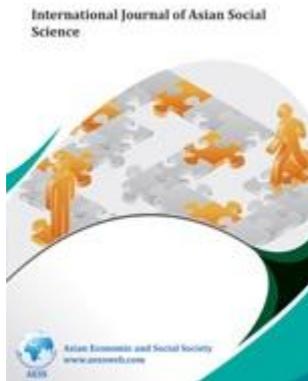


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Some Notes of Islamic Scientific Education Development

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Abstract

Scientific theories as the product of human intelligence have changed from time to time, but scientific information in divine revelation that may appear at that time to be unreasonable, prove to be right in this time and in the long run. Islamic epistemology recognizes three orders of logical argumentation or knowing, they are: Reason, Experience (‘Ada); and Revelation (Syar’). Al-Qur’an talks about nature and creation being an expression of God’s attributes. Much scientific information in the Qur’an are now proved to be correct in view of modern scientific practices. And modern scientists acknowledged the truth of Qur’an revealed to Muhammad SAW. During the golden age of the Islamic history between the seventh and fourteenth centuries. The change of educational policy of the Ministry of Religion of the Republic of Indonesia especially in its Higher Education Directorate which is noticed with the restructuring or converting the institution of six IAINs (State Institute for Islamic Studies) to UINs (State Islamic University) brings about some changes in their scientific paradigm. The change of statute has enabled the opening of non-religious study programmes in the hope to regain the golden era of muslim. Ministerial commitment is now tend to the right efforts to achieve the mission.

Key words: scientific, revelation, golden- age, education, mission

Introduction

The author prays to Allah SWT (glory be to Allah, and He is high) to bless Prophet Muhammad SAW (peace be upon him) and the family of Prophet Muhammad in as much as He blessed Prophet Ibrahim and the family of Prophet Ibrahim. The author also prays to Allah SWT to bless the Khulafa ar-Rasyidun and the Shahabat of the Prophet as well as the followers and the followers of the followers till the Day of Judgment. The author prays to Allah SWT to reward all the ‘Ulama, who carried the message of Allah and His Prophet, and who transmitted it to the generations till our today generation. Amin

Science is generally defined as the systematic observation of natural phenomena and their workings, and technology as it is defined as the application of science has influenced greatly human life

The managements of the six UIN are now in the effort to fulfill the mission by equipping the campus with infra structure and means of education. The UIN of Bandung as one of the six is waiting for renovation of its buildings, and preparing human resource suitable and competent to do the missions of gaining second golden era of muslim by developing the non-religious studies.

Oneness of God Objective

As time goes and human culture develops, scientific theories as the product of human intelligence have changed from time to time, but scientific information in divine revelation that may appear at that time to be unreasonable, prove to be right in this time and in the long run. The stupidity in view of scientific or blunder in our ancestors as the result of unable to interpret scientific verses accordingly. Technological development as the outcome of

scientific finding in Islamic world is backward and stagnant compared to the scientific and technological development in the western world.

In several parts this article are tried to see the guidance of revelation on the science and the finding of it. Muhammad Taqi-un-Din Al-Hilali and Muhammad Muhsin Khan (1419 AH) stated that in general, Islamic epistemology recognizes three orders of logical argumentation or knowing, they are:

1. Reason ('Aql);
2. Experience ('Ada); and
3. Revelation (Syar').

These reasonings or argumentations as the basis for keeping the faith in oneness of Allah or tauhid.

This is the belief of all true believers, and was the belief of the Prophets of Allah from Adam till the last of the Prophets, Muhammad SAW.

These three aspects of Tauhid are included in the meaning of Laa ilaha illallah (none has the right to be worshipped but Allah). It is also essential to follow Allah's Messenger, Muhammad SAW. This is included in the meaning, "I testify that Muhammad SAW Allah's Messenger," and this means, "None has the right to be followed after the Qur'an, but Allah's Messenger. Allah says "And whatsoever the messenger (Muhammad SAW) gives you, take it, and whatsoever he forbids you, abstain (from it)

Wa ma atakumu al rasulu fakhudzuhu wa ma nahakum 'anhu fantahu. (QS. Al-Hasyr:7)

Accepting Islamic monotheism means follow the Qur'an and the Sunnah (legal ways of the Prophet SAW)

Science in Divine Revelation

Science, in its popular usage, is generally defined as the systematic observation of natural phenomena and their workings, and technology as it is defined as the application of science has influenced greatly human life. Since the industrial revolution in the eighteenth century it has seen as the thing in control of human destiny and its future survival. Those who fail to master science and utilize modern technological discoveries are kept at the position in the lowest strata of society in

today's highly competitive world. As today, this condition is very apparent in Islamic community lives, poverty, backward in mastering science and technology, even their countries economically are under domination of the unbeliever and their territories are military occupied. There is opinion among the dogmatic believers that science and religion is antagonism, science and religion are opposites. They repel each other. The attitude of religionist is somewhat unconcerned to the development of science and vice versa. Of course, this is just a case of very personal depending on personal experience.

Other opinion is widespread that today trends of science have resulted in the disenchantment of the world. The enchantment of life is due to the presence of religion values, people relying on religion and thinking of religious explanation on every happening, including in the describing the very logical natural phenomena. In the interpreting all life activities and natural occurrences they involve religious taught. They seek for the basic rational argument on the verse of the Qur'an or the Sunnah.

The sources of Islam are the holy Qur'an, the Hadits and Fiqh. In this I would like to deal much with the first source as the original, the revelation. Applying science or thinking of something (creatures of Allah) is encouraged as stated in the Qur'an

Based on verses of the Qur'an, developing logical reason on natural phenomenon is a way for a person to get the truth by discovering the nature of Allah as reflected by His creation. Al-Qur'an talks about nature and creation being an expression of God's attributes. Therefore, we can look inside the "Mind of Allah" so to speak by studying His creation.

Generally, in Indonesian society, which we grew up almost all we are muslim, we recite the Qur'an at the least once a week, and usually in the eve of Friday, and almost every evening in more religious families, and we read the Qur'an in a language we don't understand. We recite Qur'an following the 'ilmu al-Tajwid and even many of muslims learned reciting following the qiraatu as-sab'ah reading. We merely chant it in Arabic, which we have learned to read mechanically, but whose meaning we don't know. As a matter of fact, although we don't understand the verses we read, reciting Qur'an is rewarded and it is regarded as religious

service “Ibadah”. Most muslims have felt satisfactory when they are able to read Qur’an fluently, and only some of them go on learning the translation or interpretation. It would sound very unusual in this case, but it is one of the miracles of the revealed holy Book.

In learning or reading society, no one asked us to read the hand-book of our course or faculty or newspaper or magazine. We read them because the daily reading made sense to us. We don’t mean to compare the Holy Qur’an with the book or magazine. This case is discussed to motivate how to get more merit and benefit from the Almighty God Who had revealed the revelation for the sake of ummah as guidance for life, guide how to worship and guide how to manage the nature as the caliph in charge of ummah prosperity. According to Quraish Shihab (2007), there are around 650 verses informing or relating to science and technology. Those verses give hints and guidance for muslim to discover and innovate their secret.

Discussion on question regarding religion and its relation to science and reason are now widespread. A muslim mind should never rest on uncertainty till he succeed in the attempt to find the answer. We now see the spilt opinion among muslims as a result of the broken up Islam into sects. Some of them opine do not stand the test of science, but the Qur’an does indeed. Actually, the Qur’an encourages verifying its claims when it presents information as it is clear in the verse 5 chapter Al- Hajj concerning when there is in doubt about the resurrection, Allah lets us to rethink the creation of human. Human is created in phases or steps (embryological steps, growing up steps after born, various dying causes) and then in the end of the verse is informed how Allah gives example by the empirical occurrence of barren soil growing on it the newly living organism.

“Oh mankind! If you in doubt about the resurrection, then verily We have created you (i.e. Adam) from dust, then from a nutfah (mixed drops of male and female sexual discharge i.e. the offspring of Adam), then from a clot (a piece of thick coagulated blood) then from a little lump of flesh-some formed and some unformed (as is the case of miscarriage)-

that We may make (it) clear to you (i.e. to show you Our Power and Ability to do what We will). And We cause whom We will remain in the wombs for an appointed term, then We bring you out as infants. Then (give you growth) that may you reach your age of full strength. And among you there is he who die (young), and among you there is he who is brought back to the miserable old age, so that he knows nothing after having known. And you see the barren, but when We send down water (rain) on it, it is stirred (to life), and it swells and puts forth every lovely kind (of growth)”.

The detail of embryology in the verse above is described in such the ways that would facilitate belief only after those verses have been checked by known findings. They are presented as a challenge, and those who have the related knowledge will easily understand hints in the verse. The hints in the verse is the illustration of how Allah grows vegetation on a barren land. Barren land is very obvious to all of us. Dry land, in the first glance, inspires the impossible condition for any organisms to appear alive, but with the available of water which is sent down by Allah, everything becomes possible.

The important message of the verse is the belief in the resurrection after the death to the unbelievers and to those who are in doubt. Phases of human life is very obvious evidence and undeniable. They are to be experienced by everyone

Many scientific information in the Qur’an are now proved to be correct in view of modern scientific theories and practices. And modern scientists acknowledge the truth of Qur’an revealed to Muhammad SAW. The origin of the Qur’an is acknowledged, it could not be the work of a man (prophet Muhammad SAW) or a group of men living in a desert of Arabia at that time, considering the nature of the scientific information in the Qur’an.

Nasim Butt (1996) said that the advent of the Qur’an in time of Islamic emerging religion in the seventh century was a revolutionary for the commonly illiterate Arabian people at that time. Traditionally, Arabian society had enjoyed the oral tradition (famous of poetry reading). Qur’an as the word of God was interacted by

means of reading and reciting. Reading and interpreting for the purpose of accessing the full blessings of God was an inspiration for most Muslims.

During the golden age of the Islamic history between the seventh and fourteenth centuries, in which western Europe was intellectually backward, Islamic education flourished with an impressive openness to rational sciences as mathematics, natural sciences, art and literature (Adi Setia, 2005). As long as 800 years Islamic world made most of its contributions to the scientific and artistic world. Contributions were made in areas of biology, chemistry, physics, mathematics, astronomy, and others. Muslim intellectuals regarded scientific truths as tool for accessing religious truth.

Islamic Education Goal

In the golden age, the *ijtihad* or the rigorous spirit of enquiry and individual judgment had been the characteristic of society and had been opened to all individual. However, by the end of the golden age the *ijtihad* habit gave way to insular and unquestioning acceptance or *taqlid* of the traditional authoritative religious figure ('*Ulama*), and the '*ulama* had become uncorrectable or deniable and self-appointed interpreters and guardians of religious knowledge (Adi Setia, 2005). Adi Setia (2005) described that Qur'an or religious learning was confined to the transfer of knowledge. Books and what was taught in Islamic education world after the golden age was lacked of originality and mostly consisted of commentaries on the then exists without creating any substantive new ideas. Everywhere, it is ironical period, studying Qur'an system is emphasized on memorization. Common frustration of educators in the Islamic world is that while their students can memorize verses and chapters, they often lack competence in critical analyzing and practical and independent thinking. The advancement of science and technology in the western and its invasion and colonialism on the Islamic world damaged the indigenous Islamic cultural norms through secularism. Secular reason gives veneration of human reason over divine revelation.

Secular education pronounces the religious dichotomy. Religious education, in one hand,

was to remain a separate and private responsibility, having no place in public education, while on the other public education are oriented to produce functionaries to feed the bureaucratic and administrative needs of government. Religious education is placed away from the worldly need practices and sciences which are taught in public school are freed of religious values. This means free value sciences which is apposed by the essence of Islam teaching

According to Adi Setia (2005) there are at least three terms for Islamic teaching and education describing the purposes of education process as perceived by Islam.

1. The most known term is *ta'lim* derived from verb '*alima* meaning to learn or to know or to be aware or perceive denoting '*ilmu* is sought through teaching and instruction.

2. Term *Tarbiyah* this derives from verb *roba* meaning to rear, to grow or to keep expressing a state of spiritual and ethical nurturing in accordance with the will of Allah SWT.

3. Term *Ta'dib*, this derives from verb *aduba* meaning well-mannered, refined, or to be cultured. Educating person to conduct well behaviour and suggesting person to do a better deed. As social creature man has to behave a good social conduct, and this behaviours is guided by Islamic conception of the human being.

Syed Muhammad al-Naquib al-Attas (1979) quoted by Nasim Butt (1996) noted that the comprehensive and integrated approach to education in Islam is directed toward the balanced growth of the total personality through training man's spirit, intellect, rational, feeling and bodily senses.

By definitions of term and the essence of teaching we conclude of having two dimensions of education, they are acquiring intellectual knowledge through the application of reason and logic, and developing spiritual knowledge which is derived from divine revelation and spiritual experience. Based on our view, provision in education they must be made equally for both.

Finding science and innovating technology in Islam are not the final goal but as a means to

attain a more elevated moral and spiritual consciousness directing to firm belief to the oneness of God and righteous action according to the divine revelation and the sunnah of prophet Muhammad SAW.

Introducing Scientific Education

The darkest ages in the history of Europe when most of Greek philosophy and scientific discoveries had been completely unknown. At that time the Qur'an was revealed. The Qur'an was revealed in the middle of the seventh century. Europe was then in utter darkness and anarchy, while Arabia was the only part of the world that was beginning to revive by the new light based on the new belief.

The general belief in the mediaeval period lasting from the year 500 to about 1450, was that the earth was flat and stationary. It means that the earth was the centre of the universe around which all the heavenly bodies revolved. The Ptolemaic theory was then prevalent. The mistaken view of the solar system was everywhere accepted.

Islamic taught with the Qur'an corrected the mistaken theories then existing about the universe. The shape of the earth stated in the Qur'an is exactly proved as it is proven by modern scientific investigation.

The Qur'an statement was revealed 15 centuries ago, while scientist found the fact quite recently, as it has also found out that there are slight differences between its shape and that of a perfect sphere, since there is a slight flattening around the poles and a slight curving around the equator.

Indonesian Policy in Islamic Education

The change of educational policy of the Ministry of Religion Of the Republic of Indonesia especially in its Higher Education Directorate which is noticed with the restructuring or converting the institution of six IAINs (State Institute for Islamic Studies) to UINs (State Islamic University) brings about some changes in their scientific paradigm. The change of statute from the former institute to the present university has enabled the opening of non-religious study programmes. In the UIN

of Bandung are Psychology and Science and Technology Faculties, while the Social Politics and Economics are administratively belong to the Faculty of Sharia and Law. The existence of non religious studies in the university is not just a wider mandate but they are allowed by the Government (in this case the Ministry of National Education) to be the part of university mission.

When it is glanced several years in the past, around one or more decades some of the founding fathers of IAIN thought and proposed to perform the so called "non-religious studies" such as science and technology and the like in IAIN. Pro and contra emerged to the proposal, but six universities (Riau, Jakarta, Bandung, Yogyakarta, Malang, and Ujung Pandang) have now officially approved and opened by the President of Republic Indonesia.

By establishing UIN, it is in accordance with the concern of leaders of Islamic renaissance movement at the dawning of a new age with the awakening of muslim ummah. We are realized that muslim world in these five centuries has been experiencing misery due to being backwards in the field of science and technology.

Those who were contra to the conversion of IAIN to UIN opined that science and technology education held in the Islamic educational institution will be the competitive attractiveness and attention of students of Islamic studies. So the prior mission of IAIN to teach and maintain Islamic thought may be neglected. To answer the doubt that Islamic thought would be neglected by the students of non-Islamic study programmes, the management of university and the faculty concerned in UIN are being developing "the Revelation Guides on Science" paradigm.

The managements of the six UIN are now in the effort to fulfill the mission by equipping the campus with infra structure and means and foreign loans through the government has been sought resulting success of receiving loan from Islamic Development Bank. UIN of Bandung is waiting for renovation of its buildings, and preparing human resource suitable and competent to do the missions gaining second

golden era of muslim by developing “the non-religious studies” as mathematics, physics, chemistry, biology and technologies as electronics engineering, informatical engineering and agrotechnology, phycology and social, politics and economics studi programmes All academic staffs in UIN have to be able to make approach if they cannot find the secret meaning or scientific hint in verses of the Holy Qur’an ontologically. When they fail to find verse or sunnah for the source of their pursuit of knowledge ontologically, they have to perform Islamic epistemology or at least their academic-works axiologically Islamic.. The glory of Islamic science in the past is common knowledge and a high level of understanding and achievement by muslim in these facets of sciences were recorded and acknowledged by the world.

Indonesian religious or Islamic leaders are now realized and committed to the importance and crucial need of developing science and technology. Financial support to the development of science and technology must be considered as more of fixed cost rather than just a variable cost which sometimes can be reduced or be cut off at all.

Recruitment of academic staff to furnish the application of curriculum is now tend to have the ministerial attention. Many academic staffs are sent upgrade they competencies through post graduate programs, short courses, attend seminar, work-shops and the like. Then, it should be a continuation with the well and sustainable planned of curriculum and the application of scientific research within curricular programs of each study programme.

International Effort in Islamic Education

In the field of education, internationally in the Islamic world, it is said that since the middle of 19th century and the beginning of the 20th century, the prospect of creating organization unifying the action of ummah entertained highest hope of many reformers and leaders who called for the achievement of muslim reunification and orderly action in order to serve the best interests of the Islamic nation. The purpose of establishing an educational system inspired by the Holy Qur’an and the

Sunnah is also in the tune with modern educational development and concepts.

In the movement relation are known the efforts of leaders in the First International Conference on Islamic Education held in Mecca al-Mukarramah on 12-20 Rabial al-Tsani 1397 H. under the sponsorship of King Abdul Aziz University (Adi Setia, 2005).

There are also noted in international Islamic educational efforts affirming the need to emphasize the traits of Islamic culture and education promoting them in the Islamic world as well as throughout the world, stressing the need to coordinate activities of Islamic Scientific and Educational Institutional existing in various countries of the world. They are discussing how to enhance the welfare of ummah through education. Our weaknesses in sciences and technologies in these centuries have to be amended. We have to improve our education systems and learning spirit.

Science in the Islamic Golden Age

The famous and success of muslim scholars in the golden age should encourage our spirit to pursue knowledge. Westerners acknowledged when they compared the contributions of world scholars to the development of sciences, that muslim scientist placed far greater emphasis on experiment than had the Greeks. It means that scientific method was developed correctly in the muslim world and they also confessed that significant progress in methodology was made by muslim. Ibn al-Haytham (Alhazen) conducted experiment on optics. The most important development of the scientific method was the use of experiments to distinguish between competing scientific theories set within a generally empirical orientation. Alhazen investigations are based on abstract theories, but on experimental evidences his experiments were systematic and repeatable.

What we call science arose as a result of new methods of experiment, observation, and measurement, which were introduced into Europe by the Muslim. We remember how ibn Sina (Avicenna) described the procedure of testing or experimenting the effectiveness of a new drug and medication.

This sound work of experimentation of muslim scholar (Avicenna) invented and developed in 980-1037 should encourage us and all muslim, that our intellect are not inferior. The application of contemplation of prayers five times a day are not obstacles for gaining working prestige. It is stated that the conduct of Avicenna in such moments of baffled inquiry, he would leave his books, perform the requisite ablutions, then go to the mosque, and continue in prayer till light broke on his difficulties. Commenting Ibn Sina performances, we conclude that epistemologically Ibn Sina's innovations in sciences and medicine technology are very Islamic.

Conclusion

Scientific approval describing verses of Qur'an are phenomenal among scientists. There are very clear and positive and undeniable to contemplate then to investigate the natural occurrence around us. The purpose of establishing an educational system inspired by the Holy Qur'an and the Sunnah is in the tune with modern educational development and concepts. Islamic scientific education development in UINs bring a new scientific paradigm in the hope of discovering the second Islamic golden age. The UIN of Bandung is now preparing infrastructure and resource suitable and competent to do the missions by developing mathematics, physics, chemistry, biology and technologies as electronics engineering, informatical engineering and agrotechnology, phycology and social, politics and economics studi programmes. Ministerial (the Ministry of Religious Affairs) commitment is now tend to the right efforts to achieve the mission.

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