



# Science Learning in Madrasah Education in Singapore: An Islamisation of Biology Syllabus Through Supplementary Textbook

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**Abstract.** The integration of Islamic education with the learning of sciences perceived to be meaningful and comprehensible. Yet, there is still an underlying assumption in the wider community that religion and science are two entities that cannot be reconciled. This study seeks to determine the integration of the Islamic education with Science in the secondary level curriculum in the madrasah education in Singapore. Drawing on the Biology Matters GCE 'O' Level (2nd Edition) textbook, the research focuses on two chapters in particular - Chapter 19 which covers Theory of Evolution by Natural Selections coined by Charles Darwin; juxtaposed with Chapter 22 - Our Impact on The Ecosystem. Harun Yahya, one of the Muslim scientists who is an opponent for the theory of evolution. This study is qualitative in nature, and uses library research methods, namely tracing Islamic and scientific manuscripts in form of books, journals, and literature. The research findings, conclude that the integration of Islamic education with science can provide a holistic understanding of science. The result from this study was used to develop a Supplement Biology Textbook based on Islamic science to reinforce the quality of teaching and learning amongst madrasah students.

**Keywords:** Islamic Education · Evolution theory · Natural Selection · Science

## 1 Introduction

The advent of science and technology in this globalization era is rapidly developing and increasingly needed by humankind. The inventions of science and technology have made it easier and convenient for human life today than ever before. Among the insights and existence of science and technology, there are views that science and religion cannot be reconciled. Both have their respective positions, separated from one another, as the field of science relies on empirically supported data while religion is based solely on the tangible variables of faith and trust. As the government in many countries review their education system to optimize human capital in this age of globalization, religious schools such as madrasahs have also come under state scrutiny.

With the growing emphasis on mainstream and secular education in Singapore as means of socio-economic progress, madrasahs in Singapore are always been perceived in a negative nuance because of its irrelevant role in building the economy. Muslims

are generally not averse to madrasah reform. Several Muslim writers have pointed out that Islamic thought is compatible with the major ideas associated with globalization, modernization, and development (Ahmad, 1980; Saeed, 1999; Moten, 2005; Al-Attas, 2005; Sikand, 2005; Dangor, 2005). Muslims, however, object to association of modernization, secularization, and globalization with 'Westernization' as this is perceived to divert the Muslim community of its religious and cultural heritage (Moten, 2005). This objection has led some Muslims to champion the 'Islamization of knowledge' so that Muslims can participate in modernity within an Islamic worldview.

Madrasahs should be 'modernized' through the learning of academic subjects within an Islamic framework give full comprehension to the students about the subjects of Islamic education which is often dogmatically delivered by putting aside the facts of science and technology. This way, the graduates are empowered with the wherewithal to provide answers to modern questions and challenges in a globalized world, regardless of whether they be future religious leaders or professionals holding a secular job. To achieve this, madrasah education should go beyond reforming teaching pedagogies to include providing learning facilities and teaching materials that are more varied and functional. By introducing varied teaching aids, Islamic education and science can support each other in providing a complete understanding to students. This can also enhance the teacher-student interaction with the learning environment. One of the learning resources references as teaching material is the verses of Allah in the form of the Al-Quran and the words of the Prophet Muhammad in the form of Hadith. Both are sources of learning include messages, events, facts, and events (Shihab, 2007).

To realize the contents of these materials, it is necessary to develop supplementary teaching materials that integrate relevant scientific studies with Islam and emphasize the learning of Science within the Islamic framework. The learning material content must be prepared holistically and comprehensively for the development between *Hablumminallah* (individuals and Allah) and *Hablumminannas* (individuals and society). The supplement textbook can enhance and improve the spirituality of students as well as adding innovation with varied teaching aids in Madrasahs. In Singapore, public schools and madrasahs use the same academic textbooks with contents of Western secular views. The Biology Science GCE 'O' Level textbook, "Biology Matters" (2nd Edition) subscribe to the latest GCE 'O' Level Biology syllabus of the Ministry of Education, Singapore and cultivates students' knowledge about biological concepts related to human life as in the textbook Chapter 19 "The Theory of Evolution by Natural Selections" and "Our Impact of Ecosystems" in chapter 22. The English naturalist, Charles Darwin a biologist who is famous for his theory of evolution, puts the content forward. His theory of evolution maintains that species survive through a process called 'natural selection' in which those who successfully adapt or evolve accept changes in their natural habitat. Through his observations and research on birds, plants, and fossils, Darwin noticed similarities between species around the world. This led him to believe that the species we know today gradually evolved from a common ancestor. Darwin's theory of evolution and the process of natural selection is known as 'Darwinism'.

For the purpose of this study, Darwin's theory will be just a pose to Harun Yahya's theory, who in his works explores the truth of the Quran by presenting links of holy verses with scientific facts, has two intellectual sides, namely science and the Quran. Harun

Yahya proposed to replace Darwin's theory of evolution. Harun Yahya's theory deserves serious consideration from among biological scientists. The two philosophers proposed a theory regarding the theory of human origins to the theory of natural selection, which are still being debate in the Biology Matters Textbook in Chapter 19 and 22. This study aims to understand the existence of Homo sapiens and theories of Evolution by Natural Selection from the perspective of Science and the Qur'an, which can be integrated into with the supplement book to give a fuller comprehension of human evolution to students.

## 2 Method

This research method is qualitative in nature with an analytical approach. Content or document analysis is a research method used to write or view material, to identify certain characteristics of the material. The materials analyzed can be in the form of textbooks, newspapers, journals, magazines, lectures, presentations, television programs, advertisements, musical compositions, and compilation of documents as references. This analysis aims to describe the themes or dimensions of scientific literacy in biology textbooks. For the purpose of this study, the Biology Science GCE 'O' Level textbook, "Biology Matters" (Second Edition) has been picked for content analysis, focusing on Chapters 19 and 22 of the textbook.

This study uses two (2) main methods i.e. Data Collection and Data Analysis methods. The data collection technique is the documentation method. This research is generally in the form of library research. All research data collected through the library method, especially books on the theory of Darwinism of evolution from the aspects of history, philosophy, and science books related to the philosophy of Islamic science that discusses evolutionary issues. Harun Yahya's books on the theory of evolution. In the face of criticism from Western and Islamic scholars, the researchers collected data from books, articles, and journals in print or digital / internet media. In addition, the author also uses data collection methodologies on the history and evolution of Darwinism's theory of evolution. This method is also used when presenting Harun Yahya's biographies from his studies; social or political.

The data analysis technique is a content analysis which examines the material or content in primary data (textbooks) that affects the west in chapter 19 and chapter 22 of Biology Matters textbooks, published by Marshall Cavendish Education and compiled by Lam Peng Kwan • Eric YK Lam, commonly used in public schools and Madrasahs in Singapore. Data analysis begins with reading and analyzing all available data, especially primary data. This study also uses three (3) main methods for analyzing data. Firstly, is the Inductive method (general only) used (known as *al-Manhaj al-Istiqrai* in Arabic) in analyzing data through a mindset based on fact-finding and conclusions as well as findings that are specific to general facts. Secondly, the Deductive Methods (general to specific) method was used to look at the biography of Harun Yahya and Charles Darwin in their researches on the theory of evolution. This seeks factual evidence and conclusion towards the general arguments and certain issues written in Chapter 4 on criticism of Western scholars and Harun Yahya's criticism of Darwinism's theory of evolution. Thirdly, the Comparison Method is the main method in this research. This method is widely used especially when comparing Western and Islamic scholars in Harun Yahya's critical analysis.

## 2.1 Relevant Investigation

Previous researchers have studied the matter of human origin. Dharma ferry (2020) has researched the views of biology students and Muslim students about human origins. The result is still ambivalent according to biology students in Science; the origin of humans comes from evolved apes. Meanwhile, students of Islam education believe that the origin of humans comes from Earth. While in the perspective of science, humans came from evolved apes. At the level of opinions of the two groups of students, this research has discontinued and not carried out an in-depth analysis. The study also did not explain the Homo Neanderthal and Homo sapiens from the perspective of science and the Qur'an.

Furthermore, there is also research conducted by Sutriyono (2019) regarding the Position of Pithecanthropus erectus (Homo erectus) on the Theory of Human Evolution from an Interconnection Integration Perspective. Sutriyono states that Pithecanthropus erectus (Homo erectus) is Al-Basyar, mentioned in the Al-Quran in Surah Al-Hijr 28 and Al-Baqarah 30. In his research, Sutriyono has not explained comprehensively about Homo sapiens.

According to Kurniawati and Bakhtiar (2018), they found that Western Scientists negated the role of the Creator in the process of human existence. Many opinions regarding the origin of human beings from the perspective of Western Scientists are not argumentative and many argue against them. This study focuses on comparing two perspectives of scientists from different backgrounds and does not explain in detail about Neandertal Homo and Homo. As a result, there are differences regarding human origins.

Research conducted by Subagiya (2018) related to the discussion theme, namely, articles that explore the concept of human creation in the Al-Quran with a thematic interpretation approach. The results of the study implemented by internalizing the values contained in the teaching of Biology. The findings he got were that the concept of human creation in the Al-Quran was divided into two stages i.e. the creation of Adam AS and the creation of humans in general. Internalization carried out in Biology lessons, namely application in evolutionary material by making the Al-Quran as a source of knowledge, internalizing the value of tauhid Rububiyah and tauhid uluhiyyah, inserting verses of the Al-Quran related to the Creator and critical study of the theory of evolution. Internalization in embryology material by discussing the concept of the spirit, internalizing the value of faith in the last day, and entering verses from the Al-Quran regarding the stages of development of the baby in the womb.

Saputra (2017) also argued revealed that the opposition to the theory of evolution, which was found by many Researchers, was not only based on the factor of differences but in views and terms of belief (religion). The very basic reasons for the difficulty of this material studied in school based on the ability and capacity of teachers' knowledge. Based on some of the research results above, it is necessary to have comprehensive research on Homo sapiens and The Theory of Evolution by Natural Selections from the perspective of Science and the Al-Qur'an.

### 3 Result and Discussion

In chapter 19, page 378, in the textbook *Biology Matters Madrasah Singapore secondary four*, Charles Darwin said, “*Variations in organisms may arise due to mutation. Competition for food and space occurs among these different varieties of organisms. Nature selects those varieties that are more competitive, more resistant to disease, and are better adapted to changes in the environment, to survive and reproduce their kind. The other varieties that are susceptible to diseases or environmental changes may die. This process is called natural selection. Mutation provides new genes or alleles (variations) for natural selection to work on. After thousands or millions of years, more beneficial qualities (genes or alleles) may accumulate in a species. The new breed of organisms may be better adapted to their new environment. They may even change so much that they become a new species, which differs from the original stock from which they have evolved.*”

The two basic mechanisms of evolution are natural selection and gene mutation to account for the speciation of a common ancestor. Harun Yahya considered that this mechanism is wrong because natural selection will only cause losses in the mechanism, namely eliminating weak individuals. The mechanisms of natural selection and mutation are unable to produce new species, new genetic information, or new beneficial organs. Mutations will only have a negative impact, namely causing damage to the nucleotides that build DNA or change their structural and functional positions. The industrial mechanism by which moths occur is a fallacy of the theory of evolution. This is because dark moths existed in the population before the Industrial Revolution. Harun Yahya argued that mutation, which is beneficial, is non-existent and completely not true. Mutations are accidents that have shown to be harmful to living things. Mutations will only harm living things and do not provide benefits in the form of ratings for the sustainability of living things. Moreover, mutations do not add to the information in the genetic material of living things.

According to Charles Darwin, humans are the result of an evolutionary stage and not created by God, naturally formed by nature like other living things. This understanding is accepted by materialism because it strengthens their argument. In fact, their argument stood unproven. The strongest opinion were no fossil findings to show the correctness of Darwin’s theory for all living things coming from the same cell, rejecting living things from different cells and rejecting God who created various living thing. There was an argument verse from the Al-Qur’an from Surah al-Mu’minun verses 12–14 about the creation of human beings. It explained that there is God’s intervention in human creation. Thus, Muslims strongly disagreed and rejected the beliefs and arguments about the absence of God, as well as human evolution from apes.

In chapter 22, page 428, (*Our Impact on the Ecosystem*) Darwin said, “*Human or Homo sapiens are a recently evolved species*” and “*Natural resources are resources supplied by nature*”. This statement is not clear and confused students and requires detailed enlightenment with evidence of the existence of *Homo sapiens* from the postulates of the Al-Qur’an and hadith. Darwin also concluded that modern humans evolved from a kind of ape-like living thing, which is explained as starting from the species *Pliopithecids* that which evolved to become *Homo sapiens*. This theory provides an imaginative perspective on the origins of humans. Also concluded that humans and apes are associated and

related as a common descendant of one species. However, Darwin's theory of human evolution, in my opinion, is not compatible with the clear religious understanding that humans are a whole species from the very beginning of their creation. There can be no kinship between two species; humans and apes. Even so, biodiversity formed due to adaptation to the environment. Differences between human races may occur as a form of human adaptation to their environment. Such as differences in skin color, posture, and other things are result from these adaptations.

In regards to the theory presented by Harun Yahya explained that the Designer, namely the Creator, has designed every living thing in its uniqueness. Each human being that was been created is immutable, unrelated to one another, and not descended from a common ancestor. This understanding refutes Darwin's theory of natural selection, which can give rise to a new species. Humans only come from one descendant, namely Adam and Eve, not Apes or other ape-like creatures. These are shown by the differences in bone and muscle structure from the various findings described by Harun Yahya. Even though his theory is creationist.

Nature from a Western perspective occurs independently, but the essence of the Al-Quran tells of creation of Al-Mighty God, which contains the signs of the existence, greatness, power, knowledge as part of the nature of Allah SWT. Most of the writings and views of agnostic scientists, namely skeptics, atheists, and doubters say we do not need a creator because the original elements are sufficient to give birth to the universe. Such is the nature of the view of a secular universe that has no owner and creator. Undoubtedly, it contradicts the teachings of Islam; when from the point of view of faith, it will cause big problems. Furthermore, science teaching is still based on the framework of the universe view until it is taught separately from religion while the Al-Quran endorses that humans study nature as the second 'book' of Allah SWT. It is important to discuss our framework of understanding, seeing, and besides studying nature with a universal view of the Al-Quran, which is very different from the universal view of modern science that underlies science.

The theory of evolution assumes that life is the result of mere "chance". There is no divine intervention in the process of creating life on this earth. Such a view is called Naturalism, which is the view that not all forms in the universe are intervened by personal superpowers but exist through natural law processes and driven by mere chance. In short, Naturalism says that God does not need to explain this universe. Natural Resources are everything created on earth that utilized by humans so that their daily needs are fulfilled and prosperous. All subdues resources as well as their use left to humans. As revealed in the Word of God which means "And (He) who subjected to you what is in the heavens and that is on earth." (Surah Al-Jatsiyat: 13).

## 4 Conclusion

The existence of Darwin's theory of evolution can be justified through science, because this theory first uncovers the mystery of the origin of human life systematically and philosophically with scientific propositions so that the theory of evolution is considered true for some scientists and can be used as a partner for Islamic scientists. In studying the origins of that mysterious human creation. However, if viewed from an Islamic

perspective that the theory of evolution is not accepted as true, considering that the Al-Quran and hadith reveal the creation of the first human “Adam a.s.” and the continuation of the human creation process after that through descent. Thus, the theory of evolution according to Islam; can be denied its existence and can only be considered as a hypothesis.

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