NEW NOMENCLATURE OF INTEGRATION SCIENCE AND RELIGION IN INDUSTRIALIZATION ERA

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ABSTRACT

Irreversible meaning of new industrialization growth has been rejected by some community. Even responded differently, some Muslims responded by positive thinking and others rejected the industrialization process logically. Of course, as Muslims community need in response to the coming of industrialization revolution by responding new formulation of theory, practice and application based on an epistemological foundation of the Muslim faith, especially in educational and scientific framework. And contemporary Muslims scientists today have to know whether these epistemologies can be incorporated both in the science policies and in the scientist' own research. As the fact today that the industrialization projects result in the dehumanizing others, as far as the manifestation of the classical Muslims quest to synthesis the sacred and the profane. Far from an ambition to present a complete solution to the current crisis faced by Muslims today, a need to formulate new nomenclature of industrialization-based on integration science and religion will be elaborated by this paper.

Keywords: integration of science, industrialization, science and Islam, Islamic education, eco-theology

A. Introduction

Looking at some scientific knowledge and historical science as an integral part of the culture of Europe in the seventeenth and eighteenth centuries certainly made the industrial revolution as an inseparable entity of the world (Jacob, 1997; Musson & Robinson, 1969). As well as technological expansion and globalization in the twentieth has been changed the transformative imagination and ontology of social spheres, cultures, religious identity, influencing modern global consciousness and identity. What has been called 'modernity' and 'enlightenment mentality', according to Watling (2009:14) has been designed to expand human knowledge and liberate individuals from dependence of nature, and dominated nature and manipulated it to humanity's needs. Such an anthropocentric world-view and industrial model has been placed priority on reason and economic and technological progress (Brödner, 2012).

If the blueprint of industrial revolution since early nineteenth century actualized and designed from inspired and conducive scientific paradigm, just for growing of industrial civilization. But now, the industry stimulates the education's world to more responsive the industrial's needs (Paton, 2002; Cooke & Ming, 2005; Arlett *et al*., 2010; Chandrasekaran *et al*., 2013), as happened in Europe, where modern industrial mentality and civilization are born, and made educational industry. In this context, the roots of industrial history and industrialization have been existed since human exist, and the solutions of each difficulties gave the cosmology and technical epistemology in industrial development. It's not solely about the system of knowledge and skill, but concerning mental attitude of each individual and society in their respective era, even the complexity is probably quite diverse.

According Islamic society, the industrialization of modern life has built a complex and challenging relationship (Gellner, 1983: 96; Ahmed, 2002: 117), because both relations causes a response and a quite diverse reaction. For Gellner (1985: 43), it is rarely perceived in opposing binary, which contradict and negate each other (Mabry; 1998; Zubaida, 1995). Of course if industrialization is considered to erode religious identity, because it is believed not come from Islam.

Even both are like two sides of the same coin and form an interconnected link, creating and hanging each other. But in scientific integration project, science and religion, or *al-turats wa al tajdid,* are the terms has attracted an attention of intellectual activists. And the discourse of epistemological 'religious science' and 'general science' requires some transformation regarding to Islamic education in reviewing between Islamic science and the industrial progress.

And this paper will discuss about the pattern of Islamic relation with the era industrialization by formulating the integration of science and religion, which will be divided into several sections; 1) introduction; 2) industrialization as nomenclature; 3) integration of science and religion as nomenclature; 4) Islamic Sciences as Foundation of Integration; 5) final note.

B. The industrialization as a nomenclature

The Industrial Revolution of the late 1800 century had a huge effect on developed countries, like United State and Europe, and growth most important social and economic change in twentieth century with interaction with other knowledge industries and with industrial production (Freeman & Soete, 1997). In this growth, the industrialization only understood as monolithically concept by academics, reflecting many ideas by different implications and treatments of industrial phenomenon. In this scheme, atomistic, reductionist, and materialism seeing humanity's destiny in mastering and transcending nature's limitation, and making academic reductionism produced misrepresentation of industrialization's meaning. This is the first problems of academics, most of people believed all this change of industrial were good, and especially owners of industrial factory, but that was not the case.

In Hewitt (1992:3-6) terms, "Industry" is defined in this study as the production of all material goods not grown directly on the land. "Industrialization" adds to agriculture and handicraft producers, the economic sector of manufacturing, mining, and energy.

And "industrialization" views industrialization as a particular way of organizing production and assumes there is a constant process of technical and social change which continually increases society's capacity to produce a wide range of goods. The problem of latter definition, then, is seen as being particular industrialization perception as a total environmentally destruction, impacting the social life, increasing capacity and volume of goods and services, that have become taken for granted and politically dominant.

Even the reality of industrialization has been understood to improve Gross Domestic Product (GDP) contributed by the manufacturing sector, but most of scientist and academics identified it as an improvement economic welfare which implicated on *trickle-down-effect*, as a model of product adoption in marketing that affects many consumer goods and services of grassroots communities, and improve their economic welfare (Colomb, C., 2011; Restiyanto & Yusroni, 2006). But at least, it creates a new problem; *firstly,* industrialization does not corroborate development, because it raises many new problems by destructive to the environment, even fashioning humanity's domination and exploitation of nature, as Watling (2009:33) said as the main cause of ecological crisis. *Secondly,* industrialization does not create a *trickle-down-effect*, but it creates gaps and various socio-economic deprivations of lower class society.

Considering the industrialization as a part of a technological issue that implies the values of society, forming the community, reinforcing the cultural-socio-cultural dimension behind state policy to adopt technological policy choices, recently it criticized from a monolithic perspective that considers as a matter of hardware minded only. It was closely related to industrialization with the global economy or economic globalization. It can be seen as a significant force on manufacturing employment among developing countries (Yunus, 2007:17; Lowe, 1944:419-434).

As an Islamic state, there is no choice but to be a consumer who only accepts whatever is produced by globalization. And finally, we are witnessing the effect of western industrialization development, and facing various kinds of deprivation of economic, social, cultural till politic. From here, the discourse of industrialization phenomenon leads to relate in multi-patterns between several of producers and consumers in scientific integration perspective.

C. Integration of Science and Islam as Nomenclature

The debate over Islam and science covers a wide range of issues and extends from political leaders, academics, scientists, and experts to the public at large. Revealing the ever-present tensions between theory and practice, fact and value, subject and object, this debate takes place at two levels: practical and intellectual (Kalin, 2006). At the practical level, the challenge is keeping up with the technological civilization of our age and bridging the gap between the advanced societies of the West and Muslim countries. The priority of governments system by keeping up with technology and modern science, as well as billions of dollars are allocated for research, education, and transfer of technology. Of course, this role empowered Muslim countries with the tools and blessing of modern science. Kalin (2006) argued that the sense of this action denotes that the Islamic world is no less pragmatic and utilitarian in its quest for power-through-technology than its European and American counterparts. And the *second* point, debating over Islam and science in Muslim societies concerns the domain of intellectual. And the core of discussion both relating the foundations of philosophical the modern science and understanding deep insight of Islamic scientific tradition as the alternative way of studying the order nature.

The misperception of integration concept is related to system Islamic education. Especially in Indonesia, even diverse application is applied in Islamic institution, ranging from formal institution, non-formal, to informal (Steenbrink, 1986; Zuhdi, 2005; Wekke et al, 2017), but however, the complexity of approaching and understanding Islamic educational entities lies in the varied praxis of Islamic education resulting from the historical experience and internal subjectivity of Muslims in interpreting science and religion (Hilmy, 2012:10). Of course, this is implicated prolonged trauma in Islamic scientist of Indonesia, which unable to change the mindset of Muslim society from colonial traditions and cultures. And most severely, the experience of colonialism has transformed the Islamic education system deeply inferiority, especially in the mastery of science and technology.

Nasr (1987:159) denoted if the Islamic education system should be interpreted as a continuous process to develop, not the intellectual potential of the students only, but other potentials towards a complete human profile, as described in classical nomenclature by *insan kamil* (being perfect man). As well as *Insan Kamil,* as an ethical idea in Islamic thought which tried to reach personal purification and perfection of man, and perfect ethical experience (Durak, 2010:16). And Al Quran has reinforced the concept as an *Caliph* according to *Tafsir Al-Tabariy* in Al Baqarah/2:30 (Al-Tabary, 1999:237), as well as term *muhsin* which become a predicate for good or quality-man, which is listed in *Tafsir Al-Tahrir wa Al-Tanwir* at An Nisa/4:125 (Ibn 'Ashur,1973:211).

Relating to how integrate science and religion in Islamic education Indonesia, according to writer, need for the transformation of Islamic education into reviewing Islamic sciences as a major trigger of integration of science and religion, especially in relating to well dialectics between intellectual authority, continuity, and change. And to find new nomenclature of it, need to integrate religious material and sciences material, which general sciences basics moved to Islamization or spiritualization.

D. Islamic Sciences as Foundation of Integration

Even the growth of integration foundation of Islamic education in Indonesia has founded in Islamic University State (Abdullah et al., 2004:ix; Natsir, 2006:11), as it was agreed by a new scientific paradigm known as the Integration-Interconnection Paradigm (Faiz, 2007:vi). And to dismiss among Muslims' doubts about the importance of scientific and institutional development of education with this paradigm, it is necessary to re-elaborate the various foundations and conceptual foundations as a basic reference in implementing the integration of educational system between religious and sciences material. And to improve it, describing the foundation of new nomenclature of integration as follows below:

   a. **Theological Dimension** *(al-bu'du al-I'tiqody)*

Refer to QS. Al Mujadalah/58: 24, the term of *majalis* as developed key word in theological foundation in development of educational integration. This term is identical with zone 'in between', or zone 'inter-subjectivity'. Kim Knott (2005) example calls the zone "participant as observer" and "observer as a participant" or "rapprochement" zone, or inclusive zone. And then, theological foundation of integration paradigm would be paralleled with the principle of faith for theological, philosophical and scientific foundations. All of it is woven circularly, not structurally.

Insider	MAJALIS		Outsider
Complete Participant	Participant as Observer	Observer as Participant	Complete Observer
Religion	Philosophy		Science
Hadarat an Nas	*Hadarat al Falsafah*		*Hadarat al 'ilmu*
IMAN	**AMAL**		**'ILMU**

Faith, science and *amal,* are the key words which assemble a systematic-circularistic of Muslim in development of education integration. Even religious sciences are more applied in revelation and sacred science, and social sciences are more considered as a profane science, and both of them should be studied. However, integrated education has to touch all existing domains in theological perspective *(al-ittijah al-I'tiqody),* increasing scientific dimension and concerning with reality and ethics as philosophical foundation.

The most of Eco-Islamic scientist reinforced relationship concept of human dimension and spiritual values that is ecological spirituality (Ouis, 1998; Ozdemir, 2002; Alpay *et al*., 2013). As Asmanto (2015; 2017) argues 'the spirituality is not just an ideological formulation, it becoming a living, practical, experiential reality, which develops from every adherent of religious tradition. Even the revolution of human civilization in green revolution, industrial revolution and information revolution has been leaf Muslim scientist in the gold ink of scientific development (Muhammad, 2001:54,61), but the consciousness of Muslim scientist today have to accommodate and responsive the pattern of Islamic education in ontological, epistemological and axiological dimension (Hilmy, 2012: 13-21).

In this sense, Muslim societies have to explore the mix of existence differs, integration of basic methodological, which accounted academically, revival the classical Muslims works of scientific theology. And then, the product of integration science and religion would be contributed in Islamic education vocational, which attended to deep insight to trilogy of harmony in industrial era that is balancing form on harmony human to nature human beings to human and human to Allah (God).

b. Philosophical Dimension *(al bu'du al -falsafy)*

Considering the complexity and multidimensional existence of science is an attempt to understand the complexities of different dimensions of human life (Abdullah, 2004), it is denotes that understanding on one discipline of science is an exclusive-arrogant attitude. So, constructing a new scientific paradigm which examines various disciplines in various perspectives is should be done.

As an alternative, the integration paradigm aims to formulate the integration and interdisciplinary among sciences as a bridge to understand the complexity of human life in improving the quality of life, both in the moral, material and spiritual aspects. In this context, the philosophical dimension implements the integration of interdisciplinary, which philosophically "coin money" for example, is like two surfaces that cannot be separated (integrated), but on the other hand the two surfaces can still be distinguished.

In line of the idea of humanity, which stressed that human have a role to do and works according to God's *amr,* or command, as well as if everything being 'measured out', given its natural principle of being in larger cosmos. If the philosophical of human creation is having the role of *khalifa,* or 'vice-regent', a covenant with God to guard creation, of course, the sub-sequent bears God's *amana* (Asmanto, 2017; Khan, 2015; Faruqi, 2007). Its means, that the human have a trust, sacred duty in the world, being responsible for creation, especially in their creation of science and technology in industrialization era.

The challenging of industrialization is effected too much problems, like spreading of technology, poor science, economic and social development model. Asmanto *et al.* (2016: 286) sees if crisis is not a resource-problem, but that is an attitude problem of interrelationship between ecology and religion, or science and religion, and the main problem is the crisis of the inner dimension of awareness, the poor of spirituality, and the less of nature's holistic integrity.

And the scientific revolution, the industrial revolution and specialization seemed to bring with all of industrial separation far from religious values (Khan, 2015). Since the onset of the industrial revolution, humans have to disturb in physical, nonliving component of all of human ecology (Parvaiz, 2015). This fact need to recognize that humans have to be *musleheen,* or rectifier, correctors, or reformers, rather than *mufsideen* or corrupters, spoilers, mischief makers, as said in QS (30:41). And if related to *fitra,* which primordial from the God, naturally and always in balanced, just, peaceful, unified. So, the philosophical thinking of modern man has to return back to their human self-consciousness, or human realization of God vice-regency.

In this scheme, humanity in philosophically need to know the aim of vice-regency as a covenant with Allah to guard creation, as an integral part of nature, not separate from it, originating within it and sharing its purpose, do not exploited the nature just for

industrial interests. And Islam as the primordial religion, fostering a way of balance, justice, peace and unity by creation's natural state, bringing it to the ultimate state of natural and human moral, and separating from and abusing the nature thus goes against true harmonic human nature.

c. Scientific dimension *(al bu'du al-ilmy)*

Intellectual authority *(al-quwwah al-ma'rifiyyah)* is the foundational religio-ethical precepts which explain clearly and directly about how Muslim must interact with nature. Because, by the intellectual authority, human is seen as *tawakkul,* or trust in God. As the special privilege from God, human have to think about allowing utilization of nature only to fulfill humanity's interest, but also a duty and responsibility which relating to maintain nature's holistic integrity.

The interest to integrate both of science and religion here lead to human consciousness that creation is gift for humanity, but with the conditions of it uploading what is right, of course, in the in sight of God. And the attitude of appreciation, respect or reverence for the gift of existence, connected to how human pray, obedience, remember and *tafakkur* about of creations, and practice *hisba,* the application of good and removal of evil. Such is seen as being a necessary reform / rediscovery *(islah)* and renewal *(tajdid)* of Islam, to be inherently environmentally friendly, having deep-ecological principles, and expressing a fundamental reality of balance, justice, peace, and unity.

E. Industrialization Reconstructed; Islamic Eco-theology as A Successor of Islamic Education

Islamic eco theology as ecological interpretation of Islam, stress it as addressing the primordial nature of reality, keeping the relationship between God, humanity and nature. So in this scheme, the integration model of science and religion have to integrated in subject matter, learning process, teaching materials, learning media. Within the understanding of human that nature, is a balanced, peaceful, unified pattern, just, and functioning according to God's design.

And understanding of *imtaq,* as a model of teachings has to input the concept of nature as God's design and the role of human of that into the subject of education, like the role of stewarding nature, facilitating its balance, being just and peaceful towards it. And according to writer, the improving of Islamic eco-theology in this case, aims to exploring ecological principles based on the principle of Islam *(al maqashid asy-syari;ah)*. Then, the model described like; (1) *imtaq* integration on subject matter or course; (2) *imtaq* integration on learning process; (3) *imtaq* integration on choosing teaching materials; (4) *imtaq* integration on learning media.

Of course, these principles are not easy, except that the Qur'an as *syari'ah* Muhammad is seen as a way to awaken a higher consciousness in humanity, one unified nature and God. Needing to interrelation, interconnection and integration between science and religion, ecology and religion, industry and religion, and when the object of industrial revolution is nature, so the understanding that the principle of Quran is to stress that nature as God's gift, imbued with His purity and sacredness, and always prescribing injunctions on how human by the material of teaching can interact with nature purely, aware of its balance, sacred, balance, justice.

F. Closing

As well as explored the perceived need for rapprochement movement, as a method of willingness to accept each other with a broad filed, as an outward manifestation of two discipline of sciences, is a necessity. And the rapprochement movement referred also to the unification or reintegration movement of scientific epistemology, as well as it is a necessity and absolutely necessary to anticipate complex situation and unpredictable developments of third millennium, when humanitarian responsibilities and anthropocentrism mindset developed. All of these just to keep limited resources and resources qualified of human resources as the *khalifah of Allah fi al-Ardh.*

As new nomenclature of integration between science and religion, Islamic eco-theology presents a fair ecological imagery, respect and responsible in the integration, interconnection and interrelation with humans and nature, or between science and religion. While Islamic education contributes to the actualization of *khalifah, amanah,* but Muslim's obligation is guard creation, save nature.

The eco-Islamic movement in a community contributes positively to learning and teaching of the actualization of ecological values. The movement focuses on an ethical conscience to live justly with anyone, and it is the obligation of God entrusted to humanity as *khalifatulLah*. Humans must bring together the vision of education and the vision of ecological spiritual ethics in order to answer the problematic of the contemporary ecological movement and industrial revolution.

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