan Sains Modern (Meteorology in the perspective of the Qur'an and modern science)', *SPEKTRA: Jurnal Kajian Pendidikan Sains* 6(2), 168–179. <https://doi.org/10.32699/spektra.v6i2.156>
- Mufid, F., 2014, 'Islamic sciences integration', *QIIS (Qudus International Journal of Islamic Studies)* 2(2), 144–160.
- Muslih, M., 2016, 'Al-Qur'an dan Lahirnya Sains Teistik (The Qur'an and the birth of theistic science)', *Tsaqafah* 12(2), 257–280. <https://doi.org/10.21111/tsaqafah.v2i2.756>
- Muslih, M., 2017, *Falsafah Sains; Dari Isu Integrasi Keilmuan Menuju Lahirnya Sains Teistik (Philosophy of science; From the issues of scientific integration to the birth of theistic science)*, LESFI, Yogyakarta.
- Muslih, M., 2020, 'Filsafat Ilmu Imre Lakatos Dan Metodologi Pengembangan Sains Islam (Imre Lakatos' philosophy of science and methodology for the development of Islamic science)', *Tasyiah: Jurnal Pemikiran Islam* 4(1), 47–90. <https://doi.org/10.21111/tasyiah.v4i1.3962>
- Muzhiat, A. & Kartanegara, M., 2020, 'Integrasi Ilmu Dan Agama; Studi Atas Paradigma Integrasi, Komparasi, Difusi Menuju Perguruan Tinggi Keagamaan Islam Negeri (PTKIN) Yang Unggul (Studi Pada UIN Sultan Maulana Hasanuddin Banten) (Integration of science and religion; study of the integration, comparison, diffusion paradigm towards superior state Islamic religious universities (PTKIN) (Study at UIN Sultan Maulana Hasanuddin Banten))', *Al-Qalam* 37(1), 69–88.

- Nata, A., 2019, 'Respons Intelektual Muslim Indonesia Terhadap Gagasan Islamisasi Ilmu Pengetahuan Dan Relevansinya Terhadap Tantangan Era Milenial (Indonesian Muslim intellectual response to the idea of Islamization of science and its relevance to the challenges of the millennial era)', *Ta'dibuna: Jurnal Pendidikan Islam* 8(2), 199–221. <https://doi.org/10.32832/tadibuna.v8i2.2250>
- Rufai, S.A., 2016, 'The challenge of curriculum integration for Islamic universities: Setting the principles of curriculum integration', *IJUM Journal of Educational Studies* 4(1), 46–77. <https://doi.org/10.31436/ijes.v4i1.84>
- Sakir, M., 2016, 'Pesantren Sebagai Basis Pendidikan Spritual Dalam Pembentukan Karakter Jati Diri Manusia. (Islamic boarding schools as a basis for spiritual education in the formation of human character and identity)', *Cendekia: Journal of Education and Society* 13(2), 171–188. <https://doi.org/10.21154/cendekia.v13i2.244>
- Sari, I.N., 2006, *Peran Kiai Haji Muntaha Al Hafidz Dalam Mengembangkan Pendidikan Islam Di Pondok Pesantren Al-Asy'ariyyah Kalibeyer Mojotengah Wonosobo (The role of Kiai Haji Muntaha Al Hafidz in developing Islamic education at the Al-Asy'ariyyah Islamic boarding school Kalibeyer Mojotengah Wonosobo)*, IAIN Walisongo, Semarang.
- Sejarah YPIIQ (History of YPIIQ)*, n.d., viewed 03 August 2023, from <https://unsiq.ac.id/page/detail/sejarah-ypii-q>.
- Soleh, A.K., 2017, 'Mencermati Konsep Islamisasi Ilmu Ismail Raji Al-Faruqi (Examining the concept of Islamization of science by Ismail Raji Al-Faruqi)', *Tadrib* 2(2), 293–313.
- Sukawi, Z., 2016a, 'Dimensi Spiritualitas dalam Pengembangan Universitas Sains Al-Qur'an (UNSIQ) Jawa Tengah di Wonosobo (Dimensions of spirituality in the development of the Central Java University of Al-Qur'an Sciences (UNSIQ) in Wonosobo)', Dissertation in Graduate School, UIN Sunan Kalijaga, Yogyakarta.
- Sukawi, Z., 2016b, 'Menggagas Kurikulum UNSIQ yang Transformatif, Humanis, dan Qur'ani (Initiating a UNSIQ curriculum that is transformative, humanistic and Qur'anic)', *Jurnal al-Qalam* XI(1), 6–20.
- Sukawi, Z., 2020, *Transformasi UNSIQ Dalam Membangun Peradaban Harmonis, Sinergis, Dan Integratif (UNSIQ transformation in building a harmonious, synergistic and integrative civilization)*, UNSIQ Press, Wonosobo.
- Sunarko, A., 2015, 'Iptek Dalam Perspektif Al- Qur'an (Science and technology in the perspective of the Qur'an.)', *Jurnal Manarul Qur'an* 15(1), 1–14.
- Taufik, M. & Yasir, M., 2017, 'Mengkritisi Konsep Islamisasi Ilmu Ismail Raji al-Faruqi: Telaah Pemikiran Ziauddin Sardar (Criticizing the concept of Islamization of Ismail Raji al-Faruqi's science: A study of Ziauddin Sardar's thoughts)', *Jurnal Ushuluddin* 25(2), 109–123. <https://doi.org/10.24014/jush.v25i2.3830>