THE SCIENTIFIC REVOLUTION OF THOMAS KUHN AND THEIR RELEVANCES FOR HUMANIZATION OF ISLAMIC LAW

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Abstract

This paper tries to explore the views of Thomas Kuhn that science is moving through the stages that will culminate in normal conditions and then "rot" because it has been replaced by science or new paradigm. So next. The new paradigm threatens the old paradigm that had previously become the new paradigm. With this thinking concept, Thomas Kuhn is not just a major contribution in the history and philosophy of science, but more than that, he has initiated the theories that have broad implications in the social sciences, arts, politics, education and even religious sciences , provide an important contribution in order to project humanization Islamic sciences. in showing Islamic humanist deconstruction re the primary sources of Islam, namely the Qur'an and Tafseer already should keep abreast of the needs of Muslim humanist paradigm so that the functional interpretation theories and theories of literacy is very possible to grow, to challenge the needs of the times.

Keyword: *Paradigm, Humanization, Interpretation.*

A. Introduction

Still fresh in our minds that there is *shifting Paradigms* in the discourse of logic and metaphysics. Logical thinking has evolved from Aristotle's formal logic, mathematical logic, Descartes, Kant's transcendental logic, symbolic logic to Pierce. In metaphysics eruptions also occur the ideas of *being qua being* (rationalism), *being perceived as a being* (empiricism), *being nothing and Becoming* (phenomenology), *being and time* (existentialism), to *being as process* (pragmatism) (AC Ewing, 2003: 11-14; and Noeng Muhadjir, 1998).

The emergence of a book "Structure of Scientific Revolutions" in 1962, which are created by a man who was born in Cincinnati, Ohaio. He is Thomas Kuhn. He studied Physics at Harvard University in 1922, then continued his studies in graduate school, and decided to move into the field of the history of science.

"Structure of Scientific Revolutions", a lot of changing people's perceptions of what is called science. If some people say that the movement is linear science-accumulative, it is not the case in vision Kuhn. According to Kuhn, science is moving through the stages that will culminate in normal conditions and then "rot" because it has been replaced by science or a new paradigm. Similarly further. Paradigm a new threat to the old

paradigm that had previously become the new paradigm (John Cottingham, 1996: 349-350).

The paradigm of positivistic epistemology has been entrenched for decades in the history of the development of knowledge (epistemology), until after about two or three decades emerging new developments in the philosophy of science as an effort to break-up the old theories. Break-up of knowledge the positivistic philosophy of science was pioneered by figures such as Thomas Kuhn, Toulmin Stepehen and Imre Lakatos (Zubaedi *et.al*, 2007: 198). The characteristics that distinguish this new model of the philosophy of science with the previous models is that there is great attention to the history of science and the role of science in an effort to get as well as constructing forms of science and scientific events that actually happened. The history of science is basically a discipline relative still new. Its development at the beginning of the field is handled and developed by experts from other disciplines, such as physics, wich in recent decades the field of the history of science has been handled by people who are particularly concerned in this field. (Verhak and Imam R. Haryono, 1989: 163). Thomas Kuhn himself with his physics background trying to give discourses on the history of science as the *starting point* and the main spectacles highlighting the fundamental issues in epistemology that is still an enigma. The clarity and intelligence of his mind, he asserts that science is basically over and paradigm characterized by the revolution that followed.

This thinking concept, Thomas Kuhn is not just a major contribution in the history and philosophy of science, but more than that, he has initiated the theories that have broad implications in the social sciences, arts, politics, education and even religious sciences etc.

Therefore, discussion of this paper, I will focus on the scientific revolution that has made Thomas Kuhn and relevance for humanization of Islamic religious sciences.

B. Discussion

1. Biography of Thomas Kuhn

Thomas Kuhn was born in Cincinnati, Ohio to Samuel L. Kuhn, an industrial engineer, and Minette Stroock Kuhn. He holds a BS in the field of physics from Harvard University in 1943, and the MS and Ph.D. degree in physics in 1946 and 1949, respectively. As he states in the first few pages of the preface of the second edition of The Structure of Scientific Revolutions, three years of total academic freedom as a Junior Fellow at Harvard was crucial in allowing

him to switch from physics to history (and philosophy) of science. He then taught courses in history of science at Harvard from 1948 to 1956 at the university presidents suggestion James Conant. Upon leaving Harvard, Kuhn taught at the University of California, Berkeley, both in the department of history and philosophy department, named Professor of History of Science in 1961. At Berkeley, he wrote and published (in 1962) of the best known and most influential: The Structure of Scientific Revolutions (Alexander Burung, 2004). In 1964, he joined Princeton University as Professor M. Taylor Pyne History of Philosophy and Science.

He joined the Massachusetts Institute of Technology (MIT) as S. Laurance Rockefeller Professor of Philosophy In 1979, staying there until 1991. Kuhn interviewed and taped Danish physicist Niels Bohr Bohr days before death. Records containing the last words of Niels Bohr caught on tape. In 1994, Kuhn was diagnosed with cancer of the bronchial tubes, where he died in 1996. Thomas Kuhn has been married twice, first to Kathryn Muhs (with whom he has three children) and then to Jehane Barton (Jehane R. Kuhn).

2. Framework of Thomas Kuhn's epistemology.

a. Science History Of Urgency.

In the introduction I mentioned above that the figure of Thomas Kuhn was initially as a physicist in the development steeped in the history of science and philosophy of science. Because so enthusiastically to the awareness of the importance of the history of science, he even claimed that philosophy of science should be studied to a new history of science.

In the 1950's, when Kuhn began the study of history of science, history of science is still young academic discipline. Nonetheless, it became clear that scientific change is not always directly as a standard, the traditional view would have it. Kuhn is the first and most important writer to articulate an alternative developed value in the philosophy of science. Kuhn fully aware of the importance of innovation to his philosophy, and work is called 'history for philosophical purposes' (Thomas Kuhn, 1970: 276).

Thomas Kuhn's notion is both a response to the approach of Popper's philosophy of science. According to Kuhn, poppers distort reality by first outlining the empirical sciences with the hypothesis that followed the attempts of falsification. But Popper instead put the history of science as an example to

justify his theory (Verhak and Imam R.Haryono, 1989: 165).

This is in sharp contrast with the mindset of Thomas Kuhn who prefers the history of science as the starting point for any inquiry. Thus the philosophy of science is expected to be getting closer to the reality of science and scientific activity of real. The urgency of history of science proves theories or systems, can deliver progress of scientific revolutions. According to Thomas Kuhn that scientific advances that are revolutionary in the first place, not forward cumulatively.

b. Paradigm and Normal Science

Thomas Samuel Kuhn (1922-1996) once wrote extensively about the history of science and developed several important ideas in the philosophy of science. He is most famous for his book *The Structure of Scientific Revolutions* in which he expressed the idea that science does not "evolve gradually towards the truth", but instead undergo periodic revolution, which he called *a paradigm shift*. Kuhn's analysis of the history of science to show him that the practice of science comes take into three phases, namely:

1) The first stage, pre-scientific, which experienced only once where there is no consensus on any theory. Explanation this phase is generally characterized by some theories those do not fit and are not exhaustive. Finally, one of these theories are "winning".
2) The second phase, *Normal Science*. A scientist who works in this phase has overriding theory (set theory) which Kuhn called a paradigm. In normal science, the scientist's job is complicated, expand, and further justify paradigm. Eventually, however, problems arise, and the theory is modified in an ad hoc manner to accommodate experimental evidence that might seem to contradict the original theory. Finally, the current explanation of the theory fails to explain some phenomenon or group thereof, and someone suggested replacement or redefinition of theory.
3) The third stage, *a paradigm shift*, ushered in a new period of revolutionary science. Kuhn believes that all scientific fields through this paradigm shift numerous times, as new theories replace old ones.

For instance the phenomenon of a shift in paradigm is about suggestion Copernicus that the earth revolved around the sun, not the suggestion of Ptolemy that the sun (and the other

planets and stars) revolve around the earth. Before Copernicus was a complex set of epicycles (circles upon circles) are used to predict the movement of the 'heavens'. Epicyclical original Ptolemy combination, by the Middle Ages, being seen less than adequate, and the 'fix'; by astronomers then more and more complicated. Copernicus offers a return to the alternative view (suggested by many people in Antiquity), but the more data the better to support it; account lowers the complexity of this new theory is needed to explain the observations available. course, once by Copernicus 'theory was accepted by other astronomers, it is the period between the entry of new 'normal science'. Refinement added by Kepler and Newton adhered to the new paradigm. Other examples are more recent acceptance of Einstein's general relativity to replace Newton about gravity in 1920 and 1930, and Wegener's plate tectonics in 1960 by geologists.

According to Kuhn, the science before and after a paradigm shift is so much different to see their theories *unrivaled* - a paradigm shift not only changed one theory, it will change the way that the words are defined, the way scientists look at their subject, and perhaps The most important questions are considered valid, and the rules used to determine the truth of a particular theory.

Another example of a paradigm shift in the natural sciences is some "classic cases" of Kuhn's paradigm shifts in science are:

1) Acceptance of the theory of biogenesis, that all life comes from life, as opposed to the theory of spontaneous generation, which began in the 17th century, and not until the 19th century with Pasteur.
2) Acceptance of the theory of natural selection Charles Darwin was replaced Lamarckism as a mechanism of evolution.
3) The transition between the worldview of Newtonian physics and Einstein's relativistic worldview.

As for example in the field of social sciences such as about: The Keynesian Revolution is usually seen as a major shift in macroeconomics. According to John Kenneth Galbraith said, Law before Keynes dominated economic thinking for more than a century, and a very difficult transition to Keynesianism. Economists are contrary to the law, which concluded that underemployment and lack of investment (plus over saving) is not possible, risk losing their careers. In his magnum opus, Keynes cited one of his

predecessors, JA Hobson, who repeatedly denied the position at the University for the False Theory. Monetarists found that fiscal policy is not important for the stabilization of the economy, in contrast with the Keynesian view that both fiscal and monetary policies are essential.

The central concept of the theory epistemology, philosophy of Thomas Kuhn was named to the term "paradigm". The term is not defined consistently, resulting in a variety of frequently changing his statement context and meaning (Thomas S. Kuhn, 1970: 10). There are two fundamental differences in the terms used by Kuhn's paradigm, namely:

1) The paradigm is what we would describe the behavior of the test members of the scientific community that had been predetermined.
2) The paradigm is used as a whole constellation of beliefs, values, techniques, and others who have done community members who have been recognized (Alan E. Musgrave, 1980: 44).

This paradigm guiding scientific activities during *normal science* [16] , where the scientists the opportunity to define and develop a detailed and in-depth, as preoccupied with the basic stuff. At *normal science* "gives meaning to explicitly study based on one or more past scientific achievements, achievements that the scientific community to recognize certain while as providing a basis for further practice. "In this stage, a scientist was not being critical of the paradigms that guide scientific activity, and during the run of this research, scientists can find a variety of phenomena that can't be explained by the theory. This is called *anomaly*. The concept of paradigm to help the scientific community to *tie* their discipline in helping scientists to: (Thomas S. Kuhn, 1970: 10)

1) Make the inquiry.
2) Formulate a question
3) Choosing the methods used to examine these questions
4) Defining areas of relevance
5) Construct / create meaning.

A research paradigm guiding the whole group and this is most clearly stated criteria fields. Various transformation paradigms of revolutions from the part of science, while the successive transition from one paradigm to another paradigm through a revolution is the development of a common and a mature science.

c. Anomaly and The Emergence of New Discovery.

Data anomalies plays a major role in bringing about a new discovery that begins with scientific activities. In this connection, Kuhn describes the two kinds of scientific activity, namely:

1) Puzzle solving

   In solving the puzzle, the scientists make observations and conduct experiments that aim to suss out the puzzle, not the search for truth. If the paradigm can not be used to solve the important issues or even the effect of the conflict, then a new paradigm must be created / generated.

2) Discovery of a new paradigm

   The new findings are not isolated events, but extended episodes with a regularly repeating structure. The discovery begins with the awareness of anomaly, ie, with the recognition that nature has somehow violated expectations driven by the paradigm of normal science master. Then he continues with a more or less extended exploration of the anomalous region. And he only ended when the theory or paradigm that has been adjusted so that it becomes distorted expected. So, the point that the invention must be no adjustment between the facts of the new theory. Of Thomas Kuhn's theory gives a different definition between discovery and invention. What is meant is the novelty factual discovery (discovery), while invention is a novelty theory (creation) both of which are closely intertwined with each other (Thomas S. Kuhn, *1970:* 53).

d. Scientific Revolution: Issues And Preferment

In the above description I have mentioned about the revolution of science (scientific revolution) that arise due to the presence of anomalies in scientific research felt worse, and the crisis can't be solved by the paradigm of research referenced. Revolutionary science here is a non-cumulative developmental episode in which summarized an old paradigm is replaced in part or whole by the new paradigm (as opposed to). A revolution of science is not running smoothly without a hitch, but often times there are pros and cons as well as the friction of the people attached to them. For example: for example, the debate between supporters of Aristotle to Galileo supporters in seeing objects swinging. Aristotle theorized that it was swinging object falls with difficulty because restrained by chains. Medium Galileo looked at the object from the side of the pendulum swing. (Thomas S. Kuhn, 1970: 116).

In the selection paradigm there is no gold standard but just adapt to community approval. Existence of scientific revolutions with argumentative theory will form the science community. Therefore, the issue of paradigm / new paradigm emergence as a result of the scientific revolution nothing but a consensus or agreement that is determined by the rhetoric in academic circles or the community itself (Zubaedi *et.al*, 2007: 205). The extent to which the new paradigm is accepted by the majority of the science community, then that is where the revolution of science (scientific revolution) will be realized. During the revolution, scientists see new things and different when using the instrument-an instrument that is very familiar to see the places he had ever seen. As if the professional community had suddenly moved to another area where the objects are very well known previously seen in a different light and also mingle with objects that are not known. Even if there are scientists or fraction scientists who did not accept the new paradigm as the basis for his research, and he remained on the paradigm that has not been dismantled legitimacy of the science, the research activities are not only a skill catalog has benefit at all. This is called the need for a scientific revolution.

e. Scientific Revolution of Thomas Khun: Their Relevance for Humanization of Islamic Law

Some Ideas for Development Discourse sciences Religion and Science to de pan with a paradigm is something that is necessary to understand the demands of the people and the times. Needs a shifting paradigm in the field of Islamic scientific epistemology of normative Islamic epistemology-textual-bayani resulting in difficulty adopting and elaborating insights and new findings in the field of science; into scientific epistemology of contemporary Islam is patterned intuitive-spiritual-irfani (the axiological) that many ethical dimensions related to the development of science; nor is patterned empirical-historical-Burhani (epistemological) that impact on the new findings (the context of discovery/ "*qira'ah muntijah*" / production of meaning) in science.

This shifting paradigm is a new synthesis between style Ghazalian (West Al-Ghazali/ the school science: al-Ghazl) with Rusydian (Ibn Rushd school/ the West: Averroes). Epistemology of classical Islamic scholarship that hinder the progress of the world sa ins findings need to be

reviewed again soon. Understanding of ijtihad as mentioned Sir Mohammad Iqbal (1981: 148) as the principle of movement can be used as a reference for efforts philosophical this paradigmatic shift (Mohammad Iqbal, 1981: 148). Because essentially every outcome of *ijtihâd* has been imprisoned by the historicity surrounding the palace dimensions, space and time, and therefore any scientific understanding of religion (including Islam) and the discourse of science will have stability, which Thomas Kuhn called normal science, and gradually crisis and push for the birth of a new scientific perspective (revolutionary science).

Thomas Kuhn thought building the scientific revolution and slogan of paradigm, more comprehensively can be applied in light of the fundamental essence or structure of the religious sciences; within Islamic theology can cover the study area tafsir, hadith, fiqh, theology and morals of others that contain various scientific argument in practice in the community.

In the map of Islamic sciences, including the science of Tafsir immature *(ghair an-Nadli),* so it is always open to be developed. Historical development of interpretation of the Qur'an can be broadly divided into pre-modern interpretation of (classical) and modern interpretations. When viewed from the perspective of Thomas Kuhn in dialectical and revolutionary interpretation of the two periods were developed using the paradigm. Paradigm is a fundamental view of the subject matter (subject matter) of the object under study. In the commentaries, the object is al-Qur 'an. So the paradigm of interpretation that is fundamental view of the Qur'an which are interpreted, with regard to what should be studied from the holy book.

The exegete of the Qur'an must use the paradigm of interpretation is done, because it inhere tone in interpretation theory that consciously or unconsciously used in the interpretation. Till the pre-modern era, there are three interpretations of the dominant theories, each with side of own paradigm, and produce *normal* interpretation abundant and influential *science* that is composed of three theories : (Hamim Ilyas, 2004: viii-xiii)

1) Technical theory; formulated in the definition which states that the interpretation is the study of how to pronounce the words of the Qur'an, meaning, the provisions applicable to it as a standalone and when in the arrangement, which meant in the sense of sentence structure al-Quran study complements about it. Theory

in emphasizing the technical stuff in the Qur'an which includes language, reading procedures, process of revelation. Examples of the application of this theory spawned many interpretations of the book are: Tafsir al-Baidhowi and Kasyaf (patterned language).

2) Accommodation theory: it is formulated in the definition which states that it is the interpretation of the study to explain the meaning of the Qur'an according to human ability. In this theory emphasized that the authority entitled to explain the Qur'an not only Prophet, Friend and tabi'in alone, but the clergy-end side dish (later) also have the right to the same authority. The emphasis of this theory is based on the explanation of the Qur'an. Examples of the application of this theory has resulted in a patterned Isyari interpretations, and philosophical.
3) Ta'weel theory: in theory this formulation can't be expressed takwil said definitively. But according to the approach of the Qur'an surah Ali Imran verse 7 ta'weel meaning of this is the ability to understand these verses that are mutasyabihat (vaguely) among the special scholar's *(al-fil Raasikhun ilmi)*. Emphasis on theory is set of the view that the Qur'an in Islam is a proposition which has the ultimate authority, so that the schools could have the power among the people and then he should have the legitimacy of al-Qur'an, by doing the verses ta'weel desired. Thus, the theory is essentially built on the paradigm legitimacy of the Qur'an. Example of the application of this theory has produced many works that partisan commentators, both in Kalam, fiqh, politics, and as a commentary ar-Razi. In history, this theory could lead to mercy for the schools and a curse for the other schools and vice versa so it can not be a solution to the problem of time.

Pre-modern interpretations generated by using the three theories and paradigms, as *normal science*, have undergone a crisis that can't be used as a reference for Muslims to answer the challenges of the times are always dynamic. Therefore, it is important to respond to the new paradigm emerged that society demands in interpreting the Qur'an that the Qur'an continues to function "*shalihun fi kulli zaman wa makan"*. By the reformers of Islam have developed new theories and paradigms in qur'anic interpretation, namely:

1) Functional theory paradigm with instructions of the Koran. This theory emphasizes the operational definition in the holy book the Koran. Examples of the application of this theory have produced a book of tafsir al-Manar work of Muhammad Abduh and Rashid Rida. This theory is also used by Fazlur Rahman in the method hermeneutiknya.Spirit interpretation afforded in this theory is the understanding of the Qur'an as a religious show that brought people to the teachings of their happiness in this world and the hereafter. Study beyond it just being consistent or tool to achieve it.
2) Literacy with literary theory paradigm developed Qur'an by Amin al-Khuli. This theory emphasizes interpretation as set out in the definition of Amin al-Khuli that it is a literary interpretation (of the Qur'an) the correct method, complete its aspects and systematic distribution. This theory departs from the paradigm that the Qur'an is a book of great Arabic. Application of this theory raises interpretation applied by Bint al-Syati 'and Ahmad Khalafullah. Muhammad Arkoun who accept the theory of deconstruction of the Qur'an also uses this approach to literacy theory.

C. Conclusion

Seeing the development of epistemology of Thomas Kuhn on diversification, especially in the study of Islam as an example is the problem of interpretation of the Koran that once the principle; certainly a scientific revolution that has been developed changing of Thomas Kuhn has brought major human civilization and Islamic law. Kuhn has drawn the fact that the philosophers of science generally ignore the fundamental hermeneutical issues such as the question of what is actually done by a scientist. According to Kuhn, the rasionality of scientific actually ambiguous it's basically not merely a matter of induction or deduction rasioanalits nor objective, but rather on matters of interpretation (hermeneutical) and persuasion which tends to be more subjective.

Therefore, everything that is said about the world of science and the reality is actually closely related to the paradigm and model or a particular interpretation schemes used by scientists. The Method of scientists view the world determines what kind of world he sees. So, knowledge is not a copy of a reality, but the reality of the result of human construction. Paradigms underlying the

construction was received and believed the community of scientists, not because the scientists knew that it was true, but because they believe that it's the best, most member benefit and hope when it is used for research and further study.

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