# History of the Development of Philosophy of Science: Epistemology of Education/Educational Thought in the Middle East in Ancient, Middle, Modern and Contemporary Periods

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**Abstrak**

Talking about the philosophy of science, it is necessary to ask yourself a question, the extent to which this branch of philosophy has meaning and relevance to urgent and urgent practical problems, which require practical solutions, such as the problem of employment opportunities for college graduates, which is increasingly limited. educational funds and facilities, etc. Along with that, there is an assumption that the presence of this philosophy of science is too early on the one hand, but it is also considered too late on the other hand. This research uses a literature study method by collecting data from various articles. The results illustrate that the development of the Philosophy of Science undergoes changes over time. the changes that started from the prophetic era to the contemporary era in the Middle East experienced struggles in various circles and became one bright spot for a better future.

**Keywords**: Philosophy of Science, Middle East in Ancient, Modern, Contemporary

## INTRODUCTION

Since the Renaissance, which was followed by the Aufklaerung (XVIII century), philosophy has been abandoned by its "children" as the "mother" of the branches of science (the branches of science). Scientific disciplines and their "biological progeny" (technology) tend to exist on their own as distinct entities. When it came to its later journey, science and technology (science and technology) advanced at a breakneck pace and made amazing discoveries, having a significant impact on human society as a whole. In recent years, there has been a trend toward science being researched and used regardless of the philosophical beliefs that underpin it. In this book, various difficulties that occur - both theoretical and practical - are examined from the perspective of each subject and translated into their respective technical languages. As a result, it is difficult to foster dialogue between scientific disciplines (Fiqru Mafar, 2019).

Talking about the philosophy of science, it is necessary to ask yourself a question, the extent to which this branch of philosophy has meaning and relevance to urgent and urgent practical problems, which require practical solutions, such as the problem of employment opportunities for college graduates, which is increasingly limited. educational funds and facilities, etc. Along with that, there is an assumption that the presence of this philosophy of science is too early on the one hand, but it is also considered too late on the other hand. It is still too early because some people consider it a luxury, non-economic, a waste of time, difficult to understand, not pragmatic; but it is also a bit too late because it is increasingly felt that there are various fundamental problems that require a basic rationale in overcoming them, such as the issue of pulpit and academic freedom, improving the quality of education which is less clear in size, etc. (M Muhammad Ikbal Akbar, 2016).

Epistemology in Arabic terminology called nadhariyyah al-ma'rifah or theory of science is a branch of philosophy that describes and analyzes the nature and scope of knowledge, the foundations, and postulations that develop as accountability for questions regarding that knowledge. However, another view is more swooping that epistemology is a branch of philosophy that talks about the nature of science, and science as a process is a systematic and methodical thought effort to find the principle of truth contained in an object scientific study (K. Khojir, 2011). What is the object of the scientific study, how far the level of truth can be achieved, and what truth can be achieved in science, objective, subjective, absolute, or relative truth? (Musa Ash'ari, 2001).

Likewise, in the anatomical construction of Islamic education, it cannot be separated from the material movement of human history, which is constantly changing. So these two conditions are firmly attached to the formation of Islamic education science so that it undergoes a process of adaptation and innovation at all times to the development of the times, especially the pattern of science and technology.

The development of science is always associated with the Greek culture, at least in theory. Some of the evidence for this comes from Greek mythology and literature, as well as the influence of science at the time, which had spread throughout the ancient world, among other things. The growth of science in each age is due to a shift in the human mindset, which has evolved from a belief in myths to one that is more reasonable. 2 Humans are becoming increasingly proactive and innovative in their pursuit of nature as a subject of investigation and study. As a result, in this short paper, the author will explain the history of the evolution of science in accordance with his or her own abilities and capacities, but the author acknowledges that this is still far from ideal.

There are many different definitions of the term history among historians, however the author might infer that history is essentially a continuity or series of events/events that occur between the past, present, and future in the author's opinion. This can be understood in terms of chronology and geography, which can be considered in the context of the historical period during which history took place, respectively. The growth of science has particular features or characteristics that are unique to each historical time. However, there are some discrepancies in the extant literature when it comes to the division of the periodization of the evolution of science. As a result, in order to make it easier to comprehend the history of the evolution of science, an elaboration and categorization or division in outline have been completed. Each epoch or history of scientific advancement is briefly described in the following section, which is updated on a regular basis. If knowledge has existed since the beginning of time, then its development has occurred since the beginning of time. Proverbs Bakhtiar divides the history of the development of science into four

periods, which he defines as follows: ancient Greece, Islamic times, the Renaissance and modern times, and current times. He also divides science into two categories: natural science and social science. Meanwhile, George J. Mouly categorizes the development of science into three (3) stages, which are animism, empirical science, and theoretical science, according to his classification. Jujun S Suriasumantri, written by George J. Mouly in his book Jujun S Suriasumantri (1985:87), demonstrates how science may be traced back to the origin of man (Abdul Karim, 2014).

Islamic education continuously integrates the rationality-empirical side as a Hellenistic basis with a Semitic side with a doctrinal-normative pattern with the Qur'an and al-Hadith as the highest paradigm through a dialectical pattern. With this understanding, from the Qur'an and al-Hadith, it can be expected that the construction of knowledge of Islamic education will enable understanding of reality as the Qur'an and al-Hadith understand it.

Such thinking places the Qur'an and al-Hadith as a mode of thought, a mode of inquiry, which then produces a mode of knowing, thus producing an educational theory order that is purely born of Islamic teachings..

## METHOD

This type of research uses the literature study method or also known as literature review. This literature review is a research study whose way it works is to collect data related to a particular theme. This literature review attempts to describe and elaborate on the subject matter based on information obtained from various sources (Herliandry et al, 2020)..

## RESULTS AND DISCUSSION

### Prophet Time

Islamic education prioritizes spiritual and moral aspects, so education is not ignored in mental, physical, mathematical, social science, and practical majors. Thus education is a comprehensive education. Islamic education is very concerned about faith, aqidah, and the achievement of knowledge because of the scientific substance itself. At the time of the Apostle, these characteristics were possessed, especially in the scientific, literary, and material aspects, although not as high as the achievements

of the Muslims in their heyday.

In the Mecca period, the prophet Muhammad focused more on moral and moral development and monotheism to the Arab community who lived in Mecca, and during the period in Medina, the Prophet Muhammad SAW carried out social development. It is where Islamic education began to develop rapidly (Hamim Hafiddin, 2015).

At this time, a group of tabi'in emerged who studied at early graduates, among the most famous was Rabi'ah al-Razi, who opened a scientific meeting at the Prophet's Mosque, while his students were Malik bin Anas al-Asbahi, the author of the book "al-Muwatta" and the founder of the Maliki school. At the same time, the tabi'in scholars were Sa'id bin al-Musayyab, Urwah bin al-Zubair, Salim Mawla bin Umar and others. Among those who studied under Ibn Abbas was Mujahid (d. 105 H), Sa'id bin Jubair (d. 94 H), Ikrimah Mawla ibn Abbas, Tawus al-Yammani, 'Ata ibn Abi Rabah, all from Mecca. Al-Hasan al-Basri was also among the tabi'in. He studied at Rabi'ah al-Ra'y in Medina and then returned to Basra, frequented by scholars from all corners of the Islamic land.

At the time of Khulafaur Rashidin and later times, writing and reading were used in scientific communication and various science books. Because writing and reading became increasingly necessary, the various places for learning, writing, and reading, especially for children, developed rapidly. At the beginning of the development of Islam, the maktab was carried out in the homes of the teachers concerned, and what was taught was merely writing and reading, while what was written or read was the famous poems of that time.

Islamic Education at the time of the Prophet in Mecca The Prophet Muhammad received his first revelation at the Cave of Hira in Mecca in 610 AD. in the revelation contained in the Qur'anic verse, which means: " *Read (O Muhammad) in the name of your God who created (the universe). He made man from a clot of blood. Read, and your Lord is most gracious. Who teaches with a pen. Teaches man what he does not know.* "

You are then followed by the second revelation in the Quran, which means: " *Hi people who are huddled (covered). Get up, then give a warning! Moreover, your Lord glorify! And clean your clothes. And forsake sins. Moreover, do not give (with the intention of) getting (reply) more. Moreover, to (fulfill the command of) your Lord, be patient* ."

With the revelation of the prophet

Muhammad, SAW has been given a task by Allah to get up, throw a blanket and roll up his sleeves to warn and teach all humankind, as a sacred task, the task of educating and teaching Islam. Another revelation. All of this was conveyed and taught by the prophet, at first to his close relatives and colleagues in secret (Mahmud Yunus, 1992).

During the development of Islamic religious education in Mecca, the prophet Muhammad also taught the Qur'an because the Qur'an is the essence and primary source of Islamic teachings. Besides that, the Prophet Muhammad SAW taught monotheism to his people

The point is that the education and teaching given by the prophet while in Mecca was religious and moral education and advised humans to use their minds to pay attention to the events of humans, animals, plants, and the universe as a recommendation for 'akliyah and scientific education.

The development of Islamic education during the Mecca period includes:

1. Religious Education
   That is, read in the name of Allah alone, do not associate with the name of idols.
2. Akliyah and Scientific Education
   Namely, studying human events from a clot of blood and the events of the universe.
3. Moral and character education

   Namely, the Prophet Muhammad SAW taught his friends to have good morals following the teachings of monotheism.

4. Physical Education or Health.

That is concerned with the cleanliness of clothes, body, and residence (Zuhairini, 2008).

The prophet carried out the guidance and teaching of Islamic religious education in Medina to form and develop a new society towards social and political unity. Prophet Muhammad SAW began laying the groundwork for establishing a cooperative society both internally (inwardly) and externally (with other communities) (as a political unit).

The basics are:

1. The prophet Muhammad (PBUH) eradicated the remnants of hostility and conflict between tribes by tying brotherhood ties between them. With the birth of the brotherhood, the unity of the Muslims became stronger
2. To meet their daily needs, the prophet Muhammad advised the emigrants to try and work according to their respective abilities and work, such as when they were in Mecca.
3. To establish cooperation and help each other form a just and prosperous society, the shari'ah of zakat and fasting was issued, an education for citizens in social responsibility, both materially and morally.

A very effective policy in fostering and developing a new society in Medina was the provision of communication media based on revelation, namely Friday prayers held in the congregation and the call to prayer. With Friday prayers, almost the entire community gathered to directly hear the sermon of the prophet Muhammad and Friday congregational prayers.

The sense of self-esteem and social pride was even more profound after Prophet Muhammad SWA received a revelation from Allah to move the Qibla in prayer from Baitul Maqdis to Baitul Haram Mecca because they felt like people had an identity.

### Middle Ages

In this medieval era, what will be used as a portrait is the building of the philosophy of science between al-Ghazali and Ibn Rushd. This discussion is interesting because the pre-debate of ideas between the two significant figures of Islam, Al-Ghazali and Ibn Rushd, has always been a concern of the academic world both in the East and in the West. Because these two figures were brilliant thinkers, their thoughts greatly influenced both the Western (European) world and especially the Eastern world. The works of thought contained in their books have made them always engraved in civilization. In particular, Ibn Rushd in the West is famous for his integration of religion and philosophy, and Al-Ghazali is popular for his Sufistic approach and famous for his philosophical refutation of Greek metaphysical philosophy.

Classical century philosophy begins with the Ancient Greek era, during which humanity began to conceive in terms of logos rather than myths for the first time. Ancient Greek philosophy is notable for paying close attention to the study of cosmic and physical events in an endeavor to

determine the origin (arche), which is the first factor in the occurrence of phenomena. This is a significant feature of ancient Greek philosophy. Philosophers during this time questioned the origins of the cosmos and the nature of the universe, leading to the term "cosmocentric" being used to describe the feature of philosophical thought throughout this century. People no longer believe that the rainbow is a Goddess who serves as a messenger for other gods, as was once believed (in Traditional Greek culture). Those who have foreseen the future will recognize that rainbows are clouds, as Xenophanes put it, or reflections of the sun in clouds, as Pyatagoras put it (499-420 BC). Furthermore, the collapse of the Eastern Roman empire began in the middle of the century as a result of the rise of Christianity and Islam, each of which emerged as a political power and a force for the emancipation of various nations on the European continent and in the Asia Minor region at the beginning of the century. In 391 AD, Emperor Theodosius I declared Christianity to be the official state religion of the Roman Empire (East). As a result, Christianity in the Roman Empire acquired state support to the point where the Church itself became a political power in the empire. In the course of later changes, the Church was given a tremendous chance to define the way in which people lived their lives as individuals and as citizens. The church's dominance grew to such an extent that it eventually undermined the authority of politics and the very existence of the empire itself.

In Al-Ghazali's concept, knowledge obtained by reasoning alone will give birth to narrow hypotheses and potentially produce false theories (Al-Ghazali, 1997). According to him, science must be based on the concept of God's revelation with the thinking of the human mind. In other words, reason must also be guided by religious revelation.

Islamic education must not rule out faith in religious revelation in the process of seeking and developing knowledge. From here, Al-Ghazali became the target of accusations of initiating the dichotomy of science (religious science and non-religious science).

According to Al-Ghazali, the world's life is a place of charitable investment to get to the hereafter. Thus the world and religion are integrated. Because even the science of the world must be following the goals of religion, that is, the rationalization of science does not have to destroy the purpose of religion. Moreover, knowledge is the only tool for this world and the hereafter.

According to Al-Ghazali, it is implausible that a person can get a good life in the hereafter if his worldly affairs are not passed in a good, systematic, and technological way based on religious norms. Moreover, the life of this world and the hereafter requires knowledge (Al-Ghazali, 1995). The order of the world's life can be good if knowledge becomes the concept of human life. According to Al-Ghazali, the concept of science in Islamic education directs that all scientific disciplines are based on the norms and concepts of God's revelation.

Unlike the case with Ibn Rushd, from several of his works such as Tahafut at-Tahafut, Fashl al-Maqal fima bain al-Hikmati wa al-Syari'ati min al-Ittishal, and Bidayah al-Mujtahid, Ibn Rushd wanted to refute the concept of Al-Ghazali's science. Which seems to limit the human mind to be creative, in which reason is a gift from God. Because according to Ibn Rushd, science is the result of purely rational activity, and human reason and its activities do not conflict with religion as long as its implementation does not oppose religion. Even with his mind, humans can find their God.

Ibn Rushd did not want a reason as a source of knowledge which is also a gift from God too limited and castrated by religious norms as formulated by Al-Ghazali so that he was not free to be creative because the human mind is also a gift from God and comes from God. Automatically what comes out of the human mind is from God (Asma Hasan Fahmi, 1979).

Facts and reality prove that the concept of Ibn Rushd's thought with the birth of Averroism in Europe had implications for changing Islamic education in Spain to a more progressive and more advanced direction at the end of the golden age of Islam in the aspect of physical civilization.

For the development of the sciences of reason, they did it by translating ancient Greek and Persian works into Arabic, especially the works of Aristotle and Plato. It was Ibn Rushd who was most keen on translating the works of the two philosophers. These works are then analyzed in the framework of Islamic teachings. The comprehensive analysis was carried out by conducting experiments in various laboratories that the authorities had provided (Syamsul Nizar Rashidin, 2005).

There was already a University of Cordoba during Islamic Spain with several astronomy, mathematics, medicine, theology, and law majors. Each year the students accepted can reach thousands, and the diplomas issued to allow them to get high positions in the kingdom. In supporting their education, Islamic Spanish education applies a universal and comprehensive curriculum. That is, offering religious and general education materials integrally at every level of education, significantly higher education. It is a glimpse of some of the influence of Averroism or the thought movement inherited by Ibn Rushd. Indeed, at first glance, it is different from what some have alleged that the decline of the East cannot be separated from the influence of the Sufistic way of thinking and the limitations of rationalization formulated by Al-Ghazali (Philip K. Hitti, 2006).

The disparity in the style and pace of development between the Islamic West and the East arises from complex causes. One of them is often associated with the story of the battle between "religion" and philosophy which was won by the first camp, supposedly by al-Gazali's sharp blow, so that the Islamic world since the 13th century AD was dominated by kalam and Sufism where empiricism was hampered by its development. It is where the problem arises. Was it true that al-Gazali was the cause of intellectual decline and disaster, or did he provide positive thoughts for solving the fundamental scientific problems faced by humanity at that time?

Islam is a religion that values scientific inquiry. This may be seen in a number of scientific debates and discussions. There are statements in the Qur'an that convey an understanding of the process of learning and knowledge acquisition. Ya'qilu (using reason) is found in 48 verses of the Qur'an, according to Sofyan Sauri in his book. The term ya'qilu (using reason) appears in several different forms. The term nadzara (which means "to view abstractly") appears in 30 poems. The term tafakkara (thinking) appears in 19 verses of the Qur'an. The verb tadzakkara (to pay attention, to study) appears in 40 verses and means to pay attention or study. The word faqiha (the act of contemplation) appears in 16 verses of the Quran. In addition, the Qur'an contains the phrases ulu al albab (thinking people), ulu al 'ilmi (knowledgeable people), ulu al abshar (people with opinions), and ulu al nuha (those who believe in something) (wise people).

al-Gazali heard the hadith narrated from Allah's Apostle that only one survived and that humans are born on a fitnah who later become Jews, Christians, or Magians because of the upbringing (tackled of) their parents. It creates in his skepticism about which single truth is and what the standards/criteria are and a strong urge to seek and find the science of Yaqin as a single definite and universal truth based on definite and universal scientific standards. From here, he plunged into all the streams to the very depths of his heart. A comprehensive intellectual figure like this can emerge as a philosopher who approaches everything holistically-integrally and radically-essentially and a figure of convergence of various schools.

### Modern Era

One of the characteristics of modern theological thinking is rational (Pius A Partanto & M. Dahlan al-Bary, 2001). The paradigm underlying the process of reform in the Islamic world is mainly based on the argument that the basic principles of Islam contain the seeds of rational religion, social awareness, and morality that can be the basis of modern life. Rationality is also seen as creating a religious elite who can articulate and interpret the true meaning of Islamic values and therefore provide the foundation for the birth of a new society.

As previously discussed in the preceding sub-chapter, ancient Greek philosophy, among other things, gave rise to the Epicurean and Stoic schools of thought as a means of achieving

happiness in one's life through the process of thinking and reasoning. During the Milesian period, this ideology became widely popular on the European continent as a whole. They teach that everything has a fundamental element of nature that may be discovered via observation or empirical experience through the use of 5 (five) key characters, including Thales, Anaximenes, and Anaximander, Pythagoras, and Heraclitus (Hadiwijono, 1980). As time passes, from the end of the dark ages (dark ages) to the beginning of the modern era, the advancement of science founded on empiricism is capable of producing technological advancements that make life more convenient for humans in all aspects of their lives, thereby evidencing the position of the Skeptics and Cynics even more strongly (Russell, 2007). After Westerners' vision of society gave birth to the dichotomy of civilized and uncivilized societies, the author claims that this term became the label of society during the colonial period as a result of their skepticism and cynicism. Typically, skeptics are thought to be owners of knowledge and capital who are capable of advancing society and providing prosperity to the masses. When it comes to seeing life's difficulties, their thought is focused on individual awareness (liberal), as well as the use of science and technology to obtain an advantage. As a result, they are frequently described as practical and pragmatic individuals; nonetheless, they have a strong tendency to think in terms of procedures. Cynics, on the other hand, strive to achieve social happiness by studying every topic from a holistic perspective and by attempting to escape as much as possible from the materiality of scientific research. Thus, they are frequently described as spiritualistic and faithful, as well as having qualities of thinking in a more holistic manner. Individualism based on procedural rules can be identified as the motivation of skeptics in the context of colonialism in the East, which includes Indonesia. Cynics can be identified as ordinary people (natives) who are motivated by simple happiness in the context of colonialism in the East, which includes Indonesia. Getting the two to work together was the purpose of the state institutions at the time (Dutch East Indies) in order to achieve mutual enjoyment through the exploitation and processing of resources through coercion administered by settlers to the indigenous population.

The theological reform ideas spread by Sheikh Muhammad Abduh are based on three things, human freedom in choosing actions, a strong belief in the sunnah of Allah, and the very dominant function of reason in using freedom (Mohammad, *et al*, 2006). The way used to know God is not mere revelation but reason. With the power within itself, intellect seeks to acquire knowledge of God and revelation, descends to strengthen that knowledge of reason and convey to man what his mind cannot know.

Intellect is "the power of thought which when used can lead a person to understand and understand the problems he is thinking about," said na'qil (we are intelligent), in line with the meaning of freedom, namely 'Aql or intellect which means a rope. It is a human potential that serves as a rope that prevents him from falling into sin and guilt. That kind of reason is the goal and one must strive to achieve it because that is what saves a person. Without reason, anyone will fall even if they have profound theoretical knowledge (Shihab, 2005). Humans enjoy luxury and a high sense of dignity as a result of their intelligence. Thus, reason and his messenger are the mysteries of Allah revealed to you, by which you come to know Allah and yourself, your beginning and end, and your place within the being you are in. In this scenario, reason can provide individuals with direction and cues to help them find their way in life.

Islamic teachings are based on rationalism and the power of reason. Through the power of reason, Muslims are expected to distinguish right from wrong, which means following religious teachings.

Islam is a rational religion that is in line with reason, even a religion based on reason. According to Abduh, rational thinking is the way to get true faith. Faith is not perfect, if it is not based on reason, faith must be based on belief, not opinion, and the reason is the source of belief in God, His knowledge and omnipotence, and the apostles (Nasution, 1987).

The basic rationalism in Abduh's mind caused him to reject taqlid and accept interpretation (ta'wil) based on origin instead of accepting a literal translation of religious sources, which exists. He invites us to do ta'wil on texts of the Qur'an that we cannot understand. He also emphasizes through his books to separate the understanding of the existence and character of religious teachings in their entirety from the thoughts of people who only claim to be religious.

Intellect can know the existence of God and the existence of life behind the life of this world. With reason, humans can know the

obligation to thank God. Goodness is the basis of happiness, and evil is the basis of misery in the hereafter.24 However, the power of reason for each human is different. The difference is caused by differences in education and nature, something that lies beyond human will. Therefore, he divides people into two groups: khawas and laity.

Man's obligation to use his mind is not only the inspiration contained in him but also the teachings of the Qur'an. This holy book commands us to think and forbids us to follow the rules. Abduh strongly opposed taklid because, according to him, taklid was one of the causes of the decline of Muslims in the 19th and 20th centuries. He deeply regrets the attitude of taklid in various aspects of life. Developments in language, social organization, law, educational institutions, and so on are hampered (Nasution, 1987).

the transfer of Greek philosophy from Greece to Arabic philosophy Islam is fundamentally a long and complex process in which it is frequently heavily influenced by the beliefs and theology of the perpetrators, as well as the surrounding cultural conditions, among other factors; therefore, the context and problems of the Arabic language and Islamic teachings will not be separated from the context and problems of the technical terms used. Because of this, the process of re-constructing Greek materials for science and philosophy may not always be expected to be completed in a clean translation into what is thought to be Greek in origin, but rather must take into consideration the activity that occurs beyond the text itself. Similarly, it is impossible to fully comprehend or understand the expansions, developments, and re-creations of Greek ideas from al-Kindi (801-878 AD) to Ibn Rushd (1126-1198 AD), even Suhrawardi (1153-1191 AD), and after without reference to the cultural contexts that shaped the direction and character of these works (Abdul Karim. 2014).

By paying attention to Muhammad Abduh's view on the role of reason above, the function of revelation can also be seen for him. According to Abduh, reason, and revelation have the following functions: Revelation gives people confidence that their soul will continue to exist after the body dies. Revelation helps the mind to know the hereafter and the state of human life there. Revelation helps reason regulate society based on the general principles as a source of peaceful life in society. Revelation helps the mind

to know how to worship and thank God. Revelation has a confirmation function to use the opinion of reason through the nature of holiness and absoluteness contained in the revelation that can make people benefit (Abdul Karim. 2014).

Abduh's theological system of thought, revelation, has a "dual function," namely providing confirmation and information, so that revelation is indispensable for him to perfect the knowledge obtained through reason.28 Reason and revelation have a very close relationship because reason requires revelation. , while the revelation could not be contrary to reason. If it appears at birth that revelation is contrary to reason, then Muhammad Abduh gives freedom to reason to give interpretations so that revelation is following the opinion of reason and does not conflict with reason. Thus, the relationship between revelation and reason can be harmoniously established

The ideology of qada' and qadar has been distorted into fatalism, while that understanding contains a dynamic element that made Muslims in the Classical era able to bring Islam to Spain and lead to a high civilization. The notion of fatalism among Muslims needs to be changed to understand human freedom in will and deed. It is what gives rise to the dynamics of Muslims again.

The man knows his existence without any proof, so he also knows that his own choice (ikhtiyar) is an act in himself. It is the laws of nature that determine the actions of their own choices that exist in humans. Muhammad Abduh believed in the opinion that unchanging natural laws created by God govern nature. God created this natural law he called the sunnah of Allah. The Sunnah of Allah, in his opinion, includes all creatures. Everything in nature is created according to the laws of nature or its essential nature. Man himself was created following the basic characteristics unique for him, namely thinking and choosing actions according to his thoughts.

### Contemporary Era

Contemporary era writers use algebra as an example. The renewal project carried out by Al-Jâbirî is to conduct an epistemological critique of the building of the Arab-Islamic scientific tradition. Its main task is to review the history of Arab-Islamic culture and, at the same time, analyze Arabic reasoning. It is reminiscent of Arab civilization (Abid Al-Jabiri).

It is a place of growth and emergence of

Islam. This task prompted Al-Jâbirî to analyze the socio-political background of the formulation and formation of Arab-Islamic reasoning and to analyze in-depth the intricacies of the mechanism for the performance of the structure of Arab reasoning clashed with each other in fighting for hegemony during Arab-Islamic culture.

By criticizing Arabic reason, it means dismantling and exploring the deepest layers of the design of Arab thought to uncover "epistemological defects" and then fix them or even look for alternatives.

1. Bayani. reason

(Arabic) Bayânî4 literally translates as "explanation (explanation), uncovering, and explaining anything," specifically "explaining the meaning of a dialogue utilizing the best (communicative) lafzh." experts in ushûl al-fiqh have come to the conclusion that bayân is an attempt to unveil the meaning of a discussion (kalâm) and explain in detail the things that are hidden from the discourse to the mukallaf, according to their understanding. If the meaning of al-bayân in this context contains four meanings, namely al-fashl wa al-infishâl and al-zhuhur wa al-izhhâr, or if it must be arranged hierarchically on the basis of sorting between method (manhaj) and vision (ru'yah) in epistemology, then the meaning of al-bayân in this context contains four meanings, namely al-fashl wa al-infishâ It might be claimed that al-bayân as a method means al-fashl wa al-Infishâl, whereas al-bayân as a vision means alzhuhur wa al-izhhâr; even al-Syâfi'î considers alushûl al-bayânîyyah to be an important aspect in the norms of discourse interpretation.

Al-Syafi'î then describes the hierarchy of bayân in five levels, with particular emphasis on the hierarchy of bayân versus the Qur'an. It is divided into three categories: first, bayân that does not require explanation; second, bayân that requires explanation of the Sunnah on some points; third, bayân that is entirely general in nature and requires explanation of the Sunnah; and fourth, bayân that does not require explanation of the Sunnah on any points. Fourth, bayân that is not found in the Qur'an but is found in the Sunnah; and fifth, bayân

that is not found in either the Qur'an or the Sunnah, which eventually gave rise to qiyâs as a form of ijtihad as a result of this. Al-Syafi'î then developed the four fundamental foundations of religion, which are the Qur'an, the Sunnah, the ijmak, and the qiyâs, based on the five degrees of bayân. 7 Al-efforts, Syafi'î's on the other hand, according to al-Jâhidz, have only reached the level of knowing the text and have not yet been directed toward how to make people understand. His interpretation of the term "al-bayân" is an attempt to make people grasp the discourse, or even an attempt to win a dispute. 8 He approaches al-bayân from a pedagogical standpoint, which necessitates the inclusion of the mukhâthab element, even if it is only as a goal. In this circumstance, al-Jâhidz stipulates that there must be harmony between the lafzh and the meaning of the sentence.

It is required to establish the following conditions for drawing conclusions in al-Jâhidz in order to obtain the correct meaning: (1) Meaning; (2) Bayân with letter selection and lafzh; (3) Bayân with an open meaning. In this scenario, the meaning can be expressed in one of five explanatory forms, namely lafzh, signs, writings, beliefs, and circumstances/ratio, as well as (4) Bayân, which expresses beauty in terms of its own kind. 9 Ibn Wahhab was the next significant advance. He contributes to a better understanding of bayân by articulating it in terms of the amount of certainty or the appointment of a representative. According to Ibn Wahhab, there are four levels of explanation: (1) explaining something by demonstrating the material form of the statement (bayân bi al-i'tibâr); (2) explaining something with inner understanding (bayân bi al-qalb); (3) explaining something with oral editorial (bayân bi al-'Ibârah); and (4) explaining something with written editorial (bayân bi alkitab). 10 Bayânî is a philosophical study of the knowledge-building system that holds text (disclosure) to be the only source of absolute truth, as defined by Bayânî. Reason, on the other hand, merely occupies a secondary role, and is

primarily responsible for explaining and defending the present content. The strength of this method resides in the language, both in terms of syntax and structure, as well as in terms of literary significance.

In Arab-Islamic civilization, the discussion of bayâni studies is grouped into two. The first is related to the rules for interpreting discourse, and the second is related to the conditions for producing discourse. The tradition of interpreting discourse had emerged since the time of the prophet Muhammad, namely when his companions asked for an explanation of the meaning of pronunciation or expressions contained in the Qur'an. Alternatively, at least since the time of khulafâ' ar-râshidîn where many Muslims asked friends about the clarity of the meaning of verses or words contained in the Koran.

Meanwhile, related to the requirements for producing discourse, the bayâni tradition only began with the emergence of political factions and theological schools after the tahkm majlis, where discourse and theological debate became instruments to spread influence and propaganda "others" and even conquer the enemy.

According to 'Âbid Al-Jâbirî, bayâni reasoning is found in the study of linguistics, nahwu, fiqh (Islamic jurisprudence), theology (kalam science), and balaghah science (M. Faishol, 2013).

## 2. Irfani's reasoning

'Irfânî is derived from the Arabic word 'irfân, which is the simplest form (mashdar) of the word 'arafa, which is a slang term for ma'rifah (Afifi Fauzi Abbas, 2012). The phrase al-'irfân is distinct from the term al-'ilm in the Arabic language. Aql or transformation (naql) are used to demonstrate the acquisition of the object of knowledge (al-ma'lûmât), whereas 'irfân or ma'rifah are used to demonstrate direct knowledge with the object of knowledge (al-ma'lûmât) through experience or direct knowledge with the object of knowledge When comparing knowledge received through the senses (sense/al hissî) and reason, or both, with

knowledge acquired through kasyf (disclosure), ilham, "iyân, or isrâq, the term "disclosure" is used to distinguish between the two. 'Irfân is viewed as exposure through intuitive experience as a result of the union of the knower and the known (ittihâd al-'ârif wa al-ma'rûf), which has been regarded as the ultimate form of knowledge in Islamic tradition. According to the 'irfânîyyûn, knowledge of God (the essence of God) cannot be gained through rational empirical proof, but must instead be gained through direct experience (mubâsyarah). Having the ability to separate from all attachments to nature that could otherwise interfere with one's ability to communicate with God is essential.

God, according to the notion of 'irfân, is seen as a separate reality from that of the natural world. The mind, senses, and everything in this world are all a part of nature, and as a result, it is impossible to know God through these channels. Only through the soul (nafs) can one come to understand the nature of God, for the soul radiates from the realm of eternity and is imprisoned in this world, and he will return to God when he is clean and free from the constraints of the natural world, which is when he will return to Him. If text (revelation) is the primary source (origin) of science in the bayânî approach, then experience (experience) is the primary source (origin) of science in the 'irfân approach, i.e. true, real-life experience, which is a priceless lesson.

The Sufis distinguish knowledge into three categories, namely knowledge generated by sense (al-hiss), reason and/or both, and knowledge generated through al-kashf and al-'iyân. At its peak, Surahwardi clearly distinguishes between al-burhân and al-'irfân: the first is called al-hikmah al-bahthiyyah which is based on argumentation, scrutiny, and ratio, while the second is called al-hikmah al - ishrâqiyyah which is based on al-kashf and al-ishrâq.

If a 'ârif with his 'irfâni attitude, as mentioned above, puts himself against the world and returns it to the divine origin, then the fundamental problem in that attitude is philosophical, namely the

problem of ugliness and its source in the world: he distinguishes between clearly between the transcendent God (al-ilah al-muta'âl) and the world in which he lives itself. This problem is then called Al-Jâbirî with" 'irfâni as theory."

### 3. Burhani's Reason

Burhân (Arabic) denotes an argument (al-hujjah) that is clear (al-bayyinah/clear) and capable of distinguishing (distinc/al-fashl); demonstration (English), which comes from the Latin demonstratio, which means "display" (signing, character, description, and explanation) (Afifi Fauzi Abbas, 2012). Burhân is a cognitive activity that, from the perspective of logic (al-mantiq), is used to determine the truth of a premise by applying the method of conclusion (al-istintâj), which involves linking the premise with other premises for which a reason has been justified or has been revealed. Meanwhile, burhân can be defined as "the activity of reason that establishes the truth of a premise" in a more generic meaning. When compared to bayânî and 'irfânî, where bayânî considers text (nas), ijmak, and ijtihad to be the primary authorities and aims to develop a conception of nature in order to strengthen religious beliefs, in this case Islam, 'irfânî considers text (nas), ijmak, and ijtihad to be the primary authorities and aims to develop a conception of nature in order Meanwhile, 'irfân has established al-kasyf as the sole means of acquiring knowledge. As a result, burhân places a greater emphasis on the natural force of humanity, which manifests itself

**CONCLUSION**

Based on problem formulation and research results, it is known that there is an effect of the Earth Science System in the Community learning model assisted by Avenza Maps application for watershed conservation materials on students critical thinking ability.

Based on the conclusion, the proposed suggestion is as follows: (1) for Geography teachers is expected to implement the EarthComm learning model assisted by Avenza Maps application in relation to the Earth system material that demands critical thinking capabilities in it. What the teachers need to do, is

in the form of senses, experience, and reason, in order to achieve knowledge.

Burhani epistemology is a way of thinking in Arab society that relies on the natural power of humans, namely practical experience and judgment of reason, in gaining knowledge about everything. Knowledge rests on causal relationships. This way of thinking cannot be separated from the influence of the "style" of Aristotelian logic.

If the epistemology of bayân is a reason that grows from the womb of Arab culture, and if the epistemology of 'irfâni was initially a manifestation of political resistance to the authority of a group of people called ahlussunnah wal jamâ'ah, then this is not the case with the epistemology of burhânî. The presence of burhân epistemology amid Arab-Islamic civilization can be categorized as an attempt to harmonize the burhân epistemology with bayân epistemology.

As the workings of science, burhânî means deductive inference; a conclusion is drawn based on-premises. However, burhân as an area of knowledge means the world of scientific philosophy entered into Arab-Islamic civilization through translation.

Aristotle's works. Because burhân reasoning like this entered Arab-Islamic civilization to defend bayân reasoning that had been built earlier, as a form of resistance to irfân reasoning that emerged from within, theoretically burhân reasoning cannot escape from efforts to regulate the relationship between reason. bayânî and burhân reasoning at the methodological level (between nahwu science and philosophy) and the perspective level.

to plan the learning implementation according to EarthComm learning model, teachers must understand the Avenza Maps application that will be used and can operate the computer so that the implementation of learning by using this application can be done; (2) for further researchers, it is advisable to replace or add other bonded variables such as analytical thinking skills, spatial thinking skills, motivation, activity, and learning interests.

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