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The role of science and technology in the development of society and status of contemporary muslim ummah

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Abstract

Development of a society is driven by education. The type of education that a society pursues will determine its development. The distinction between the developed and developing nations is that the former vigorously pursue Science and Technology and judiciously use it to develop their nations. The developed nations with the instrumentality of Science and Technology have solved various problems and improved the conditions of humanity. The progress made by the developed nations in every aspect of human life makes the developing nations to virtually rely on them for their needs. Little wonder that Muslim nations are not included in the list of developed nations despite the position of Islam on education. The Medieval Muslims leveraged on the contents of the Qur'an that provide a science-based information, coupled with the translation of foreign knowledge, attained zenith of civilisation known as Golden Age, the epoch that coincided with the Dark Age in the entire Europe. The study examines the achievements made by the developed nations through the application of Science and Technology and the position of Islam on education and its application by Medieval Muslims. Analytical research method was adopted because the study evaluates the position of Science and Technology in the development of society and why Muslim nations are backward in Science and Technology. The study reveals that both external and internal factors were responsible for the backwardness of contemporary Muslim Ummah in Science and Technology. The study concludes and recommends that the contemporary Muslim Ummah should have a rethink about utilising the potential of the Qur'an on science-based information along with religious practice if they want to remain relevant in the 21st century.

Keywords: Challenges, Contemporary Ummah, Developed Nations, Science and Technology,

Introduction

Education plays a significant role in the development of society. One of the hallmarks of human society is the growth and progress. The growth and progress is constant because human society needs to develop. The type of

development that the society experiences in the 18th century is different from the type of development experienced in the 21st century. The level of development in the society is vary, forthe level of development in some societies is accelerated more than the level of development in other societies. This is what is responsible for having developed and developing societies. What makes some nations attained the status of developed nations is the level and type of education they pursue. The developed nations invested heavily in Science and Technology and with rigorous pursuit of Science and Technology and its utilisation they made a breakthrough in various aspects of development. With Science and Technology, development has been made in food security by overcoming any challenges that might lead to food insecurity. Transportation system has been improved upon better than what cannot be imagined in the 18th century. Business transaction has been revolutionised to the extent that people sell and buy worldwide in a twinkle of an eye without stepping out of their homes. Health care delivery system has beentremendously improved better than the way it was in the 18th century. Medication has been made availablefor deadly diseasewhich defied medical attention in 17th and 18th centuries as a result of quality of diagnosis. Indeed, the life expectancy of the people has been improved.

Contrarily, the type of education pursued by the developing nations is what is responsible for their current situation which made them to rely on the developed nations for their needs. Unfortunately, the Muslim world is classified as developing nations, the classification that belittles their status when consideration is given to the position of Islam on education. Islam prioritises education when reference is made to the first five verses of the *Qur'ān* chapter 96 and other verses. If Science and Technology are what makes the developed nations what they are today, the Muslim world also should be recognised as developed nations because the contents of the *Qur'ān* lay foundation for Science and Technology. For instance, Prophet Dāwūd was presented as the first ever technologist in the human history [Q34:10-11]. More importantly, the Medieval Muslims worked to achieve Islamic civilisation because they were scientists and they even taught Europeans Science and Technology. The germane question at this juncture is: What could be responsible for backwardness of contemporary Muslim *Ummah* in Science and Technology when their forefathers were in the cutting edge of Science and Technology during the Medieval Period?

Food Security as an Indicator for Development of Society

Development of any nation is determined by its ability to feed its teaming population and to feed other nations. In view of this, food security becomes

a preoccupation of every nation. Food security is defined as the availability of adequate food at community or household level, national and global levels. Food security is characterised by availability, accessibility, utilisation and stability (Nafees et al, 2021). Food security is an integral part of human life because it influences society in many ways. It is a major contributor to human physical well-being, economic growth and political stability. This makes nations of the world to make food security a priority. Understanding the role of food security in combating hunger necessitated the organisation of conference in 1974 by Food and Agricultural Organisation (FAO) of the United Nations.

It must be established that food security can be threatened by population explosion, climate change that has drought as its concomitant effects, absolute reliance on the manual equipment of farming as it is common in most African countries. It is a fact that some developing countries suffer from food insecurity due to one or more of aforementioned factors. Thomas (2006) defines food insecurity as "when people do not have adequate physical, social or economic access to the sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life". This situation has made many developing countries to depend on the developed nations in feeding their populations. The developed nations through the instrumentality of Science and Technology break the barrier of food insecurity.

To combat food insecurity and promote food security, three types of technologies which include biotechnology, nanotechnology and synthetic biology have been receiving academic attention (Wallace, 2020). Application of these types of technologies has a great impact on crop improvement, crop protection, sustainable livestock farming and fishery and aquaculture (Beddington, 2010). The developed nations that keep abreast with Science and Technology not only that they are able to feed their citizens they are equally able to feed other nations that are lagged behind in Science and Technology. For instance, North African and Middle East countries import more than 50% of their cereals from Russia and Ukraine. Similarly, Eastern African countries import 72% of their cereals from Russia and 18% from Ukraine (Tyczewska et al. 2023).

Advanced Transportation System as an Indicator forDevelopment of Society

Mobility is an essential feature of human beings. From the time immemorial, donkey, horse, and camel were used as a means of transportation that people relied upon in transporting both human beings and goods from one place to another. As the society progresses, using of animals as a means

of transportation became ineffective when the need to convey a large number of people and large quantity of goods arises. More importantly, the need to cover a long distance in a short period without stress made people to quest for more efficient means of transportation and this led to discovery of carts and carriage although still driven by animals. In the 18th century, the emergence of industrial revolution brought a significant changes in transportation system. Industrial Revolution first started in Europe especially in Great Britain while other European countries and United State of America joined Britain in the competition of Industrial Revolution. The discovery and application of machine associated with Industrial Revolution led to the drastic change in the transportation system. The industrialised nations began to invent an effective transportation system such as railway, vehicles, ship and airplane (Ali and Odey, 2020). With the knowledge of Science and innovation, these means of transportation keeps improving day-by-day to the extent that the railway discovered in 18th century has been replaced with high-speed rail and magnetic levitation.

Digital Economy as an Indicator forDevelopment of Society

Economy is a prime mover of every nation andthat is why the development of a nation is determined by its economic growth. Trading began in form of trade-by-barter but with the introduction of currency, trading becomes more convenient and interesting. The existence of international trade allows nations to transact business among themselves. This becomes necessary because some nations depend on the other nations to get their needs. For instance, some nations need crude oil while others need manufactured products because they lack the technology that can provide them with these manufactured products.

As nations engage in international trade so also private companies and individuals engage in it. The most challenge faced in trading whether local or international is how to sell or buy the needed products. Consumers whether companies or individuals needed to move from one shop to another or from one country to another before they can satisfy their needs. The manufacturers, on the other hand, face the challenge of how to get wider coverage for their products. The difference between the business transaction done in 18th or 19th century and 21st century is the introduction of digital economy. Digital economy"refers to the use of information technology to create, adapt, market and consume goods and services that are based on the use of information technology, in order to make money"(Oliver, 2023).

Digital economy has enhanced all sectors of the economy by increasing productivity and making business transaction to become seamless. Transacting business online opens doors of many opportunities to both sellers and

consumers without experiencing any rigour. A product advertised online can be seen in any part of the world instantly. A consumer who needs a particular products in any part of the world can access such product without leaving his comfort zone. The countries that are fully involved in digital economy witness tremendous economic growth than the countries that are yet to fully engage in it. The burden of carry large sum of cash around or visiting bank before business can be transacted has been replaced with cashless business transaction. It must be emphasised that the operation of digital economy is made possible through information and communication technologies (ICT).

The entire world was saved from the economy collapse through digital economy during the outbreak of Covid-19 pandemic. International traveling and social gathering were banned with objective of containing the spread of pandemic. This adversely affected traditional business transaction*modus operandi*. Had it been there was no alternative means of doing business, the world economy would have witnessed a great set back. Despite the lingering of this pandemic, business transaction thrived favourably by resorting to e-commerce.

Akpama et al. (2022) noted that Covid-19 has potentially changed the Nigerian economy with heavy reliance on the e-commerce which potentially reduces the cost of doing business and boosts economic growth in the country.

Good Health Care Delivery as an Indicator for Development of Society

Science and Technology have tremendously revolutionalised the health care system of contemporary society. Treatment of disease and injury in the 21st century has taken different dimensions compared to what was obtainable in the 18th or 19the century. Medicine and medical technology has become the antidote for illnesses and diseases that formerly resulted in the destruction of entire societies(Laal, 2013).Modern medical science has improved the quality of life, life expectancy and diagnosis of illness. Prior to the innovation in the medical sciences, the physicians relied on crude surgical instruments in carrying out surgery and treating of their patients. With innovation in Science and Technology, a breakthrough was made in the medical sciences by discovering various medical instruments such as thermometer, stethoscope, microscope, ophthalmoscope, laryngoscope, and x-ray**(Laal, 2013:385)**.With the discovery of these instruments, doctors have made great achievements in carrying out proper diagnosis and treatment of deadly ailments. Raiser, (1978) in Laal (2023) submits that "stethoscope was considered the first diagnostic device used to obtain information about the lungs and heartbeats of patients". This is a great feat ever recorded in the field of medical sciences

because hitherto, any lungs or heart related diseases usually leads to death as physicians were handicapped in treating such ailments.

In the recent time, Artificial Intelligence (AI) has been introduced into the field of medical sciences because of its potential in diagnosis and treatment of ailments. Undoubtedly, the use of AI in medical sciences will shape the practice of medicine in the future beyond the human imagination. According to Ibragimov, Wang, and Xing, AI can be applied in radiology and radiation therapy for image classification, object detection, image reconstruction and analysis, image guidance, tumor detection and characterization, therapeutic response and toxicity prediction, treatment decision-making, and related tasks(Vatandsoost and Litkouhi, 2019:2).

The advanced nations that have advanced in Science and Technology have the best health care delivery in the world which makes the developing nations that lag in Science and Technology to heavily rely on them for treatment and the supply of the medical equipment. A nation is yet to develop if it relies on other nations for its health care delivery system.

Islam and Science and Technology

Education is one of the priorities of Islam as this is indicated in the first five verses of *Sūrah al-ʿAlaq, Qurʾān* (chapter 96)earlier referred to. According to these verses, literacy is emphasisedby mentioning reading and writing which is denoted by the word "pen". Allah created human beings for two purposes. The first purpose is to worship Allah which is mentioned in *Sūrahadh-Dhāriyāt* [Q51:56] but the second purpose is not mentioned but is understood when Allah taught Prophet Adam the knowledge that would make him survive in this world. "And He taught Adam the names…" *Sūrahal-Baqarah* [Q2:31]. Allah charges mankind to explore the natural world by asking mankind to reflect upon the creation of the natural world. "Indeed, in the creation of the heavens and the earth and the alternation of the night and the day are signs for those of understanding" *Sūrahal-Imrān* [Q3:190]. The word "those of understanding" in the verse refers to those who have knowledge because the exploration of the natural world cannot be achieved without knowledge.

Immediately the Prophet settled down in *Madīnah,* one of the things he focused his attention on was education. The prisoners of battle of *Badr* were charged to teach Muslim children reading and writing as ransom especially those who didn't have a means of paying ransom. This was regarded as impetus that galvanises the establishment of school in the Mosque of the Prophet. There were many centres for learning, prominent among them besides the Prophet's Mosque was *Quba* Mosque, which was first built by the Prophet

during his migration. It was reported that the Prophet used to go there for an instruction(Abdullahi, 2020). A place at rear side of Prophet's Mosque called *Ṣaffa* was designated as centre of learning. It was also used as boarding facility for those who came from far. ʿUbadah bin Sāmit was the principal of the school. Abū Hurayrah,ʿAbdullāh bn Masʿūd, ʿAbdullāh bn ʿUmar etc. were all students who graduated from this school. The courses taught included the *Qurʾān* and art of writing. Rhetoric and poetry, which were part of *Jāhiliyyah* curriculum were not taught. The Prophet recommended extra-curricular activities such as archery, swimming, horse race, wrestling etc. The only method of teaching was learning by heart. The pupils memorised the *Qurʾān* and graduated as *Ḥuffāz* and *Qurra*. The graduates of the school were held in high esteem and they were sent as teachers to teach the *Qurʾān* in various provinces.

Teaching and learning foreign languages was included in the curriculum. The need for this arose because of exchange of correspondence between the Islamic State and foreign rulers, which involved signing of treaties and policy documentation. The need to have the intelligence officers to work as spy in the foreign lands also necessitated the learning of foreign languages. In view of this, several secretaries of the Prophet learned appreciable number of foreign languages such as Zayd bn Thābit who learned Persian, Latin, Greek and Hebrew. ʿAbdullāh bn Zubayr was equally proficient in foreign languages.. (Mazar-ul-Ḥaqq, 1990)

The nature of Islamic education from the era of the Prophet to the end of era of Umayyad Dynasty was purely religious. However, this nature changed during the era of Abbasid dynasty when the secular education was introduced into the Islamic education. The rulers of Abbasid such as Hārūn Ar-Rāshīd (786-809CE) and his son, Al-Maʾmūn (813-833 CE) allowed the exchange of foreign knowledge such as Philosophy, Logic, Alchemy, Astronomy from Greek with Islamic education.

The duo exhibited uncommon traits of leadership which made the realisation of Golden Age possible. The major factors were liberality, unrestricted freedom for creativity, encouragement of meritocracy irrespective of religious, cultural or tribal affinity. Hārūn and Māʾmūn were highly liberal by disregarding indiscrimination against any form of knowledge irrespective of its source. This quality endeared their courts for patronage of galaxy of outstanding scholars both Muslims and non-Muslims from every nook and cranny of the empire. Unrestricted freedom for resourcefulness was encouraged by intellectual debates among the scholars of various disciplines such as Science, Literature and Theology. The intellectual debates were made spectacular by the involvement of Caliphs who presided over the debates. The

spirits of learned men were rekindled by getting motivating allowances, foods and refreshments were in adequate supply even at royal scale throughout the days. The intellectual debates were given utmost priority by both Caliphs and men of knowledge as a result, Tuesday was set aside for the exercise..(Mazar-ul-Ḥaqq, 1990)

During the reign of Mā'mūn, the Golden Age reached its peak because of the emergence of outstanding scholars in various disciplines and the establishment of *Baytul-Ḥikmah* (House of Wisdom) in 830CE in Baghdad. The impetus for making religious principles conform to judgment of rationality galvanisedMā'mūn to show interest in philosophy, the knowledge of Greek. A step towards achieving this necessitated translation of foreign knowledge into Arabic. Hence, frantic efforts were made in searching for manuscripts of Greek philosophers, historians and geometricians in places like Egypt, Syria and Palestine. The achievement of this herculean task was made possible by the liberality of *Mā'mūn* by employing the services of Jews and Christians for Greek knowledge, Zoroastrians for the knowledge of Persian and Hindus for the knowledge of Sanskrit. Thus, *Baytul-Ḥikmah* served as library, academy and translation bureau. The remarkable achievement in science was the establishment of first observatory in the annals of Islam located at *Shammassia*. With this observatory in place, the study of astronomy became efficient and successful. (Hitti, 2002 andMazar-ul-Ḥaqq, 1990)

George Sarton in a book titled "Introduction to the History of Science II" acknowledged the effort of Mā'mūn in the area of translation of knowledge thus;

> During the reign of Caliph Al- Mā'mūn (813-33A.D), the new learning reached its climax. The monarch created in Baghdad a regular school for translation. It was equipped with a library, one of the translators there was Hunayn Ibn Isḥāq (809-77A.D), a particularly gifted philosopher and physician of wide erudition, the dominating figure of this century of translator. We know from his own recently published memoir that he translated practically the whole immense corpus of Galenic writings. (Ettu, 2011: XX).

It is to be noted that the work of translation only helped the early Muslims in given birth to the idea that the *Qur'ān* had deposited in their minds or the spirit of inquiries that the *Qur'ān* and *Sunnah* have injected into their psyche. The *Qur'ān* makes references and draws the attention of Muslims to the exploration of the natural phenomenon. Making reference to the creation of man [Q22:12-14], the sun, the moon, the stars [Q7:54], the heaven, the

earth, the alternation of the day and night [Q3:190], the wind, [Q45:5] the mountain[Q78:7], the seas and the rivers[Q35:12], which permeated the pages of the *Qur'ān*, as signs of the existence of Allah, serve as impetus for Muslims to carry out extensive study about them. The works of translation is just like an external factor in realising this idea. Charis Hidayat et al. (2013) opine that one eighth of verses of the *Qur'ān* concentrate on the natural phenomenon which direct the attention of Muslims to engage in activities that led to development of Science. Hence, Islam merges religion with Science. Shogar (2011) notes that Muslims intellectuals of the early Islamic history reached the peak of civilisation and scientific knowledge because they were primarily motivated by the *Qur'ān* and the *Sunnah* through knowledge inquiry which encouraged them to embark on the translation of Greek, Indian and Persian knowledge.

The Medieval Muslim scholars in Baghdad and Spain made unprecedented contributions in various fields of science. Al-Khawarizmī (780 -850 CE) was regarded as mathematician who first introduced algebra into Mathematics. Ibn Al-Haythām (965-1040CE) was known as pioneer whose study on optics made a significant contribution to Physics. Jābir bn Hayyan known as Geber in the West was the father of Chemistry. What is known today as Chemistry metamorphosed from alchemy. Ibn Hayyan made many contributions to Chemistry especially in the area of preparation of acid for the first time, notably nitric, hydrochloric etc. Al-Birūnī (973-1048CE) made many contributions in the field of Astronomy and Geography. He worked on geodesy, cartography, geology and mineralogy. Ḥunayn bn Isḥāq (809-77CE) who was the director of *Baytul-Ḥikmah*after he had translated a lot books onmedicine, hewrote many books on medicine. One of such books was the one he wrote on ophthalmology and anatomical drawings which was translated into Latin and for centuries was used in both European and Middle East universities. Ibn Sīnā (980-1037CE) known as Avicenna in the West, was a philosopher and physician. One of his contributions to medicine was his book *al-Qānūn fī al-Ṭibb* (Canon in Medicine). The book describes among other things 760 drugs with comments on their application and effectiveness. The Arabic text of the Canon was published in Rome in 1593 (Hitti, 2002 and Ettu, 2011).

Abū al-Qāsim Khalaf Ibn ʿAbbās al-Zaharawīknown in the West as Abulcasis or Zahravius (936-1013) was an *Andalusian* physician, surgeon, chemist, cosmetologist, and scientist.Az-Zahrawīintroduced over 200 surgical tools used in performing various surgeries. He gave detailed descriptions of using probes, surgical knives, scalpels and hooks. He also devised and invented surgical scissors, grasping forceps and obstetrical forceps (Ali, 2021).

The first attempt at a flight was carried out by a Medieval Muslim known as Ibn Firnas (810-887CE). Ibn Firnas, having invented a hang glider with artificial wings as flight control surfaces, flew for about 10 minutes seen by people and he was able to return from where he took off only that he crush landed due to lack of tail. He was criticised by not paying attention to the way birds fly and land on their tails.

The Medieval Muslims made outstanding contributions to philosophy. Al-Kindī (801-873CE) incorporated Aristotelian and Neo-Platonist thought into an Islamic philosophical framework. Al-Farābī (d.950CE) was known as second master after Aristotle. He was the first Muslim logician to develop non-Aristotelian logic. Al-Farābī wrote commentaries on Aristotle's works and Plato. One of his outstanding works was Al-Madīnah Al-Fāḍilah where he theorised an ideal state as in Plato's Republic. Other Muslim philosophers include Ibn Sīnā,Ibn Rushd (Averroes), Al-Ghazālī among others. (Hitti, 2002 and Ettu, 2011,)

The Golden Age in the history of Islam was regarded as the zenith of Islamic civilisation whereas the period coincided with Dark Age in the West. It was regarded as Dark Age because any scientific advance was antagonised by the church and tagged as heresy. Scientists were persecuted and their books were burnt and people were prevented from reading any book on science. During 16th and 17th centuries, Nicholas Copernicus and Galileo Galilei were two scientists who suffered the persecution of Catholic Church priests on the account of their heliocentric theory which goes against the belief of church that the earth is the centre of the universe. The books written by these scientists were banned and they were declared sinners which warranted their inquisition(Adedeji and Abdul-Raheem, 2023).

From the foregoing, it is clearly indicated that the medieval Muslims were in the vanguard of Science and Philosophy. Going by this standard, Muslims are supposed to be competing with the West in terms of Science and Technology and their nations are supposed to be among the developed nations today. Unfortunately, the contemporary Muslims are backward in Science and Technology. The question that begs for answer up to this moment is, why Muslims are backward while others are advanced despite their past glory in education and civilisation?

Causes of Muslims' Backwardness in Science and Technology

Science and Technology play a dominant role in the development of society. The advanced nations of the world were ranked to the level of advancement through the application of Science and Technology in revolutionising every facet of human life. The causes identified to be

responsible for Muslims' backwardness in Science and Technology have been viewed in two perspectives, namely, internal and external.

During the Medieval Era, Baghdad and Spain were the centers of Islamic civilisation due to the existence of Muslims scientists who expanded the frontier of scientific knowledge. Before the invasion of Mongol on Baghdad in 1258 CE, Muslims had divided against themselves politically and religiously. The rise and fall of petty dynasties weakened the central power of the Abbasid political system. Religious differences resulted into the splitting of Muslim *ummah* into different groups. There were *Sunnī, Shīʿah,* Ismailism, Carmatians, Muʿtazilites and Kharijites. Each of these groups accused one another of heresy and as a result, things fall apart and the center could no longer hold. Mongol seized this opportunity to invade Baghdad in 1258CE, massacred about two million Muslims. The physical infrastructure such as libraries, laboratories, scientific institutions were utterly destroyed. The books from *Baytul-Ḥikmah* were either burnt or dumped into the Euphrates River used as a bridge by Mongol soldiers to cross to the other side of Euphrates River. The enormity of these books turned the water of Euphrates into black. Similarly, Spain suffered the same destruction when Ferdinand and Queen Isabella took over Spain in 1492CE. The reason for this was not different from the situation in Baghdad before the attack of Mongol. Muslims were mercilessly massacred and those tried to escape to Africa boarded the ships with their valuables and books were sunk in the sea before reaching Africa. (Najeebabadi 2001 and Ettu, 2011). This destruction of human and material resources led to a great set back of Muslims in the field of Science and Technology.

It was opined that the internal factors had debilitating effects on the Islamic civilisation more than the external factors. Shogar (2011) identifies five factors as internal causes that led to the backwardness of Muslims in Science and Technology.These factors include:

Lack of Tendency for Scientific Quest

After the collapse of Baghdad and Spain, the surviving Muslims restricted themselves to religious knowledge and discouraged freedom of thinking which forms the basis for Science. Although, before the collapse of these two centers of Islamic civilisation, there were obscurantists who called for conformism. It would be recalled that Hārūn Ar-Rashīd and Mā'mūn encouraged freedom of thinking and liberalism which culminated in Islamic civilisation. Philosophy which is regarded as mother of all disciplines was embraced by the medieval Muslims. However, some Muslims vehemently opposed philosophy and logic because they believed that it is antithetical to

Islamic theology. Ibn Khaldūn remarks that;

> The early Muslims and early speculative theologians greatly disapproved the study of this discipline (Logic) they vehemently attacked it and warned against it. They forbade the study and teaching of it…. **(Chejne, 1974:320)**

It was asserted that the backwardness of Muslims in Science and Technology was as a result of their rejection of Philosophy which is the mother of all disciplines.

Habituation of Easy Gain and Luxurious Life

It was observed that the founders of every dynasty usually worked very hard in consolidating the dynasty. They built the dynasty on strong foundation by encouraging intellectualism and hard work. However, their successors usually undermined this zeal and determination because they found themselves in the abundance of wealth bequeathed for them by their forefathers. The luxurious life turned them indolent to the extent that they avoided physical efforts that could lead to the gain of knowledge. The scientific research cannot grow in a community dominated by the people with the spirit of indolence. Shogar (2011) cited Ibn Khaldūn who observes that "all scientific endeavour requires prolonged research concentration and hard work without any prospect of immediate gain"

Static View on Creativity

It must be pointed out that Science and Technology are products of creative thinking. The creative thinking applied by the Medieval Muslims helped them to expand the frontier of knowledge which resulted in the emergence of various disciplines. The source of their inspiration was the policy of Hārūn Ar-Rashīd and Mā'mūn who encouraged creative thinking which made the latter to espouse the doctrine of *Mu'tazilite*. Unfortunately, the Renaissance Muslims replaced the creative thinking with blind imitation. Also, the mentality of avoiding *bid'ah* made them to oppose any innovative idea. Many historians of science blamed some Muslim theologians for being conservative on innovative ideas needed for the progress of human society. Shogar (2011) citing Abdus-Salam who holds the view that "the demise of living sciences in the Islamic civilization was mainly due to the isolation of scientific enterprise and discouragement of innovation".

Irrelevant Classification of Sciences

It is an undisputable fact that the content of the *Qur'ān* provides a science based information. This has been attested to by Muslims and non-Muslims scientists. For instance, Amuda (2024) opines that Allah inspires mankind to think, reflect and meditate about making things out of materials which he believes to be the foundation that inspired material science. However, contemporary Muslims classify knowledge into religious (*Ukhrawī*) non-religious (*Duniyāwī*). In view of this, more attention is paid to religious knowledge than non-religious because of the fear that non-religious knowledge might make Muslims forget hereafter. Having this thinking, makes Muslims to ignore the other aspect of information contained in the *Qur'ān* that encourages the exploration of the natural phenomena. For instance, water as origin of life and the Big Bang Theory, (Q21:30), the mountains as stabiliser, (Q21:31), development of embryo, (Q23:12-14), the expanding universe (Q51:47), barrier between seas (Q55:19-20), just to mention but a few. Apparently, this might be regarded as one of the factors responsible for Muslim backwardness in Science and Technology.

Lack of Financial Support for Sponsoring Science and Technology

The feat made in establishing Golden Age in the annals of Islam could be attributed to the policy adopted byHārūn Ar-Rashīd and Mā'mūn by sponsoring scholarship. The spirits of learned men were rekindled by getting motivating allowances, foods and refreshments were in adequate supply even at royal scale throughout the days. The establishment of *Baytul-Ḥikamh* during the reign of *Mā'mūn* and *Niẓamiyyah* research institute during the era of Mālik Shah one of the Caliphs of Seljuq Dynasty was made possible by making grant available for scholars. (Mazhar –ul-Haq. 1990).

Contrarily, from the Renaissance till the 21st century, Muslims are yet to build on the legacy bequeathed by their predecessors. Unlike European that earmarks larger percentage of money for Science and Technology, Arab nations rather than channel the wealth of their oil to sponsoring of Science and Technology, it is the construction of fabulous cities, magnificent mosques and sumptuous shopping mall that are given priority.

Conclusion

With Science and Technology, advanced nations have made tremendous achievements in human and material development. They have used Science and Technology to break many barriers in terms of food security, digital economy,

and good health care delivery among others. These lofty achievements have made other developing nations to rely on them for their needs.

Islam gives priority to education as indicated in the first five verses of *Qur'ān* chapter 96. The contents of the *Qur'ān* provide a science based information which encourages Muslims to seek knowledge that will empower them in exploring the natural phenomena. The Prophet demonstrated the importance of education to Muslims by making literacy as substitution for ransom for captives of battle of *Badr.* The Prophet did not relent in his efforts in advancing the course of education till his death. Religious education was given priority till the era of Abbasid when the secular education started gaining attention due to the translation of foreign knowledge. The Medieval Muslims, in addition to religious knowledge, emerged as scientists, medical scientists, philosophers, geographers and astronomers among others. This period was regarded as Golden Age in Islamic civilisation, the era that coincided with Dark Age in Europe.

With the collapse of Baghdad and Spain, the two notable centers of Islamic civilisation, Muslims took a back stage in Science and Technology while Europeans became the promoter of Science and Technology. Certain factors were identified as hurdle holding the contemporary Muslim *Ummah* behind from competing with Europeans in Science and Technology which includelack of tendency for scientific quest, habituation of easy gain and luxurious life, static view on creativity, irrelevant classification of sciences, lack of financial support for sponsoring Science and Technology.

Recommendations

The contemporary Muslim *Ummah* have no option than to give priority to Science and Technology if they want to remain relevant in the 21st century. In order to achieve this, the following recommendations must be considered.

- The knowledge of Science and Technology must be pursued together with religious knowledge as twin subjects since the contents of the *Qur'ān* provide a science based information.
- The achievements of Medieval Muslims be included in the school curriculum to serve as inspiration or impetus for the younger generation of Muslim *Ummah*.
- Contemporary Muslim *Ummah* must realise the difference between the innovative thinking and religious innovation.
- The Arab nations need to emulate the European nations in financing science and technology based projects.
- Lastly, contemporary Muslim *Ummah* needs to develop the spirit of

quest for Science and Technology.

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