

# The Effect of Development of Science and Technology towards Religious Understanding

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**Abstract:** Science has undergone a significant development, especially since the scientific revolution in the west. Science in traditional times and Islam is very strong with the transcendent divine element. The metaphysical element in Islamic science is an important part that continues to be developed by Muslim scientists especially in the field of cosmology. Thought and religion at the time were two adjoining and even mutually reinforcing areas. The principle of classical science has really disappeared when the west is in the spirit of a revolution in the scientific revolution. This development of western thought has brought significant changes especially in the field of science, where they have secularized between religion (faith) and science. Nature that is considered sacral by non-modern humans, massively exploited by modern humans, especially with the help of technology. In this study, the authors wanted to examine the extent to which the influence of technology as well as social media as a part of technology advances on life and beliefs of modern humans. This article would discuss the literature about the development of social media which related to religion. The results of reading from various sources, authors found that the development of modern science and technology very rapidly, really has influenced the beliefs of modern humans. Beside, social media as a part of sophisticated technology also are giving impact towards religious understanding.

## 1 INTRODUCTION

Human life continues to grow rapidly, science and technology are the hallmark of modern man. Modernity which is meant is a stage of life characterized by changes in the human mindset from a spiritual to materialistic. Historically, this modernity movement emerged in the Christian western context and during the renaissance / enlightenment, at around in 1500. The main feature of this movement, according to Griffiths cited by Emanuel Wora, was the emergence of materialist philosophy and the end of the influence of medieval thought that were idealistic and spiritual (Wora, 2006).

Materialist thinking that characterizes modernity is further enhanced by Rene Descartes's concept of "cogito ergo sum" (I think therefore I am). In this concept, as Emanuel Wora said, Descartes tried to separate between thought and matter. For Descartes, the mind is the subject and matter is the object, it means that everything will be meaningful if I think. Descartes thus greatly magnified the ratio, and his

rationalism had begun to be adopted by science (Wora, 2006). As a pioneer of modernity which influenced modern science, Descartes encouraged secession with the material world. Nature is not an integral part of the self, so nature can be treated according to our desires and choices (Wora, 2006).

Descartes's thought has clearly had a significant impact, especially in the secularization of science. Mulyadi Kartanegara considers that this secularization occurred in the west after the renaissance movement and after the western society itself became secular as a consequence of the evolution of thought in science (M. Kartanegara, 2003).

This view is of course very different from the non-modern human thought that nature has a sacred aspect. Nature was believed to speak to man and all natural phenomena had meaning, nature is also believed to be the source of religion because the structure of the cosmos contained a spiritual message for humans (Nasr, 1990).

The development of science and technology is increasingly sophisticated. It cannot be denied that

both directly and indirectly have an impact on the society. Science and technology in fact, redefine the meaning of life of modern people and rearrange the organisation of people relationships.

The number of communication technology devices that provide services not only on communication devices alone. Communities can interact more than just hear voices, but get to know a person who is closer through social media access.

According to Noegroho, who was cited by Eddy Saputra said that communication technology is hardware in the structure of an organization that contains social values that enable each individual to collect, process and exchange other information. Communication technology is determined to what extent communication technology is able to open access to various communication services (Saputra, 2016).

The dissemination of information technology which consists of social media or information media that is increasingly massive has had a major impact, especially in understanding religion. Many voices of religious understandings are facilitated by this information technology in positive and negative way. The emergence of various inclusive and radical understandings in Islam, for example, is the influence of the development of social media. Information media consisting of Facebook, You Tube and Instagram has been used by radical groups to spread their understanding. Thus, people should be equipped by knowledge on how they can use this information technology wisely and carefully.

In this study I would examine the effect of technology especially social media towards religious understanding. Actually, there were some recent studies about technology and media which related to religious discourses. Some studies consist of analyzing mediatisation of religion (Hjarvard, 2011), online piety and its discontent (Husein and Slama, 2018), Islamic radicalism and the movement in social media (Muthohirin, 2015), Religious Authority and the New Media (Turner, 2007). However, there were no study which focus to the effect of social media towards religious understanding. Hence, I believe that this study is very important.

This study employs qualitative method with descriptif analysis to explain about the impact of science and technology to the religious life of its adherents. Special attention given to the impact of social media.

## 2 RESULT AND DISCUSSION

### 2.1 Definition of Religion, Science and Technology

Before discussing the relationship between religions (Islam), Science and Technology is better to talk about religion first. This is very important because it will lead us to a comprehensive understanding of the relationship of the three. Religion is transcendent and has a different approach of science. Religion rely on revelation, while science is based on observation (Nasr, 1990). Because of revelation, then the human view of nature must be in accordance with the revelation. In Islam, for example, the universe is not independent, but the signs (signs, *ayat*) of God's greatness. One of the verse Ar Rum: 25, God says:

وَمِنْ آيَاتِهِ أَنْ تَقُومَ السَّمَاءُ وَالْأَرْضُ بِأَمْرِهِ ثُمَّ إِذَا دَعَاكُمْ دَعْوَةً مِّنَ الْأَرْضِ إِذَا أَنْتُمْ تَخْرُجُونَ ﴿٢٥﴾

“And among His Signs is this, that heaven and earth stand by His command: then when He calls you, by a single call, from the earth, behold, ye (straightway) come forth.”

Since the Qur'an is a guide, then, man is expected to find God in all of God's creation in this world. The religions of revelation teach that the universe is a gift created by God as a creator. In other words, the cosmos does not stand alone but a result of creation from the transcendent, and even traditional Christian theism and even Muslims believe that the world is created out of nothing, *ex nihilo* (Turner, 2007).

Furthermore, the etymology of the word science comes from the Latin word, *scire* which means to know, and even this word experiences the development of meaning into systematic knowledge of nature and the physical world based on observation (Mulyadhi Kartanegara, 2003). Moreover, technology refer to methods, systems, and devices which are the result of scientific knowledge being used for practical purposes. According to Harold Laswell that cited by Armahedi Mahzar, technology is a collection of methods or technical used by humans to achieve their goals (Al-Hasan and Hill, 1993).

## 2.2 Quranic Texts on Science

Before discussing the relationship between religions (Islam), Science and Technology is better to talk about several texts that usually used as the basis that Islam support the accommodation of science and technology.

Several Qur'anic verses are utilises as the bases for knowledge and science inquiry in Islam which usually called as *ayat kawniyyat*. Purwanto (2012) has classified that there are almost 800 verses related to ayat kawniyyat in the Qur'an. Several of them are displayed bellow. He also classified these verses based on topic. He found that the topics related to exploration of science and technology are: water, nature, smoke, number, wind, cloud, fire, iron, rock, seed, star, earth, fruit, moon, hill, light, bird, dust, gold, leave, dark, wave, earthquacke, mountain, cave, lightning, thunder, rain and many others.

أَقْرَأْ بِاسْمِ رَبِّكَ الَّذِي خَلَقَ (١)  
 خَلَقَ الْإِنْسَانَ مِنْ عَلَقٍ (٢)  
 اقْرَأْ وَرَبُّكَ الْأَكْرَمُ (٣)  
 الَّذِي عَلَّمَ بِالْقَلَمِ (٤)  
 عَلَّمَ الْإِنْسَانَ مَا لَمْ يَعْلَم (٥)

The first Quranic revelation i.e. Surah al Alaq verse 1 to 5 are actually the basic instruction for human to search for knowledge and utilize human intellectual capacity. This verse instruct human to read which means to read not only a text but also the nature that God has created and to dig information related to it for the purpose of human need in the world.

ثُمَّ اسْتَوَىٰ إِلَى السَّمَاءِ وَهِيَ دُخَانٌ فَقَالَ لَهَا وَالْأَرْضِ أُنْتِ يَا طَوْعًا أَوْ كَرْهًا  
 قَالَتَا أَتَيْنَا طَائِعِينَ (١١)

Ther verse above shows that God is the Creator of all things and can command whatever He asks for it. All of His creation is submitted and obedience to God. It is only human that has been given such intellectual capacity to reveal God's creation.

Other verses about God's Signs of His creation stated in Surah Ali Imran: 190-191:

إِن فِي خَلْقِ السَّمَوَاتِ وَالْأَرْضِ وَأَخْتِلَافِ اللَّيْلِ وَالنَّهَارِ لَآيَاتٍ  
 لِأُولِي الْأَلْبَابِ (١١)  
 الَّذِينَ يَذْكُرُونَ اللَّهَ قِيَمًا وَقُعُودًا وَعَلَىٰ جُنُوبِهِمْ وَيَتَفَكَّرُونَ  
 فِي خَلْقِ السَّمَوَاتِ وَالْأَرْضِ رَبَّنَا مَا خَلَقْتَ هَذَا بَطْلًا تُسَبِّحُكَ فَقِيَمًا  
 عَذَابَ النَّارِ (١٣)

The signs that God has created for human being should at the same time being recognized by human to explore and investigate as the power of God in this world. This attitude should be follow by praise toward God whenever possible and do not show arrogant behaviour before God. Because all the power and Will is in God's hand.

قُلْ أَنْظُرُوا مَاذَا فِي السَّمَوَاتِ وَالْأَرْضِ وَمَا تُعْنِي الْآيَاتُ وَالنُّذُرُ  
 قَوْمٌ لَا يُؤْمِنُونَ (١٠١)

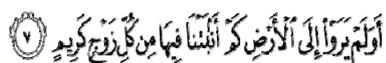
Other verse in Surah Yunus: 101 mentions that human should look and investigate on how the God has created earth and sky. This verse is an instruction for human being to observe carefully what lies beneath earth and what on sky to reveal God big cration and all the secrets behind those creation.

أَفَلَا يَنْظُرُونَ إِلَى الْإِبِلِ كَيْفَ خُلِقَتْ (٧)  
 وَإِلَى السَّمَاءِ كَيْفَ رُفِعَتْ (٨)  
 وَإِلَى الْجِبَالِ كَيْفَ نُصِبَتْ (٩)  
 وَإِلَى الْأَرْضِ كَيْفَ سُطِحَتْ (١٠)

Surah Al Ghosyiyah also instruct human to explore how God has created animals, sky, mountains and earth that lied on each of them something beneficial for human lives. It is the task of human being to uncover the advantages.

وَتَرَى الْجِبَالَ تَحْسَبُهَا جَامِدَةً وَهِيَ تَمُرُّ مَرَّ السَّحَابِ صُجَّعَ اللَّهُ الَّذِي أَنْفَقَ  
 كُلَّ شَيْءٍ وَإِنَّهُ خَبِيرٌ بِمَا تَعْمَلُونَ (٣٨)

In Surah al Naml, God says: "Thou seest the mountains and thinkest them firmly fixed: but they shall pass away as the clouds pass away: (such is) the artistry of Allah, Who disposes of all thins in perfect order: for Allah is well acquainted with all that ye do."



“Do they not look at the earth-how many noble things off all kinds We have produced therein?”

Many Qur’anic verses use the word “afalaa yaandzurun”, “afalaa ya’qiluun”, “afalaa yatafakkaruun”, “afalaa ya’lamuun”. These phrases emphasizes the challenge from God to human being to explore what God has created and to invent something new. Human is differ significantly from other creature for they are have been given the intellectual capacity as a rational being. Human should make use of those capacity for the wellbeing of their lives.

However, many Qur’anic verses also warn human being to not overconfidence of their invention as God is the Highest knowledge of all. All the knowledge should be directed to the wellbeing of human lives not to destroy humanity. God also shows authority in all of the creations. God is the Almighty of all things.

### 2.3 The Development of Science in Islamic World

Islam is a religion that values thought and reason. Systematic scientific inquiry and scientific curiosity are characteristic of Islamic civilization (Sardar, 1989). Evidence that Islam respects reason is the development of science in the Islamic world.

Islam is one of the religions that appreciate science, it is certainly can be seen from the history of the development of Islamic civilization in the skipper by leading scientists at the time, such as Ibn Sina, al-Kindi and many others. Science is not something new, but science is the result of acculturation from other civilizations that are then modified and innovated. This is in accordance with the characteristics of Islam, where Muhammad clearly states that Islam is not a new religion, because there are already Christians and Jews who have the same root of Abraham as the starting point (Masood, 2009).

Actually, in the field of science, Islam had already developed it rather than other civilizations, especially western and Europe which at that time was in the dark ages (476-1000), a period that reflects the conditions in Europe that are less interested in philosophy and science. Even clearly David Deming said: “there is no denying that a scientific dark age had descended upon western Europe” (Masood, 2009).

At that time, Islam was very enthusiastic in developing science especially in astronomy, this development developed very rapidly. According to Ehsan Masood, the development of astronomy in Islam was influenced by several reasons, besides

natural curiosity and the desire for knowledge. Travel across a vast empire, covering large areas of sea and desert, called for navigational aids which only the stars could provide (Masood, 2009).

Ehsan Masood then further state that there are three Islamic teachings that have implications for the development of astronomy. First, Islam is commanded to pray 5 times a day a night. to determine the time of prayer, it must examine the position of the sun or stars in the sky. Secondly, in prayer, Muslims are expected to face the Ka’bah in Mecca. This goal is called qibla, and many astronomers mathematicians work hard to get the right qibla. Third, the Islamic calendar consists of 12 months of the year, and every month beginning is marked by the appearance of the crescent moon (Masood, 2009).

Muslim scientists at that time were very brilliant especially in the field of mathematics there was al-Khwarizmi as an inventor of al-Gebra. The highly significant development of Islamic science has helped the development of modern science in the development of observatories (Masood, 2009). Beside, in the field of numbers and mathematics, the contribution is immense. The number used by us in everyday life is Arabic numeral, because they came to the west from scholars who wrote in Arabic (Masood, 2009).

Furthermore, the tradition of science developed by Muslims is very unique, the uniqueness is not only in methodology, but also in epistemology (Sardar, 1989). Islamic epistemology contains a comprehensive concept of knowledge. the concept of Islam does not separate knowledge from values. Of course this is different from value-free modern science.

### 2.4 The Impact of the Development of Science and Technology on Human Faith

As we mentioned earlier, science and technology are undergoing rapid development these days. These developments have influenced the course of history of human life, especially religion. The relationship of religion and science is increasingly heating up and even tense. The rapid advancement of science has had religious or theological implications, which means that science has caused religion and divine affairs to be irrational intellectually.

Scientific and modern rationalism has uprooted God’s position from human life. According to Emanuel, in the modern world, rationality no longer belongs to God, but belongs to man[1] This has made

modern science secular, which is meant secular here, as said by Mulyadi Kartanegara is the omission of all divine or divine elements of the objects of science which was originally an integral part in the view of science (M. Kartanegara, 2003).

The consequence of the cult of the ratio as presented by Descartes is the irresponsible development of science and technology. Eliminating God's position (transcendent) from nature, as if giving freedom to modern humans to exploit nature in a massive and destructive way. Exploiting nature by using modern technology in a massive way will threaten the life of the man himself.

Furthermore, the characteristic of modern science based solely on physical objects and materials, it must be based on sensory observation and must be empirical. The consequence of modern science is to have a profound impact on religious views and beliefs (M. Kartanegara, 2003).

In the process of natural creation, modern scientists reject the involvement of God behind nature. Einstein is one of the modern atheistic scientists, who do not believe in divinity or a transcendent God as is believed in theism [5]. According to Steven Weinberg, cited by John F. Haught states that the deeper into the substance of things, the universe is increasingly clear that it is not a sign that he is a trace of God (Haught, John, 2004).

Furthermore, modern science that has produced cutting-edge technology, has caused man to clearly dominate nature without responsibility or in Nasr's terms, modern man has made nature as prostitution, to be enjoyed without any sense of responsibility to it (Nasr, 1990). With science and technology man continue to dominate and exploit nature in a massive way, although consciously, it can be seen as progress, in fact it is only a pseudo progress as what was said by Nasr:

“Many realize in their hearts that the castles they are building are on sand and that there is a disequilibrium between man and nature that threatens all man's apparent victory over nature” (Nasr, 1990).

The consequences of the loss of God's involvement from nature, or the secularization of science as some modern scientists believe, have removed the divine principle that exists in nature, so that between humans and nature there is no harmony. Although most people, as Nasr said, recognize that harmony between man and nature has been destroyed, in fact, not everyone realizes that the imbalance is due to the destruction of harmony between man and God (Nasr, 1990).

The imbalance between human and nature is of course caused by human dominance over nature which is excessive and exceeds the limit. Modern man with his science and technology has made nature an object. Still according to Nasr that the imbalance between man and nature can be seen from every expression of modern civilization that seeks to offer a challenge to nature rather than to co-operate with it (Nasr, 1990).

God's has warned human in this matter in verse Al A'raf: 146:

سَأَصْرِفُ عَنْ آيَاتِيَ الَّذِينَ يَتَكَبَّرُونَ فِي الْأَرْضِ بِغَيْرِ الْحَقِّ وَإِنْ يَرَوْا كَلِمًا آيَةً لَا يُؤْمِنُوا بِهَا وَإِنْ يَرَوْا سَبِيلَ الرُّشْدِ لَا يَتَّخِذُوهُ سَبِيلًا وَإِنْ يَرَوْا سَبِيلَ الغَيِّ يَتَّخِذُوهُ سَبِيلًا ذَلِكَ بِأَنَّهُمْ كَذَّبُوا بِآيَاتِنَا وَكَانُوا عَنْهَا غَافِلِينَ ﴿١٤٦﴾

“Those who behave arrogantly on the earth in defiance of right – them will I turn away from My Signs: even if they see all Signs, they will not believe in them; and if they see the way of right conduct, they will not adopt it as the Way, but if they see the way of error, that is the way they will adopt. For they have rejected Our Signs, and failed to take warning from them.”

It is ironic that modern science has eliminated many spiritual elements that have had an impact on modern human civilization as well. Modern science in Nasr's view has threatened human existence and spirituality. The tendency of modern scientists to see nature from the physical side alone and they ignore the metaphysical nature of the cosmos will certainly make them further away from the principle of divinity and at the same time eliminate the element of metaphysical or spirituality of nature.

## 2.5 The Influence of Social Media on Religious Understanding and Attitudes

Problems are more complex when humans also develop technology. Technology is basically a tool created by humans to make life easier. However, in reality technology not only has a positive but also negative impact (Sardar, 1989). Social media as a part of technological progress clearly has an impact on religious ways.

The use of social media among Muslims has experienced a significant development, particularly in Indonesian Muslim. Indonesian Muslims as mentioned by Hussein and Martin are Muslims who always express their faith, not only praying five times

a day, but various religious activities including watching preachers on television and log on to Islamic websites [6]. However, the development of social media clearly has had an influence on religious behavior. This phenomenon is in accordance with what was conveyed by Martin Slama that the use of social media has influenced religious behaviour (Badan Litbang Diklat Kementerian Agama RI, 2015).

It cannot be denied that new media has had a huge impact on the spread of Islamic da'wah but at the same time, there is also the spread of secularism, pluralism and liberalism. This media has been able to realize a flow that makes humans able to interact with each other without limitation. Clearly, the influence of using this media is freedom of speech and express their views and opinions without regard to moral and moral values.

In this media era, many Muslim learn religion through social media such as Facebook, YouTube, Instagram and so on. This pattern of religious learning has changed the behavior of people in religious understanding. More ironically, according to Martin Slama social media can gradually change religious authority (Balitbang Kemenag, 2015).

Formerly, in Islam there were kyai or ulama who had authority. The Ulama is a teacher who gets an award and recognition from his cleric because he is considered capable of giving advice on matters that have some spiritual import, such as marriage, sexual behaviour, diet and domestic management of the household [9]. Unfortunately, at present, the authority has almost disappeared, especially in middle-class Muslim circles. This phenomenon triggers each individual to learn independently and feels sufficient with the knowledge gained from social media. This condition is in accordance with the conclusions of Bryan S. Turner when he received a statement from an Indian student stating that "The Internet has made everybody a mufti" (Turner, 2007).

This trend is developing to encourage Muslim groups without mosques. A term introduced by Kuntowidjoyo to describe Muslim groups that grow in urban circles, where they learn no longer to Madrasa and mosques under the guidance of teachers / ulama / religious teachers, but through various information technology devices.

As a result, their understanding of religion tends to be superficial. This happened because there was no dialogue room, with open insights and cross schools (*madzhab*). Ironically, the trend of studying religion on social media is endemic and makes the existing religious authorities in ulama / kyai / religious scholars become faded. Consequently, the

symptoms of truth claims from individuals and groups are born based on the truth of the version and its own interests [16]. The consequence is the emergence of the post-truth era, an era when opinions and interpretations stand out more than objective facts (Basuki, 2017).

This illustrates that technology becomes a super organism, which is no longer positioned as a tool for humans, but which controls humans (Al-Hasan and Hill, 1993). When people are confused about religious issues, those who are asked are no longer kyai / ulama / ustadz, but the You tube, Facebook, and so on. Everyone can create space of their own in social media and spread it uncontrollable. This is difficult and troublesome related to understanding religious messages that need further understanding with many knowledge not just see on the surface. Authority then become an issue here.

A serious problem will be faced by Muslims when they have to interpret the religious knowledge which obtained from the media. The problem of interpretation and understanding of religion will be misrepresented and may not be in accordance with the teachings of religion itself. Understanding like this is said by StigHjarvard will lead to banal religious interpretation (Saputra, 2016).

This banal religious understanding will certainly cause individuals to have an inclusive mindset about religion. The problem that arises from this kind of thinking is radical thinking. So this is consistent with the conclusions made by Nafi Muthohirin from the results of his research that social media is a strategic place for radical groups to spread their thoughts (Muthohirin, 2015).

There are several beneficial gain from innovation in media and technology toward the understanding of religion, but at the same time several obstacles arise. Muslim community should learn wisely about the impact of technology for their lives and their understanding of religious messages. Use the media and technology wisely while remain critical to each contents especially related to religious doctrines and interpretations. Apart from that, it is the task of government to set rules and regulations related to contents that can be used to justified or propaganda of any political or religious affiliations for the sake of national unity and harmony.

### 3 CONCLUSIONS

The development of science and technology is very rapid. The development of science from medieval traditional science, which has the religious

and spiritual characteristics of his knowledge has undergone a change, especially after the renaissance, where the west did a revolution of thought, especially in science. The change or rather the secularization between religion and science has influenced Western civilization primarily on its beliefs.

Modern science is a science that breaks away from attachment to religious dogma or God. Modern science has only a quantitative character, all measured by an insightful fact. In other words, modern science only examines something real and physical or material. Furthermore, the character of modern science, because of being removed the transcendent aspects of the cosmos, is to desacralate nature, in other words, they exploit nature without responsibility. Nature is just an object to be enjoyed without moral responsibility.

The consequences of the development of modern science have influenced the thinking and beliefs of modern humans. Modern science and modern technology have brought implications and spiritual crises to modern humans and at the same time threaten human existence. Beside, media as a result of technology also gave problems in the religious attitude.

Technology continue to develop new sophisticated invention until invent social media which was developed to help people communicate with others without meeting face to face. This development not only have positive side, but also negative side. In one side, media gave space for Muslim, for example to spread da'wah Islamiyyah. However, in other side, the development of new media had given a space for radical or liberal groups to spread their understanding.

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