INTEGRATIVE CURRICULUM OF RELIGION AND SCIENCE AT SPECIAL PESANTREN FOR UNIVERSITY STUDENTS

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Abstract
This article describes the development of the integration of religion and science in Islamic higher education institutions in Indonesia. The focus of this discussion is the integrated religion and science curriculum at special pesantren (Islamic boarding school) for university students. The aim is to find the implementation of the model of the integrative curriculum of religion and science at special pesantren for university students (hereafter referred to as PESMA). This study uses the constant comparative method. This article concludes that the integrative curriculum of PESMA of UIN Maulana Malik Ibrahim Malang is currently a new model in Indonesia. The model of THE integrative curriculum of PESMA of UIN (State Islamic University) is different than that of other PESMA in Indonesia. The development of the curriculum was triggered by the conversion of IAIN (State Islamic Institute) to UIN, and the development of general study programs at the university. This factor can complement the model of the integrative curriculum at Islamic higher education institutions and become an integration laboratory in Indonesia, according to Azyumardi Azra, Amin Abdullah, and Salahuddin Wahid.

Artikel ini menjelaskan perkembangan integrasi agama dan sains pada Perguruan Tinggi Keagamaan Islam (PTKI) di Indonesia. Fokus
Integrative Curriculum of Religion and Science... 


Keywords: integrative curriculum of religion and science; integrated entities models; isolated entities models

Received: February 4, 2019; Accepted: April 11, 2019

Introduction

The conversion of the State Islamic Institute or Institut Agama Islam Negeri (IAIN) and the State Islamic College or Sekolah Tinggi Agama Islam Negeri (STAIN) to the State Islamic University or Universitas Islam Negeri (UIN) has consequences to the development of infrastructure, academics, and derivatives of both, such as the body of knowledge and curriculum models. Licensing of the conversion of IAIN and STAIN to UIN was followed by several essential notes, as stated in the letter of Minister of Education and Culture dated January 23, 2004. The main task of UIN Sunan Kalijaga of Yogyakarta and UIN of Malang is still as Islamic higher education institutions, while the implementation of non-Islamic (general) programs is an additional task, as stated by Amin Abdullah. Therefore, there is still a use of methodologies that are different from other general sciences (Abdullah 2005, 238). This institutional change has also triggered the emergence of scientific dichotomy. Thus, it needs a new epistemology, redesign of the curriculum model, and a fusion between religious and general sciences so that new model of the integrative curriculum of religion and science can be established.

After the conversion of several IAINs to UINs, the development of the integration of religion and science and the development of the curriculum of Islamic higher education institutions (PTKI) in Indonesia is
speedy and massive. Those developments represent the development of science, technology, and art as well as globalization, which are characterized by the shift of paradigm and concept of citizenship, from local citizens to global citizens. As global citizens, Muslims are required to be able to compete and work together and collaborate with other citizens from different countries, religions, and cultures.

This condition also has an impact on the different views and approaches that are used as the basis of problem solving. For example, M. Hashim Kamali has emphasized that to solve contemporary issues, returning to the textual meaning of the Quran and hadith is necessary (Rosidin 2016, 90). On the other hand, in traditional Islamic boarding schools, which are usually called salafi pesantren, teaching and learning activities, as well as curriculum material, still take root in the tradition of kitab kuning (lit: classic book) and in old cultures. However, the latest development in the Indonesian Muslim community has also revealed that the term salafi currently has different connotation from the term salafi that has been known in traditional pesantren all this time. Salafi now may refer to the followers of the salafi manhaj who have concern over education and society, prioritize the Quran and hadith, disagree with state ideologies that are not based on Islamic law, and in the name of jihad, will establish a state based on sharia law in the Quran and hadith (Irham 2016).

The same connotation has also been adopted in Pesantren al-Madinah, namely (1) the culture of Pesantren al-Madinah tends to radicalism and exclusiveness; (2) the content of curriculum is jihad education which is a part of understanding of religion; (3) there is a change in the values of pesantren education leading to heterogeneity in patterns, models, goals, and educational culture developed through hidden curriculum (Malik, Sudrajat, and Hanum 2016, 103). However, a different condition occurs at Islamic Boarding Schools for university students (PESMA) Miftahul Khoir. The programs are to build Islamic character based on four basic concepts: (1) understanding basic knowledge of pesantren; (2) tafaqquh fi al-din; (3) leadership and entrepreneurship; (4) morals and ethics (Hidayat, Rizal, and Fahrudin. 2018, 13). Pesantren Nurul Umah also has visions: (1) the first core value is that religious service is the way of life; (2) the system of pesantren is oriented to the life values based on the scientific tradition that is designed integrally (Azami 2013, 79).
There are also PESMA(s) that found to answer the development of society, especially for university students such as (1) Aji Mahasiswa (PESMA) al-Muhsin Yogyakarta. The orientation of PESMA is to (a) widen the scientific insight and support the study of university student; (b) to graduate scholars who have technology and science as the implementation of their university and to believe and taqwa to Allah as the implementation of PESMA; (c) the curriculum is based on the development of society (Zamakhsari and Suyanto 2000, 168); (2) PESMA al-Hikam Malang. The curriculum development of PESMA al-Hikam is designed by using Andragogy approach in order to match santri’s aspiration: (a) the activity of planning on instructional programs involves santri; (b) the learning condition is designed by adapting the condition of university student; c) The program of curriculum is designed based on cross-department. The models of Andragogy used are (a) Muhādarah (public speaking), the themes are based on the department and santri’s competence; (b) Social Analysis (Zainuddin 2016, 129). Therefore, in the context of today’s Islamic Boarding School, there are at least three aspects involved in the modernization, innovation, and reformation of the Islamic Boarding School. They are methodology, curriculum, and management (Hasan 2015, 304).

Later, the leaders of public higher education institutions or Perguruan Tinggi Umum (PTU) and the leaders of Islamic higher education institutions make policies for the establishment of special boarding schools for university students (PESMA) that are located integratively on campus and outside the campus. The leaders of private higher education institutions have also decided to establish PESMA of which curriculum is integrated with the institution. The pesantren leaders also found higher education institutions located within their pesantren of which curriculum is integrated with the curriculum of the pesantren.

This phenomenon shows that there are, at least three things regarding the development of Islamic higher education institutions in Indonesia that need attention. First, Islamic higher education institutions which have offered general study programs are still required to maintain their identity as religiously affiliated higher education institutions, marked by having places of worship and retaining religious studies originating from Islamic books (especially kitab kuning), spiritual practices and atmosphere. Secondly, public universities in Indonesia have begun to adapt to the culture of pesantren education which is marked by, among other things, the increase in religious
studies and practices and the increase in religious atmosphere brought by alumni who continue their education at public universities. Lastly, educational institutions of pesantren are required to adapt and continue to develop their pesantren and if it is possible, to establish their own university/college, then to open a general studies programs with a modern education system in their pesantren.

Based on the description above, it can be understood that there are PESMA(s) established by universities, for example, PESMA of Islamic University of Bandung (UNISBA), PESMA Al-Manar of Muhammadiyah University of Ponorogo, and PESMA of Islamic University of Indonesia (UII) in Yogyakarta. There is also pesantren(s) which established university/college and PESMA located in the same area as their pesantren, such as Pondok Pesantren Tebuireng in Jombang which founded Hasyim As'ary University of Tebuireng and PESMA (Ma'had al-Aly) of Hasyim As'ary of Tebuireng, Jombang. There are also PESMA(s) that found their higher education institutions integratively such as PESMA Al-Hikam in Malang. Therefore, the vision and orientation of PESMA in Indonesia are different. For example, the PESMA of UNISBA aims to achieve the mission of UNISBA, which is to make the graduates have the qualifications of mujâhid (fighters), mujahid (researchers), and mujaddid (reformers). Because the new students of UNISBA have various educational backgrounds and abilities, it is considered essential to establish a PESMA, and the students of UNISBA are required to take part in the PESMA curriculum and activities (Pesantren Mahasiswa 2015). Meanwhile, PESMA Al-Manar of Muhammadiyah University of Ponorogo aims to realize the vision of the university, which is to be a university that has great mastery of science, technology, and art, based on Islamic values. This vision is difficult to achieve without the implementation of PESMA in the university (PESMA ALMANAR 2018). PESMA of UII Yogyakarta adds learning about contemporary issues related to Islam under the regulation of the university and all students at the PESMA are students of UII (Pesantren Mahasiswa Menimba Ilmu Agama Sambil Kuliah 2016).

As the emergence of PESMA(s), PESMA itself can be classified into two categories. The first category of PESMA requires the students to become mahasantri (university student as well as santri) so that they have fundamental religious insights and religious abilities and are of a noble character; thus the function of PESMA is to strengthen religious knowledge and to build morale and character. The second category of PESMA provides a “vehicle” for
students to become mahasantri at PESMA so that they can participate in religious studies; thus PESMA serves as a medium for religious study and scientific development (Mengkaji Ulang Pondok Pesantren Mahasiswa n.d.). Currently, there are several types of PESMA in accordance with their respective backgrounds, for example: (1) PESMA that joins its main pesantren because this pesantren found its own higher education institutions, for instance, PESMA at Pesantren Tebuireng and Pesantren Darul Ulum Rejoso, Jombang; (2) PESMA that is established by university or college and is one of the supporting units on its campus. PESMA policy usually follows the policy of the university and the students of PESMA are only from the university which established the PESMA; and (3) Independent PESMA of which management system is not bound to any higher education institution. This type of PESMA accepts students from various universities and colleges as well as students who have never attended pesantren before (Pesantren Mahasiswa Menimba Ilmu Agama Sambil Kuliah 2016). Therefore, the curriculum also varies according to the vision and mission of the concerned PESMA.

A different atmosphere occurs at the PESMA of State Islamic University Maulana Malik Ibrahim (MALIKI) of Malang (Zainiyati 2014). The uniqueness of this PESMA is the integration of religion and science through its integrative curriculum, as stated by Suhadak, the Chairperson of Talîm of the PESMA:

“What is taught in the PESMA of State Islamic University is related to the curriculum in the study program of each faculty within the State Islamic University MALIKI of Malang. The institutional academic administration system is also integrated with the respective faculties where each unit has its own authority. Meanwhile, all students are required to reside at PESMA dormitories that are in the same location where kyai (expert in Islam) reside within the campus. The students are also required to learn Arabic and English, as well as religious studies and religious practices, of which graduation qualifications are integrated online to the programming system in each faculty and study program” (Suhadak 2018).

This study uses a case study design, which illustrates descriptively and holistically the integration of religion and science at PESMA and the impact of the integration. The constant comparative method and modified induction method will also be used. In the process of extracting formal findings and substantive findings, there is a research quality assurance
process using comparative and induction techniques, applied from the process of planning, implementation, to the preparation of research reports. From these two methods, the research output produced offers insight into the latest integration of religion and science. Data collection uses in-depth interview technique, participant observation, and documentation study, which is considered to be the most representative in finding data that are in accordance with the focus and purpose of this study. Data analysis is conducted through data collection process, data reduction, data display, and conclusions drawing or data verification. The triangulation process is conducted to ensure the validity of the data obtained.

Science and Religion: Paradigm Shift

The establishment of higher education institutions in Indonesia was initially expected to be a continuation of the education at the pesantren and seminary. That is the reason why the pattern of activities in university and college still shows religious and ritual sides. However, in subsequent developments, the pattern of activities was influenced by the idea that educational activities at higher education institution should be academic because they are in an academic community, namely a community whose attitude is always seeking scientific truth by conducting academic activities. Therefore, the community in higher education always develops freedom of thought and critical, rational, analytical, and objective thinking following their respective program of study.

In Indonesia, higher education institutions that offer religious study programs are under the authority of the Ministry of Religious Affairs (Kementerian Agama) while higher education institutions that provide non-religious study programs are under the authority of the Ministry of Research, Technology and Higher Education (Kementerian Riset, Teknologi, dan Pendidikan Tinggi). These different authorizations bring what is called the dichotomy of institutions of higher education which later generates the terms of natural science, religious science, and social science. Consequently, there is also a dichotomy in perceiving science which, according to Imam Suprayogo, is not right. He has stated that the perspective which separates general studies and religious studies should be immediately ended (Suprayogo 2012, 12-13).

The difference in the implementation of scientific studies and education is possibly influenced by the classification of science carried out by previous scientists. Take an example Ibn Khaldûn who has classified science
into *naqliyah*, which is a science based on revelation including the Quran, hadith, fiqh, aqeedah-morality (*‘aqîdah akhlâq*), and *‘aqliyah*-a science based on rationality, such as agriculture, astronomy, medicine, philosophy and so on. As a consequence, Islamic higher education institutions are under the authority of the Ministry of Religious Affairs, while other higher education institutions in general are under the authority of the Ministry of Research, Technology, and Higher Education.

There are three factors that make the education model static and incapable of dealing with the changes and reconstruction of educational thinking, namely (1) the subject matter of education is still normative and textual and oriented to the past; (2) maintenance learning is still retained as teaching system, characterized by slowness and passivity and the assumption that past legacy is always right; and (3) there is still a substantial dichotomous in viewing religious science and general science (Zainuddin 2010, 82).

Therefore, in Indonesia, there are still many people thinking that religion and science are different things. Those two things are considered to have each responsibility without any connection with each other. According to Johan H Meuleman, there are some weaknesses in the scientific tradition among Muslim societies, namely (1) the existence of logocentrism and textualism; (2) an apologetic attitude towards other sects (that are different) in theology and fiqh; (3) the existence of verbalism and too much authority to the tradition which leads to the attitude of extracurricularism (Zainuddin 2010, 82-83).

This fact can still be seen in the separation of education administration, for example, madrasah is under the authority of the Ministry of Religious Affairs while public schools are under the authority of the Ministry of Education and Culture (*Kementerian Pendidikan dan Kebudayaan*).

In connection with the relationship between religious and other science in general, according to Azyumardi Azra, there are three typologies as the answer from Muslim scholars on the issue: (1) the typology of restoration which affirms that science that is useful and needed by the *ummah* is practical religious science and science originating only from the prophet, resulting in Islamic science and a more substantive Islamic economy because of its basic concepts based on Islam; (2) the typology of reconstructionist which states that the interpretation of the religion is to improve the relationship between Islam and modern civilization because Islam at the time of the Prophet Muhammad and at the time of companion was very revolutionary, progressive, and rational; (3) the typology of reintegration which states that the reconstruction of the sciences originating from the verses of Quran and
the verses of kawniyah needs to be returned to the transcendental unity of science (Setiawan 2007, 48-49). Among those three, the typologies that are possibly recommended for State Islamic University (UIN) are reconstructionist and reintegration typologies.

In general, the perceptual dichotomy between religious and general sciences lies in the source of reference that has not seen science and religion are the integrated units. According to Imam Suprayogo, science is actually classified into three groups, namely natural sciences (Physics, Chemistry, Biology, and Mathematics), social sciences (Sociology, Anthropology, Psychology, and History), and humanities (Philosophy, Language, and Literature) (Suprayogo 2012, 14).

Basically, science and knowledge are neutral, depending on the student and the master of science and knowledge. According to al-Ghazâlî, essentially all sciences and knowledge are good. Yet, knowledge can be ethical or unethical, depending on people. There are three kinds of knowledge that are unethical: (1) knowledge that causes and directs damage, both to people who employ it and to others, such as knowledge of witchcraft that is often used to harm others; (2) knowledge that opens a greater chance of doing harmful things for their own good, such as knowledge of horoscope; (3) knowledge that lacks value of benefits and estranges people from religious teachings and God (al-Ghazâlî 1995, 44-45). Regarding the neutrality of science, Fazlur Rahman also holds that science is, more or less, value-free. The problem that arises later is whether religious scholars and educators are able to present an ethical system that can answer new problems caused by scientific progress and respond well quickly to new issues (Bagir 2005, 25-26).

According to al-Zarnûjî, there are three sciences that must be learned by every Muslim: (1) science related to obligatory rituals in Islam, such as prayer, zakat, fasting, and pilgrimage. The reason is that rituals are compulsory, so having knowledge about them is also an obligation. It becomes an intermediary for the continuity of the obligation; (2) science of fiqh muamalat for people who work in certain field, such as fiqh about trade for people who work as traders; (3) science related to psychology and psychological conditions, such as fear, repentance, and pleasure; (4) science related to aqeedah and morale, such as manners, distinction of commendable behavior and despicable behavior. For example, lie and vanity are sin and haram acts, so learning science that can keep ones away from these sins is considered mandatory (Fattah and Afwadzi 2016, 207). Whereas in many Muslim communities, many Muslims have followed the classification
formulated by Ibn Khaldûn: science which is based on revelation (naqliyah) and science that comes from rationality (kawniyah/aqliyah). The classification of science formulated by Ibn Khaldûn, according to Azyumardi Azra, is not meant for dichotomy of science, but only for classification as a form of science development in Islamic civilization (Zainuddin 2010).

Regarding the development of science and civilization mentioned above, Abdul Fattah and Benny Afwadzi have considered that the classification of knowledge by al-Zarnûjî was a reflection of idea development and civilization that emerged in an era, because one’s idea is closely related to space and history where he/she lives. Furthermore, the context of the era when al-Zarnûjî lived was different from the context of the present (Fattah and Afwadzi 2016, 208). In this recent era, it is possible to reinterpret the idea of al-Zarnûjî about the classification of science, which by M. Amin Abdullah referred to as “paradigm shift” (Abdullah 2001, 102). Thus, the integration of religion and science in higher education is a necessity.

In the history of scientific development and education in the Islamic world, a paradigm shift has begun, marked by the existence of medical practices in addition to religious practices. The notable figure for this practice is Ibn Sînâ. Moreover, al-Azhar University, as a leading Islamic university, has been offering a medical faculty that builds scientific basis based on the verses of naqliyah as well as based on observations, experiments, and reasoning ratios. At al-Azhar University, many other faculties have been established also based on the Quran and hadith, critical reasoning, and experiments, for example, faculty of usûluddin (Islamic studies) and faculty of sharia. Faculty naming is as classifications only. From here on out, it can be understood that since a long time ago, there has been a paradigm shift in the integration of religion and science in scientific development in Islamic higher education. It is because religious and general sciences in general are an integrative entity based on Islamic epistemology, where science is developed in the spirit of tawhid (monotheism) and it is an obligation for every Muslim, men and women, to study science, for Allah will exalt in degree those who have been granted knowledge.

**Integration of Religion and Science in Sociological Perspective**

In the perspective of sociology, humans are not unique creatures but members of society and/or of a particular socio-cultural system. Sociologically and systemically, humans cannot live without society, and vice versa, society can only live and develop by the support from dynamic and progressive
people as well as the support from the state. It is because the condition of society (people) will not change through education alone. Therefore, society and humans are complementary. According to Silvio, the state must intervene in social and economic life to win public interests over private interests for the realization of a civilization. Civilization is a union of culture and prosperity. A nation has not been considered to be civilized if there are only a few people who have knowledge and contentment, but a nation in which people are knowledgeable and content is truly civilized (Bellamy 1990, 11).

In philosophical anthropology, humans can be seen as *homo religiosus*. Therefore, their religious behavior that accepts God the Merciful on the basis of faith and the truth is absolutely based on the religious scriptures. Although religious behavior is an individual matter, it does have social impacts.

Other than *homo religiosus*, humans can also be seen as animal educandum, homo educans, and animal educable. The truth of human behavior is alternative, based on science and philosophy which are based on cultural values and religious scripture. Hence, it is social in nature and has an impact and aims to encourage independence (Dimyati 1988). From the point of view of philosophical anthropology, current curriculum of religion and science, learning strategy model, and evaluation of learning at schools and higher education can reduce the quality of religious education that should be affective and contemplative into cognitive material. Therefore, it is important to design an integrative curriculum of religion and science that is realistic, in accordance with human nature and the socio-cultural background.

In the perspective of sociology, curriculum is a space where agents with different interests and capital fight each other for influence, prestige, and position (Hidayat 2011). Therefore, curriculum is not only about the substance of learning and learning activities. At the micro level, curriculum is about a set of plans and arrangements regarding the purpose, content, and material of learning as well as the methods used to guide the implementation of learning activities to achieve certain educational goals (Law on the National Education System 20/2003, Article 1). However, at the macro level, curriculum is also closely related to social relations of various institutions and interests. As a consequence, curriculum management also needs to connect multiple relations and interests, such as the relation between the state and educational institutions (schools and colleges) and social relation between educational institutions, the community, and capital and job markets. This
can be seen on Article 2 in the Law on the National Education System (No. 20/2003) that states that national education is education based on Pancasila (Five Principles) and the 1945 Constitution of the Republic of Indonesia. Pancasila (Five Principles) and Indonesian Constitution take root in religious values and national culture and are responsive to changing era.

At present, capital and job markets have a significant influence on education. Curricula of schools and higher education institutions always link competency standard of their graduates to the business and industry world and job market. This is indicated by the government's policy on the curriculum based on the Indonesian national qualification framework or Kerangka Kualifikasi Nasional Indonesia (KKNI). The consequence is that many educational institutions, both school and university, have changed their educational orientation so that curriculum is not only a single entity. It is an entity that has various social, religious, political, and economic settings that enable a curriculum to be created. Michael W. Apple has stated that curriculum is a cross-generational effort to carry out the process of accumulating knowledge in a society (Tilaar 2003, 106) and to respond to policies and the needs of society. Therefore, an integrated curriculum of religion and science becomes a necessity.

Religion and science are two different things. The object of religion is religious fact that exists in a social system of which the smallest element is religious behavior. The religious behavior is a total surrender to God, the Holy One with absolute power. Self-surrender is based on faith. The phenomenological analysis shows that humans are rational and irrational beings at the same time. In the irrational dimension, faith and sense of beauty are found. Religious behavior in a social system manifests itself in daily life and appears to be a behavior. It is institutionalized and reflected in various aspects of life. In facing the challenges in life, humans will individually and/or in groups overcome those challenges with scientific approach. However, in the end, humans will also employ religious approach. Thus, religion is a must for humans and society. Religion has educational functions, salvation, social supervision, and it builds communion of human beings (Dimyati 1998, 56-57).

Furthermore, there are three objects of science in the view of theoretical science. They are ontology, epistemology, and axiology. In relation to the integration of religion and science, it needs to be decided at which level integration will occur: at the level of ontology, epistemology, or axiology. Bas Van Frasaassen, has performed a simple procedure of integration of
religion and science by considering two aspects of science, namely "content" and “method.” Content is scientific theories about the universe, while method is used by scientist to compile those scientific theories. This view is referred to as “constructive empiricism” which assumes that science only discusses phenomena and does not discuss the ontological structure behind phenomena (noumena) and prediction tools (Bagir 2005, 28). From this point of view, it can be understood that if religion and science will be integrated, the integration will be more like an attempt of religion to assimilate scientific methods and not to construct a theology based on scientific theories. Therefore, religion more exists in the human existential area and not in the scientific area.

**Integrative Curriculum of Religion and Science**

Curriculum as a guideline for education and learning has a very strategic position in the entire educational process. It has an important role to succeed the purpose of education. A good quality education will be realized if the curriculum developed is also qualified and implemented appropriately. There are many fundamental conceptions of the curriculum. Among those conceptions, there are several conceptions related to this study, namely curriculum as cultural reproduction, and curriculum as learning experience (Sukmadinata 2010; Sanjaya 2010).

The first conception is curriculum as cultural reproduction. This conception is a follow-up of general opinion that perceives educational institutions as a unity with culture, meaning that the institution was established so that students can explore scientific insights, behaviors and noble values that are internalized by forefathers. Students are also required to strengthen learning culture and take care of the heritage of wisdom of their ancestors. As a result, curriculum is interpreted as a cultural inheritance that develops in the community.

Educational activities at schools or higher education institutions are social reality in society. As a social reality, education activities can be influenced by and influence the components of society through a network of actions and reactions from personnel who are involved formally and informally, both inside the classroom and outside the classroom. Activities and atmosphere inside and outside the classroom are reflected in the ideal curriculum, hidden curriculum, as well as the actual curriculum that are manifested in the form of teacher-student manner and the example of the teacher and school leaders.
As a cultural sub-system, schools and higher education institutions have a sub-system which is a complex network of different goals, values, traditions, beliefs, way of thinking, and behavior that come from various social groups in the community. Therefore, schools and higher education institutions choose cultural elements to be transformed, for example, written language systems, scientific knowledge systems, information technology systems, and social systems. Inheritance of cultural elements is in line with the vision and mission of schools and higher education institutions, which are to transform traditional agrarian societies into religious industrial communities and professional societies.

Ideally, the curriculum of schools and higher education institution is created to pass down valuable cultural elements, but the system of school and higher education institution will not be able to manifest and pass down all elements of culture in the curriculum without the help of other institutions, such as boarding schools and PESMA. Thus, it is necessary for an integrated curriculum to be designed.

The second conception is curriculum as a learning experience. With the expansion of curriculum conceptions from merely school subjects, cultural reproduction is an accumulation of learning activities prepared by educational institutions for students. Teacher or lecturer is facilitator for individual development of students and curriculum is a designed process so that students gain experience from teacher/lecturer, other students, and school subjects.

The conception of the curriculum as an accumulation of learning experience explains situations better than other conceptions. Institutions or pesantren(s) have a mission to strengthen the character of students so that they have maximum abilities according to certain standards. The mission can be fulfilled through the accumulation of learning experience at school. The curriculum, as an educational blueprint, should be well designed and properly implemented to provide experience for students. This conception recognizes that what children learn is not only limited to what they learn at formal schools. They also can learn from extracurricular activities at school dormitories or at PESMA. Thus, curriculum can also be interpreted as activities and long way taken so that students get full access to the desired learning experience.

Zais has emphasized that the results of curriculum implementation can be evaluated, even though it is complicated. The process can be carried out if each party has access to accurate learning information on the entire
education process. Education is seen as a tool to recreate, control, and direct the experience to achieve the educational goal, which is to help students solve the problems they may face (Zais 1976, 8-9). Education is not merely a process of preparing students to deal with life, but education is an integral part of life (Zais 1976, 14). Hence, the main role of teachers/lecturers, according to pragmatists, is to prepare a learning environment that allows students to use experience in identifying problems, and finding a solution for those problems (Johnson 1977). Correspondingly, curriculum is not only focused on subjects that students must learn, but curriculum is also directed towards a set of learning and learning activities that provide opportunities for them to gain experience. Thus, they can construct their own reality (Zais 1976, 150).

In relation to the integrative curriculum of religion and science, religious learning in general studies programs and general learning in religious studies programs can be directed to foster scientific attitudes, scientific actions, and professional and social behavior based on integration of naqliyah and kawniyah. It is not necessary for students to explore religious subject matters, but students must be able to relate religious doctrine to the science and profession that they develop and vice versa, so that they can be attached to their social and professional actions. Integration of religion and science must be well designed through the curriculum. It must be well designed from the process of curriculum planning to curriculum implementation, and if it is possible, to the process of training evaluation and evaluation of learning achievement. Nowadays, there is already an integration of academic fields in curriculum design, for example, integrated curriculum, which is a curriculum that brings together several scientific disciplines in one learning design to obtain better outcome in students by connecting religious studies and science (Perry 2010, 2) using constructive empiricism of Bas Van Frasaasen. Constructive empiricism is integrating religion and science by considering two aspects in the form of “content” and “method” (Baqir et al. 2005, 28).

Integration of Religion and Science at PESMA

Currently, Ministry of Religious Affairs of the Republic of Indonesia is converting its higher education institutions from the State Islamic College or Sekolah Tinggi Agama Islam Negeri (STAIN) to the State Islamic Institute or Institut Agama Islam Negeri (IAIN) and then from IAIN to State Islamic University or Universitas Islam Negeri (hereafter referred to as UIN). Those conversions then have an impact on the curriculum of the institution.

Ulul Albab Volume 20, No.1 Tahun 2019
UIN Maulana Malik Ibrahim (MALIKI) of Malang is one of universities under the authority of the Ministry of Religious Affairs which redesigns its curriculum to become Integrative Curriculum of UIN by integrating science and religion. The implementation of integrative curriculum is supported by university pillars called Arkân al-Jâmi‘ah. One of pillars states that PESMA(s) should implement integrative curriculum of UIN (Suprayogo 2005) so that learning activities at PESMA are integrated with faculties and other supporting units in UIN. The location of PESMA building is also integrated with the campus of UIN. On that basis, integrative curriculum of religion and science in UIN MALIKI and its impact are interesting and important to study, especially when the Ministry of Religious Affairs engages in the conversion of several IAINs into UINs, where new general studies programs and religious studies programs will be offered in UIN and state higher education institutions. In addition, this article, which is about the integrative curriculum of religion and science at PESMA of UIN, tries to answer concerns about the dichotomy of religious and scientific curriculum. According to Salahuddin Wahid, UIN Malang is the primary laboratory in realizing convergence of Islam and general science and technology (Wahid 2011, 283).

The entire educational process at UIN Malang has philosophy, which is to educate professional ‘ulamâ (scholars) and scholarly professionals. The main vision is then interpreted into the integrative curriculum of UIN MALIKI of Malang. UIN MALIKI of Malang has developed integration of general and religious sciences, as stated by M. Zainuddin, the Vice Chancellor of Academic and Institutional Advancement: “Kajian-kajian ilmu umum di UIN Malang diperkaya dengan nilai-nilai agama dan kajian ilmu agama diperkaya dengan muatan yang ada dalam materi umum (General studies at UIN of Malang are enriched with values of religion and religious studies are enriched with science of general studies)". (Zainuddin 2018). Thus, the integrative curriculum of UIN MALIKI can be realized in the form of integration in one discipline and interdisciplinary integration. The curriculum at PESMA is implemented verbally or practically in accordance with the heterogeneous conditions of students.

Kyai council of PESMA of UIN perceives integrative curriculum as a process of discussing the relationship between religious and scientific material by placing verses of qawliyah and kawniyah as sources of knowledge. Using this understanding, mahasantri can analyze the science taught in the
faculty by referring to religious values, and at the same time they still can do good for others, although they have very high scientific abilities. Thus, kyai council and mushrif-mushrifah see the integrated curriculum as the overall learning experience that is obtained massively, consistently, and comprehensively by the students. The curriculum itself has impact on the content of integrative curriculum of PESMA. The impact is that all program activities and various norms that are applied produce knowledge and experiences that integrate religious and scientific values. The integration is at the level of ontology and epistemology (Bagir 2005, 28). Meanwhile, the strength of the integrative curriculum of the PESMA of UIN MALIKI lies in the commitment to develop the integration of religion and science and to build civilization.

The kyai council, murabbi-murabbyiah, mushrif-mushrifa, and the mu'allim understand that the integrated curriculum design of PESMA of UIN MALIKI have been developed with the background that faculties and study programs at Islamic universities have not yet represented universal Islam and that there is still a dichotomy between religion and science. PESMA of UIN seeks to bring together the study and application of religion and science as a whole. Thus, the substance of the integration curriculum applied at the PESMA is directed towards: (1) ulul albab character building, which is characterized by always remembering Allah while standing, sitting, or lying on their sides; (2) thinking about the creation of heaven and earth; (3) integrating religion and science in society; (4) improvising to conduct research based on the integration of Islam and science. These four substances have become the basis of the kyai council and mushrif-mushrifah in understanding the integrated curriculum at the PESMA of UIN of Malang.

With a continuous and comprehensive process, integrated curriculum of the PESMA of UIN, as Connolly has opined, serves to increase scientific interest of the students in the study of integration of religion and science. Learning Islamic studies at PESMA of UIN is no longer only on theological aspects, comparative studies of religion, or history of religions, but also on examination and exploration of the disciplines of social sciences and humanities. The integration of Islam and science that is potential to expand has become a cross-disciplinary subject (Connolly 2002).

According to the opinion of Roberton, integrated curriculum at PESMA of UIN is not just an assessment of the regulations that govern the relationship between humans and the spiritual beings, especially God, the
relationship between humans, and the relationship between humans and their environment. By using this curriculum, the students are also guided to understand the religion of Islam as a center of study which inspires and enrich the analysis in discussing science (Connolly 2002).

Quoting the opinion of Sukmadinata, integrated curriculum at PESMA of UIN strongly determines the model and character of students (Sukmadinata 2010). Thus, integrated curriculum at PESMA of UIN chooses the integration of religion and science as the main foundation for kyai council and mushrif-mushrifah to strengthen faith, social values, and aqeedah of the students and to enhance professionalism of the students.

On the other hand, every activity included in integrative curriculum of the PESMA is always evaluated formally and informally. Activity evaluation is conducted so that PESMA can review whether the integrative curriculum program that has been implemented is in accordance with the vision and mission or not.

The understanding of the kyai council and mushrif-mushrifah on integrated curriculum is in line with the opinion of Tita Lestari which has explained that the curriculum development process is inseparable from the following steps: (1) the integrated curriculum is formulated rationally by the university leaders; (2) the formulation of the vision, mission, and objectives of the integrated curriculum of PESMA is clear; (3) the determination of the PESMA program is organized; (4) selection of Ta’lim Afsâr material, Ta’lim Quran material, monitoring material, and religious activities are conducted systematically; (5) the organization of learning activities in the future is carried out measurably in organized manner; (6) the selection of sources, tools, and facilities that support activities at PESMA is carried out carefully; and (7) determination on how to measure learning outcomes through various written exams called midterms and semester final exams of PESMA (Rusman 2009).

The kyai council and mushrif-mushrifah coordinate and work together regularly to implement the integrated curriculum. This is a form of monitoring and assessing the actual implementation development of integrated curriculum at the student level.

The understanding that can be learned from the kyai council and mushrif-mushrifah regarding integrated curriculum of the PESMA of UIN can be firstly categorized as a substance on how to understand Islamic teachings in all aspects as a whole. The teachings of Islam are interpreted as the core of
various teachings that are capable of building civilization, advancing value of humanity, strengthening spirituality, and enriching intellectuality. The implementation process of the substance is manifested in a written document file, which is then implemented consistently and measurably. The second understanding that can be learned is that the integrated curriculum is interpreted as a written and unwritten education system, implemented as a mechanism and procedure in conducting various learning activities at PESMA. Matters related to this issue also include teachers who teach in mabnâ (building unit), the duration of the learning period, the evaluation process of learning, and so on.

The integrated curriculum of PESMA is also perceived by the kyai Council and mushrif-mushrifah as a reflection of the abilities that must be owned by students. Therefore, the integrated curriculum is closely related to various educational content in religion and science. The integrated curriculum is understood as a set of methods and materials that can lead students to have spiritual depth and moral greatness.

Integration of Religion and Science through Integrative Curriculum of PESMA

Curriculum development is a necessity in responding to a very dynamic global development. Adjustment and development of the integrated curriculum should follow the changes, but at the same time, it should still hold consistently the integration of religion and science as irreplaceable institutional fundamental values.

The implementation of the integrated curriculum of PESMA focuses on (1) comprehensive religious studies by adapting to each department of the students and by promoting a dialogical-interactive approach; (2) each kyai council and mushrif-mushrifah to have deep attention and strong emotional bond with the students so that a learning atmosphere becomes meaningful and encourages a great motivation; (3) presenting proportionally the study of religious and scientific integration in scientific halaqah (circle), followed by the use of Arabic and English as the language of instruction; (4) various units are provided at PESMA which encourage the growth of soft skills of the students and maximize the potential, interests, and abilities of the students so that they have excellence and can build outstanding characters.

Implementation of an integrative curriculum has an element of patron-client, which is quite dominant, especially in the aspect of decision.
making. However, most implementation is done through a collective and collegial way based on the active participation of kyai council and mushrif-mushrifah of PESMA. Therefore, integration of religion and science through integrative curriculum of PESMA is oriented towards depth spirituality and moral grandeur which are achieved through written curriculum (ta’lim afkâr, ta’lim al-Qur’an, and sabbah al-lughah), real curriculum (the performance of the kyai council and the mu’allim), hidden curriculum (tradition and culture of pesantren), and through activities that monitor the practice of sciences studied by students and delivered by the kyai council and mu’allim.

As discussed in the previous chapter, one of missions of UIN is to guide students to have deep spirituality, noble morality, broad knowledge, and maturity professionalism. The broad knowledge and maturity professionalism are achieved through an integrative curriculum in each faculty, while the other two are built through an integrative curriculum at PESMA. To realize the synergy between the curriculum programs in the faculties and at PESMA, complementary strategy is applied. This implies that the curriculum is implemented by strengthening aspects of learning at PESMA which then are strengthened by the lecture system at the faculty, and vice versa. Thus, various shortcomings and obstacles in implementing the integration of religion and science can be anticipated by the integrated curriculum of PESMA.

The most important element in the integrative curriculum lies in the process of transformation of academic culture that leads students to have a holistic ability to integrate religion and science in various professional fields.

Integration of religion and science through the integrated curriculum of PESMA is implemented by: (1) optimizing various units that support the development and integration of religion and science activities, such as scientific ḥalaqah, hay’ah tāḥfīḍh al-Qur’ān (HTQ), and so on; (2) studying the turats scriptures from modern and actual perspective and from various scientific perspectives; (3) maximizing the role and function of mushrif-mushrifah and murabbi-murabbiyah as technical implementers of the integrated curriculum and as mentors for the students. According to Amin Abdullah, there are three points of integration of science and religion, namely (1) single unity model, which is independent religious science that does not require the assistance of the methodology used in general sciences and vice versa; (2) isolated entities model, in which each science cluster is independent, knows the existence of other scientific clusters but does not interact and respond
methodologically; (3) integrated entities model, in which each science cluster is aware of its limitations in solving human problems, then cooperates, at least, in matters that address the problem of approaches and research methods (Abdullah 2005, 242). Based on these models, the implementation of the integration of religion and science at PESMA of UIN is categorized as isolated entities and integrated entities. If it is included in the discussion of the theory of knowledge, then this integration is at the level of ontology and epistemology (Abdullah 2005).

The integrative curriculum of PESMA which is integrated with the college curriculum will make the students have total academic and non-academic learning experiences. They will learn religious and spiritual material, and at the same time, they will also gain mature and professional scientific experience. This kind of experience is what will make UIN students have holistic scientific competencies in academic and non-academic life. Besides, with such an educational process, students of UIN will not experience artificial scientific experience. On the contrary, students of UIN can comprehensively comprehend scientific experience.

Thus, it can be concluded that there are several expected achievements from the existence of integrative curriculum at PESMA. It includes (1) strengthening the religiosity of UIN students as the central pillar of the education of professional ‘ulamâs (scholars) and scholarly professionals; (2) strengthening the values of ‘aqîdah of the students so that they become closer to God; (3) developing academic and non-academic culture as an inseparable unit in the daily life of UIN students; (4) being a vehicle for increasing foreign language proficiency, especially Arabic and English, and increasing Indonesian language proficiency in a sustainable manner so that it becomes something that is inherent and a characteristic of UIN students.

On that basis, it can be seen that PESMA of UIN is sought to function as a laboratory for the spiritual and social life of UIN students. PESMA is expected to be able to have a strategic role in educating and preparing UIN students to have deep spirituality, noble morality, broad knowledge, and maturity professionalism, as those matters are the main and core character profiles of the integrated curriculum.

The integrative curriculum of PESMA holds a strategic position that has a high deterministic value in building personal excellence of UIN students. It cannot be denied that the integrated curriculum is one of the aspects that mostly determines the progress of alumni of UIN in transforming the results of the integrated curriculum to respond to the expectations and
the needs of the community. The integrated curriculum at PESMA can become a reference for other universities that try to integrate various educational services in a comprehensive and complete system, since there is a kind of public concern that considers the separation of the curriculum of science and religion at this time slowly erode the mentality and spirituality of students (Ali et al. 2018).

The Impact of Integration of Religion and Science

The integrative curriculum of PESMA is one of answers to the concerns and anxieties of scientists regarding the establishment of universities, the conversion from the institute to a university, and the opening of several general study programs. On the other hand, this integrative curriculum also responds to the global needs which want graduates of educational institutions to have various talents and competencies, yet to still have character. The integrative curriculum of PESMA is a guideline for the academic community of UIN to develop competences, scientific insights, value systems, and various academic and non-academic cultures that meet the demands of the global education.

The implementation of integrative curriculum of PESMA can lead students to have holistic knowledge and build a profile of alumni who are able to take part in various educational institutions and other institutions. The implementation of this integrative curriculum raises at least an experience that is able to bring the viewpoint and competency capabilities to users. Therefore, the integrative curriculum of PESMA brings positive impacts individually (on alumni) and institutionally in accordance with the current demands. The success of the alumni is inseparable from the integrative curriculum of PESMA that are implemented synergistically and can be combined with all aspects that will be instilled in students or in lecturers, kyai, and murabbi/munabiyyah, if there are mutual perspectives. The aspect that is emphasized in the mutuality of perspective is more at the level of epistemology (Bagir 2005). So, the integration of religion and science is still as an attempt of religion to assimilate the scientific methods, and not to construct a belief or theology based on scientific theories.

This is interesting because kyai council and mushrif-mushrifa consider that the integrated curriculum at PESMA is not just an educational procedure that has to be implemented at one place. As a further matter, they interpret the integrative curriculum as a norm, religious values, and culture which are guidelines for organizing activities and building character and
reasoning ability of the students. This pattern confirms that the integrative 
curriculum of PESMA is considered as an education system that contains 
content and method used as comprehensive basis for the implementation of 
Islamic higher education. Essentially, the curriculum discusses the process of 
implementing education, in the form of references, plans, norms, and values 
that are used as a guideline (Sukmadinata 2010). Law on the National 
Education System (No. 20/2003) also emphasizes that the curriculum is a set 
of plans and arrangements regarding the purpose, content, and material of 
learning and the methods that are used to guide the implementation of 
learning activities in order to achieve certain educational goals.

The ability of alumni to practice the knowledge and self-placement in 
various occupational professions is the result of educational process that 
integrates religious values and professionalism ethics coherently. This means 
that the learning process based on the integrative curriculum of PESMA can 
capture the opportunities and the needs of community for graduates who do 
not only have high competitiveness but also religious character. Suryadharma 
Ali, during his time as Minister of Religious Affairs, has stated that the 
transformation of pesantren, including special boarding school for university 
students or PESMA, is expected to be able to truly integrate the sciences, 
which were previously dichotomized into ukhrawi-oriented sciences and 
worldly-oriented sciences, so that the pesantren institutions are expected to 
not only generate alumni who are experts on prayer but also who are pious 
entrepreneurs, scholars who worship God diligently (Ali 2013, 81). Thus, the 
integrative curriculum of PESMA has a real impact, especially on forming a 
framework of thought and on internalizing religious character values, which 
are mutually reinforcing and inseparable. The integrative curriculum of 
PESMA generates graduates that have an important role in society. The 
alumni of UIN assert that the impact of the integrative curriculum of PESMA 
is that it helps them to build optimistic, religious, adaptive, competitive 
behavior and also to build leadership and public speaking skills. Some of 
these competencies contribute to lead alumni to a very strategic job position 
and responsibility.

Based on the understanding of the Kyai Council and mushrif-
mushrifah, the integrative curriculum of PESMA seems to have very high 
deterministic values in shaping the character of students. These deterministic 
values can be explained as the accumulation of knowledge, science, and 
al academic and non-academic cultures that have a tremendous and
unpredictable influence on shaping the character of students, even when they are already alumni. The integrative curriculum of PESMA can build an educational modification system that is able to prepare students to face various challenges and situations while at the same time, still have a strong religious foundation, so as to build a society that implements beliefs, both as individuals and as social ethics, which by Abdurrahman Wahid referred to as sociocultural strategy (Wahid, Suwendi, and Zuhri 1998, 23).

Conclusion

Integration of religion and science in various studies at religiously affiliated higher education institutions and boarding school for university students (PESMA) is a necessity in order to prevent the dichotomy between religion and science in the community. It can be achieved by designing an integrative curriculum in university and PESMA so that it will improve the quality of graduates of Islamic higher education institutions and they can become professional ulama (scholars) and scholarly professionals

Similar research is recommended to be conducted at PESMA of which management is integrated with public higher education institutions that have religious study programs, as well as at higher education institutions of which management is integrated with pesantren.

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DOI: http://dx.doi.org/10.18860/ua.v17i1.3252


DOI: https://doi.org/10.21831/jppfa.v4i2.11279


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DOI: http://dx.doi.org/10.18860/ua.v17i1.3254


DOI: https://doi.org/10.20414/ujis.v18i1.156


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