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The Science Integration Model in Curriculum Development at State Islamic Higher Education (SIHE) After Changing Into A State Islamic University (SIU)

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ABSTRACT

This research aimed to identify the concept of science integration at the State Islamic University (SIU) and discovers a model for curriculum development. It was carried out at three SIU, such as Imam Bonjol Padang, Antasari Banjarmasin, and Sultan Maulana Hasanuddin Banten. Data were collected using interviews, observations, and document reviews, and analyzed through the model suggested by Miles and Huberman. A triangulation technique was used to ensure the data are valid. The results showed that 1) the process of integrating science at SIU Iman Bonjol Padang, SIU Antasari Banjarmasin, and SIU Sultan Maulana Hasanuddin Banten is almost similar. This process is carried out by integrating the curriculum into lecture activities, conducting workshops for lecturers, and joint research and community service. 2) Each university uses several models. For instance, SIU Imam Bonjol Padang, Antasari Banjarmasin, and Sultan Maulana Hasanuddin Banten uses the term "*sarang lebah*" (beehive), "sungai pengetahuan" (source of knowledge), and integration-comparative-diffusion, respectively. The beehive is considered as a paradigm of dialogical interaction integration, while the source of knowledge consists of four integration pillars, dynamic, integration of Islam and nationality, locally based, as well as global perspective.

Keywords: Science integration model, curriculum development, SIU transformation

A. INTRODUCTION

The transformation from the State Islamic Institute (SII) into a State Islamic University (SIU) brings about the development of general science to support existing religious programs. Conceptually, all institutions that change their statuses such as SIU Antasari Banjarmasin and Raden Intan Lampung have a scientific philosophy of "sungai pengetahuan" (source of knowledge) (uin-antasari, 2020) and "Bahtera Ilmu Integratif-Prismatik" (Ark of Integrative-Prismatic Science), respectively (Muhammad Nur, 2018). The question of the way to develop Islamic science at this new university is answered through transformation. Ziauddin Sardar divided people into three including 1) an apologetic Muslim, 2) a group that selects the appropriate or inappropriate modern science while trying to study its history and philosophy, and 3) a group that believes in Islamic science and tries to build it (Ziauddin Sardar, 1986). The transformation of SII into SIU help to eliminate the dichotomy between science and Islamic knowledge. From a normative-philosophical perspective, it is expected that SIU develop Islamic science.

A further question is whether science integration has touched the empirical implementation level. Based on the evaluation results of the following SIU: SIU Sultan Syarif Kasim, SIU Syarif Hidayatullah, SIU Sunan Gunung Djati, SIU Sunan Kalijaga, SIU Maulana Malik Ibrahim, and SIU Alauddin (Nurlena Rifai *et.al* ., 2014) explained that this integration ends at the normative-philosophical perspective because it examines the appropriate forms of application for all 6 SIU. This brings about the problem of whether the readiness of SIU Imam Bonjol Padang, Antasari Banjarmasin, and Sultan Maulana Hasanuddin Banten is from a normative-philosophical perspective? Therefore, this research tries to determine and develop a constructed science integration model in the curriculum of each SIU. It also focuses on examinations related to the concept and model developed in the post-transition courses.

B. LITERATURE REVIEW

Conceptual research related to the science integration model or the combination of general and religious knowledge is an attempt to answer the question of how to develop Islamic science. According to Azyumardi Azra and Nurlena Rifai *et al*, there are three response typologies of Muslim scientists. First, restorationist is useful and needed knowledge related to religious practices (worship). Second, deconstructionist, where a reconstruction of religious interpretation is needed to improve the relationship between modern civilization and Islam. Third, reintegration is the reconstruction of the sciences originating from the verses of *kawliyah* (the words of Allah) and *al-kawniyah (*signs of the greatness of Allah through the nature), indicating to return to the transcendental unity of all sciences (Nurlena, Rifai *et al*., 2014).

The above view is in line with Sardar, where Muslim scientists are divided into three groups. First, apologetics considers modern science to be universal and neutral. This group seeks to legitimize the results of modern science by seeking Islamic religious arguments or verses and Hadith based on various theories. Second, a group that selects the appropriate and inappropriate modern science while trying to examine its history and philosophy. Third, a group that believes in the existence of Islamic science and tries to develop it. These particular people showed that Islam with all its teachings and values has the extraordinary wealth to build this science course (Ziauddin Sardar ,1986)

According to Rahman, there are two accomplished ways: (1) accepting modern secular science developed in the West and trying to "Islamize" by filling it with Islamic concepts, as well as (2) combining modern science with knowledge learned in Islamic institutions (Fazlur Rahman, 1982). This is in line with Ismail Raji al-Faruqi, who proposed 5 work plans and 12 steps for the Islamization of the science movement. The five work plans include (1) mastering modern scientific disciplines, (2) mastering Islamic treasures, (3) determining the Islam relevance for every field of modern science, (4) seeking a creative synthesis between Islamic treasures and modern science, and (5) directing the flow of Islamic thought to a path that achieves the fulfillment of Allah's plan (Fazlur Rahman, 1982).

2.1 Curriculum Integration Model

Fogarty showed that there are 10 curriculum integration models including (1) fragmented, (2) connected, (3) nested, (4) sequenced, (5) shared, (6) webbed, (7) threaded, (8) integrated, (9) immersed, and (10) networked. Each model has a different approach (Robin J. Fogarty, 2008).

Classification of Curriculum Integration Model According to Robin J. Fogarty

No.	Classification of Integrating Approaches	Integrated Curriculum Model
1	Integration approach in one discipline	(1) fragmented, (2) connected, (3) and nested
2	An integrated approach between several different scientific disciplines in parallel	(4) sequenced, (5) shared, (6) webbed, (7) threaded, (8) integrated.
3	An approach to integrating various experiences and knowledge of students	(9) immersed and (10) networked.

C. RESEARCH METHOD

This qualitative research was carried out at SIU Imam Bonjol Padang, Antasari Banjarmasin, and Sultan Maulana Hasanuddin Banten using a narrative approach. Respondents were selected by employing purposive random sampling. They are loyal policymakers, who delivered information on the establishment of SIU. To obtain information related to science integration, the vice-rectors and the vice deans were appointed as key informants. Furthermore, the head and secretaries for both the religion and science study programs are considered as part of the respondents.

Information was also obtained from lecturers as curriculum executors in the field. Data which were in the form of curriculum and lesson plans were randomly collected from lecturers because they represented several faculties within these universities. Additionally, students were selected as respondents to examine the learning in the classroom.

Data were analyzed by interviews, observations, and documents before concluding. To ensure validity, the researchers extended participation in the field. Triangulations were also made from both sources and methods.

D. RESULT AND DISCUSSION

SIU Imam Bonjol integrated science through several methods including revising the curriculum. In 2018, the university used the Indonesian National Qualifications Framework (INQF) and this shows that several courses are integrated into science. Also, in school legislation, curriculum development is based on theological, philosophical, cultural, sociological, psychological, and policy values.

Zulfis, Head of Community Service explained that the INQF contains four parts including national characterization, university, faculty, and study program courses. The integration of science in the INQF is in the university courses section (Zulfis, Head of Community Service, Interview at SUI Padang, 01 July 2021)

Previously, there was an integration of religious and general science at SIU Imam Bonjol. This tends to be indicated through the Science Interpretation and Islam with Science in the general and religion faculty, respectively. However, only a few lecturers carried out science integration. Zulfis emphasized that the models used were integration, interaction, and dialogic. According to Nana Sufrianti, Vice Dean 1 of Science and Technology, "only a few lecturers understood how to integrate science" because of their background. The majority of lecturers used Student-Centered Learning (SCL) to perform lecture activities (Nana Sufrianti, Vice Dean 1 of Science and Technology, Interview at SUI Padang, 02 July 2021).

Furthermore, this integration is carried out by lecturers with different scientific backgrounds. Zulfis explained that lecturers at SIU Imam Bonjol collaborated in research and community service. In this activity, they carried out science integration (Nana Sufrianti, Vice Dean 1 of Science and Technology, Interview at SUI Padang, 02 July 2021).

SIU Imam Bonjol Padang has integrated scientific knowledge and this can be indicated through its curriculum with a dialogical interaction integration model. Zulfis, Head of Community Service, explained that the university used the model for science integration. The

model is in line with the vision of SIU Imam Bonjol such as "Becoming a Competitive Islamic University in ASEAN in 2037" (Nana Sufrianti, Vice Dean 1 of Science and Technology, Interview at SUI Padang, 02 July 2021).

This dialogical interaction integration model is structured by arranging interrelated general and religious courses such as interpretation science. The results in SIU Antasari Banjarmasin showed that the process of integrating knowledge is carried out in several ways, including (a) incorporating it into the related curriculum, (b) creating a scientific mapping of lecturers, (c) conducting the collaborative research, (d) carrying out training for lecturers, particularly young ones, (e) applying integrated career development, and (f) counseling services (Mujiburrahman, Rector of Antasari State Islamic University).

According to Rusdi, Head of the Postgraduate Sufism Study Program, the curriculum structure at SIU Antasari Banjarmasin is known as *takamul ilmi*, indicating knowledge that is mutually complete and complementary to one another. There are four pillars in multidisciplinary science including (a) Dynamic Integration that combines natural, social, and humanities with Islamic sciences; (b) Integration of Islam and Nationality commonly known as Wasathoniyah Islam; (c) Local Based where scientific studies are based on the needs and demands of the Banjar natural and social environment. This is indicated through the leadership efforts to establish Banjar and Melayu Corner; and (d) Global Insight where efforts are made in collaboration with universities in Malaysia, Thailand, and Taiwan.

Based on the document review, there are more integrated courses in the Islamic Broadcasting Guidance Study program. They include Sociology of Religion, Psychology of Religion, Religious Counseling Guidance, Sakinah Family Counseling Guidance, Islamic Psychotherapy, Religious Counseling, and Religious Information Systems.

According to Mujiburrahman (Rector) and Hamdan (Vice Rector 1), SIU Antasari Banjarmasin designed a new curriculum called "Introduction to Science Integration" (Mujiburrahman, Rector of SIU Antasari Banjarmasin, Interview Results in Banjarmasin, 13 September 2021). The university is faced with the problem of several lecturers that are engaged in different fields of science and lack experience in carrying out lecture activities. This is in line with Rector Mujiburrahman that the obstacles faced by each lecturer include not having

experience, not all HR knowing how to apply it, and differences in scientific backgrounds (Mujiburrahman, Rector of SIU Antasari Banjarmasin, Interview Results in Banjarmasin, 13 September 2021).

In the implementation of lectures, lecturers who carry out science integration are graduates from a religious university such as SIU. The majority of lecturers who graduated from public universities teach without integrating science (Anwar Fuadi, Secretary of the Islamic Counseling Guidance Study Program, SIU Antasari Banjarmasin, Interview Result at Banjarmasin, 13 September 2021, and Anita Apriani, Head of the Islamic Counseling Guidance Study Program, SIU Antasari Banjarmasin, Interview Results at Banjarmasin, 13 September 2021).

Furthermore, the following are efforts made by SIU to integrate knowledge: 1) Join research, 2) Make scientific mapping of lecturers, 3) Conduct training, and 4) Implement integrated career coaching. SIU Antasari Banjarmasin used a philosophy of "source of knowledge", indicating that water flows from a high place to a low level. This metaphor shows that the university flows useful knowledge. A multidisciplinary is the science integration model developed in the curriculum at SIU Antasari Banjarmasin. Rusdi, Head of SIU Antasari Banjarmasin Sufism Study Program, emphasized that this model is used in developing the course.

In integrating science, SIU Antasari Banjarmasin failed to carry out verseization because religious and general knowledge complements each other. This is in line with Rector Mujiburrahman that the university does not perform verseization but rather the term "*takamul ilmi*" (Mujiburrahman, Rector of SIU Antasari Banjarmasin, Interview Results in Banjarmasin, 13 September 2021).

Also, Hamdan, Vice Rector 1 of SIU Antasari Banjarmasin, indicated that the multidisciplinary integration model was used in curriculum development.

> SIU Antasari Banjarmasin has a philosophy of "source of knowledge". The integration model is not verseization or not linking one verse to another. However, the SIU integration model combines the natural, social, as well as humanities with Islamic sciences because they mutually enrich, renew, and illuminate (Hamdan, Vice Rector 1 of SIU Antasari Banjarmasin, Interview Results at Banjarmasin, 13 September 2021).

SIU Antasari Banjarmasin failed to carry out verseization but uses a multidisciplinary science integration model. However, the curriculum development is carried out by combining natural, social, and humanities with Islamic sciences because they mutually enrich, renew, and illuminate. The results showed that a multidisciplinary integration model was used in which the natural, social, and humanities with Islamic sciences are combined because they mutually enrich, renew, and enlighten each other.

SIU Sultan Maulana Hasanuddin Banten

Integrating science at SIU Sultan Maulana Hasanuddin Banten is done in several ways, including (a) incorporating it into the related curriculum, (b) lecture activities carried out by integrating science, and (c) lecturer collaboration in conducting research and community service. This is in line with Mufti Ali, Vice Rector I of SIU Sultan Maulana Hasanuddin Banten, that:

> The science integration process is carried out in several ways, including (a) in the curriculum, (b) lecture activities are carried out with science integration, and (c) lecturer collaboration in conducting research and community service. SIU Sultan Maulana Hasanuddin Banten has a philosophy of the "big bang", indicating science integration is from one source that branches and grows (Mufti Ali, Vice Rector 1 of SMH Banten, Interview at Banjarmasin, 15 September 2021).

The integration at SIU Sultan Maulana Hasanuddin Banten is more about link and match such as meeting market needs or employment opportunities. Also, the university uses the INQF grouped into four sections: 1) National characterization, 2) Institutional, 3) Faculty, and 4) Major or department courses. The research results showed that the curriculum structure includes religious and general, adapted to each study program. Additionally, students select several elective courses according to their interests and talents.

Lecturers use several methods and approaches when integrating knowledge into learning activities. This is as stated by Mufti Ali (Vice Rector 1) and Salahuddin Al-Ayubi (Vice Dean 1 of Usuluddin):

> The majority of lecturers select the best method from various sources in carrying out the integration (Salahuddin Al-Ayubi, Vice Rector 1 Faculty of Ushuluddin, Interview at Banjarmasin, 15 September 2021).

Lecturers who graduate from SIU always integrate knowledge into lecture activities, while those with general education backgrounds integrate science. This was reinforced by the statements of several students such as Mutiara Anggi, Umu Siti Marhamah, and Iis Islamiyah. Therefore, lecturers have no specific methods and approaches to carrying out science integration. A link-and-match model was developed in the SIU Sultan Maulana Hasanuddin Banten curriculum. This is as stated by Mufti Ali, Vice Rector 1:

> Currently, SIU Sultan Maulana Hasanuddin Banten used the link-and-match model to develop the curriculum. This causes the graduates from the university to be useful in the community and jobs because the model developed helps to answer market needs (Mufti Ali, Vice Rector 1 of SUI SMH Banten, Interview Results in Banjarmasin, 15 September 2021).

The link and match are expected to be absorbed by SIU Sultan Maulana Hasanuddin Banten alumni around Banten as a region of various industries.

1. Discussion of Research Findings

The model becomes the concept of science integration developed in several SIU because it helps to eliminate the dichotomy between Islamic and general science. However, each SIU has its uniqueness in terms and paradigm. The following is the overview of the science integration model in each SIU.

Science Integration Model at SIU Imam Bonjol Padang, Antasari Banjarmasin, and Sultan Maulana Hasanuddin Banten

No.	University Name	Science Integration Term	Scientific Paradigm
1.	SIU Imam Bonjol Padang	Beehive	This is philosophically likened to a source of giving knowledge, which

			benefits the surrounding life. SIU Imam Bonjol Padang in viewing the relationship between religion and science in a multidimensional reality is interactive-dialogical, which puts forward post-foundationalist rationality. As the symbol used is a beehive, the integrated conception of a beehive does not eliminate its identity. The mutually exclusive intersections of the hexagonal sides of the honeycomb form a unit representing disciplines, faculties, study programs, methodologies, assumptions, values, and other multiple aspects. Each entity is independent but connected with other entities.
2.	SIU Antasari Banjarmasi	The source of knowledge with the meaning that rainwater is a symbol of qauliyah verses, while the earth is a kauniyah verse. The two merge into the source.	Science integration as termed the "source of knowledge" is implemented with four pillars: dynamic integration, integration of Islam and nationality, locally based, and global perspective.
3.	SIU Sultan Maulana Hasanuddin Banten	Big bang.	Philosophically it means that the integration of knowledge originates from one source that branches and grows. Science integration uses the integration-comparative-diffusion paradigm by assuming that science is an entity, similar to other creatures. Knowledge was created and the creator

			is Allah SWT. All existing knowledge does not need to be integrated because it comes from one source, Allah SWT.

2. Application of Science Integration in Curriculum Development

There are different ways to implement science integration that is developed in the curriculum at each SIU. The following is an overview of integration policies in course development:

1. SIU Imam Bonjol Padang

In terms of curriculum content, there are religious and general. Several courses such as Science Interpretation and Islam with Science are scientifically integrated at the General and Religious Faculty, respectively. From the learning approach in SIU Imam Bonjol Padang, there is a philosophy of beehive using a dialogic interaction integration. It is a model in which curriculum development is carried out by conducting dialogue or communication among lecturers with different scientific backgrounds.

2. SIU Antasai Banjarmasin

Regarding the SIU Antasari curriculum content, several religious and general courses were adjusted to the study program. There was a curriculum that constructively integrated with disciplines such as Islam and Banjar Culture (Islam and Local Culture). This subject was taught both in general and religious study programs. It included the Sociology of Religion, Psychology of Religion, Religious Counseling Guidance, Islamic Counseling Sakinah Family Counseling Guidance, Islamic Psychotherapy, Religious Counseling, and Religious Information Systems. Furthermore, the university designed a new curriculum called "Introduction to Knowledge Integration".

The curriculum development approach used a multidisciplinary integration model which combines natural, social, humanities, and Islamic sciences because they mutually enrich, renew and enlighten. Furthermore, it employed the SCL strategy in lecture activities. Several efforts are made to integrate knowledge, including (1) joining research conducted by lecturers who have

different areas of expertise, (2) making scientific mapping, (3) conducting training for lecturers, particularly young ones, and (4) implementing integrated career coaching.

3. SIU Sultan Maulana Hasanuddin Banten

In terms of curriculum content, there are religious and general. Several courses such as Islamic and natural science require scientific integration. A link-and-match model is used where curriculum development is based on market needs. Generally, lecturers employed several learning approaches and methods in integrating knowledge into learning activities.

The explanation above showed that the scientific integration model is not fully developed in the preparation of the curriculum at each SIU. Also, it is an approach in one discipline with the option model such as (1) fragmented, (2) connected, (3) and nested when referring to Fogarty (Fogarty, 2009). Several courses are structured using an interdisciplinary model including Science Interpretation, Islam, Sociology of Religion, Psychology of Religion, and others.

It can be concluded that SIU Antasari Banjarmasin is more conceptual than the remaining 2 universities while implementing science integration in the curriculum. Moreover, a course was designed with the name Introduction to Knowledge Integration. There are also policies such as in the field of research, lecturer scientific mapping, knowledge integration concept training, and integrated careers.

E. CONCLUSION

Each institution that transforms into an SIU has a different concept of scientific philosophy. For instance, SIU Imam Bonjol Padang, Antasari Banjarmasin, and Sultan Maulana Hasanuddin Banten have the philosophy of "beehive", “source of knowledge”, and “Big Bang", respectively. Each term has a different philosophical meaning and paradigm. SIU Imam Bonjol Padang has a dialogic interaction integration paradigm. Also, SIU Antasari Banjarmasin with its source of knowledge adheres to four pillars dynamic, integration of Islam and nationality, locally based, and global perspective. SIU Sultan Maulana Hasanuddin Banten uses a comparative-diffusion integration paradigm. All the scientific term and paradigm has consequences that need to be structured in curriculum development at each SIU. SIU Imam Bonjol Padang, Antasari

Banjarmasin, and Sultan Maulana Hasanuddin use integrated dialogical interaction, multidisciplinary knowledge, and link-and-match approaches, respectively.

Authors' Contribution

Idea, S.S., A.M.; literature review (state of the art), S.S., A.M.; methodology, S.S., A.M., H.R.S.; data analysis, S.S., A.M., H.R.S..; results, S.S., A.M., H.R.S..; discussion and conclusions, S.S., A.M., H.R.S..; writing (first draft), S.S., A.M.; final review, S.S., A.M., H.R.S.; project design S.S., A.M.

REFERENCES

Ahid Nur, Konsep Dan Teori Kurikulum Dalam Dunia Pendidikan, Journal: *Islamica*, Vol. 1, No. 1, September 2006. Doi:10.15642/Islamica.2006.1.1.12-29

Al-Faruqi Isma"Il Raji, I*slamization Of Knowladge: General Principles And Workplan*, Penerjemah: Anas Mahyuddin, Bandung: Pustaka Salman Itb, 1984.

Azhar Khairil, *Human Agency In A Curriculum: An Analysis Of An Indonesia's 2013 Curriculum For Primary Level*, Tesis: University Of Tempere, 2016. Https://Urn.Fi/Urn:Nbn:Fi:Uta-201706282150

Fogarty, Robin J., *How To Integrate The Cucurricula*, Sage Publications, Apr 22, 2009

Fullan Michael, *The New Meaning Of Educational Change*, Fifth Edition Columbia: Teachers College, 2016. Https://Michaelfullan.Ca/Wp-Content/Uploads/2016/06/The-New-Meaning-Of-Educational-Change-1st-Ed..Jpg

Hamalik Oemar, *Administrasi Dan Supervisi Pengembangan Kurikulum*, Bandung: Rosdakarya, 2000. Https://Library.Walisongo.Ac.Id/Slims/Index.Php?P=Show_Detail&Id=4762

Johnson Mauritz Jr, Definitions And Models In Curriculum Theory, Journal: *Educational Theory*, Vol. 17, Issue 2, April 1967, Pages 127–140, Http/Doi: 10.1111/J.1741-5446.1967. Tb 00295.X

Morris Robert C., *A Guide To Curricular Integration*, Kappa Delta Pi Record • Summer 2003 Doi:10.1080/00228958.2003.10516399

Nur Muhammad, *Paradigma Keilmuan Uin Raden Intan Lampung, Jurnal Analisis: Jurnal Studi Keislaman*, Volume 18. No. 1, Juni 2018,. Atau Akses: Http://Ejournal.Radenintan.Ac.Id/Index.Php/Analisis/Article/Download/ 3378/2285

Rahman Fazlur, *Islam And Modernity: Transformation Of An Intellectual Tradition*, London: University Of Chicago Press, 1982.

Rifai Nurlena, Dkk, Integrasi Keilmuan Dalam Pengembangan Kurikulum Di Uin Se-Indonesia: Evaluasi Penerapan Integrasi Keilmuan Uin Dalam Kurikulum Dan Proses Pembelajaran, Jurnal : Tarbiya, Vol. I, No.1, Juni 2014.

Sabda Syaifuddin, *Pengembangan Kurikulum (Tinjuan Teoritis)*, Yogyakarta: Aswaja Pressindo, 2015.

Sardar Ziauddin (1986), *Rekayasa Masa Depan Peradaban Muslim*, Bandung: Mizan,.

Smith, M. K, Curriculum Theory And Practice' *The Encyclopaedia Of Informal Education*, Http://Infed.Org/Mobi/Curriculum-Theory-And-Practice/. Diakses Pada Tanggal 20 Januari 2018.

Sukmadinata Nana Syaodih (2005), *Pengembangan Kurikulum Teori Dan Praktek*, Cet. Ke-7, Bandung: Remaja Rosdakarya,

Tyler Ralph (1950), *Basic Principles Of Curriculum And Instruction*, Chicago: University Of Chicago Press,