

**INTEGRATIVE SCIENTIFIC MADRASAH IN INDONESIA:
New Developments in Integrating Science and Religion in the Learning
Processes**

Anggun Zuhaida
FTIK IAIN SALATIGA
Email: *anggunchemist@gmail.com*

Abstract

Science and religion are a unity. The difference between the two lies only in the way of view. Knowledge comes from the One God. All kinds of approaches to reality are ultimately capable of being integrated and integrated with the contemplation of the concept of God's oneness. Scientific activity is closely related to the implementation of education. The implementation of education is always based on curriculum development. The existence of curriculum development is based on the emergence of future challenges and competencies. This research aims to describe the design of integrative science and religion in the device and the implementation of learning. The research method used is descriptive qualitative, sample in this research is teacher at MTsN Kota Salatiga. The integration of science and religion is seen only in the implementation of learning, where teachers have introduced the relationship of science and religion through connecting with the verses of the Qur'an. The integration that has been implemented in the madrasah is already on the operational level.

Keyword: *Integration, Science, Religion, Learning*

Abstrak

Sains dan agama pada dasarnya adalah sebuah kesatuan. Perbedaan antara keduanya hanya terletak pada cara pandang. Pengetahuan berasal dari Tuhan Yang Esa. Semua jenis pendekatan terhadap realitas pada akhirnya mampu diintegrasikan dengan perenungan konsep keesaan Tuhan. Aktivitas ilmiah terkait erat dengan implementasi pendidikan. Implementasi pendidikan selalu didasarkan pada pengembangan kurikulum. Keberadaan pengembangan kurikulum didasarkan pada munculnya tantangan dan kompetensi di masa depan. Penelitian ini bertujuan untuk mendeskripsikan desain sains dan agama secara integratif dalam perangkat dan implementasi pembelajaran. Metode penelitian yang digunakan adalah deskriptif kualitatif. Sampel dalam penelitian ini adalah guru di MTsN Kota Salatiga. Hasil penelitian menunjukkan bahwa integrasi sains dan agama di sekolah ini hanya terlihat dalam pelaksanaan pembelajaran, di mana para guru telah memperkenalkan hubungan sains dan agama dengan cara menghubungkannya dengan ayat-ayat Alquran. Hal ini menunjukkan bahwa model integrasi yang telah diterapkan di MTsN Kota Salatiga sudah ada di tingkat operasional.

Kata kunci: Integrasi, Sains, Agama, Pembelajaran

INTRODUCTION

Science is systematic knowledge. Science is an exploration into the material realm by observation and searching for the regular natural relationships of observed

INTEGRATIVE SCIENTIFIC MADRASAH IN INDONESIA

and self-testable phenomena. Science rests on retractable objectivity (Purwanto, 2015). According to Mulyadi Kartenagara, the scope of modern science is sensory (ma'ss t), an object can be observed by the five senses. The study area of science is limited to observable things with the senses, and is supported by the logical process of choosing, deciding, and reasoning. Therefore, the objects of modern science studies include: matter, living things, minds, natural and historical cultures (Zuhri, 2017).

This is in contrast to the views of Muslim scientists. The scope of science study is not only things that the senses (ma'ss t) can observe, but includes the spiritual subtansi (ma'q l t), ie the dimension outside the sensory world known through intuition. Muslim scientists recognize metaphysical entities as real as physical objects. Even for them, metaphysical entities are more essential than physical objects.

In a dialogue between two Muslim scientists: Mehdi Golshani and Bruno Guiderdoni. Golshani asks what is the difference between science and religion. Guiderdoni explained that the difference between the two is based on two things. First, the character of the answers studied. Science answers the question how, while religion answers the question why. In other words, science examines reality analytically, and religion discusses value with synthesis (Guiderdoni, 2004).

Second the goal. Science understands the universe around humans, where understanding of nature affects a person's point of view, but that view does not make a person good. While religion encourages people to know God through the universe. For Guiderdoni, science and religion are a unity. The difference between the two lies only in the way of view. Knowledge comes from the One God. All kinds of approaches to reality are ultimately capable of being integrated and integrated with the contemplation of the concept of God's oneness (Guiderdoni, 2004).

There is no conflict between science and religion. Despite the tension between the two. However, tension does not mean conflict. The tension between science and religion in the Middle Ages was due to the fact that Western scientists thought that reason had its own conceptual foundation without being oriented to transcendent truth, so as to appear to exclude religion in the search for knowledge. The concept has undergone a shift in the modern phase of Christian theology, in contrast to its medieval theology, which gives space for modern science to flourish.

Science and religion can go together. Scientific, spiritual and ethical activities are a package. For Guiderdoni, scientific activity is a form of worship to God as a process of searching for religious values. Scientific activity has indirectly two integrative dimensions: the scientific and religious dimension. Both are different activities, but can not be separated. Scientific activity encourages scientists to admire His creations. Studies and research conducted by scientists is part of worship to Him at the same time give benefit to humans. In addition, he also carries out rituals of worship ordered by revelation. The purpose of scientific and religious activity is to be a complete man who believes in His oneness to know Him.

The implementation of education is always based on curriculum development. The existence of curriculum development is based on the emergence of future challenges and competencies. Future competencies that must be possessed by students include: 1) communication skills, 2) critical thinking skills, 3) ability to consider morally in a problem, 4) ability to be responsible citizen, 5) ability to try to understand and tolerant to 6) ability to live in a globalized society 7) have a vested interest in life, 8) having readiness to work, 9) having intelligence according to his / her interests, 9) having a sense of responsibility towards the environment. In order to achieve these competencies need to be done a learning that really in accordance with the desired results (Hasanah & Anggun, 2017).

There are several challenges in the process of integrative science education implementation in madrasah (Hasanah & Anggun, 2017). First, modern science and science learning is focused on the transformation of knowledge alone, there has been no attempt to dialogue, diekectektakan and integrate with the concept of Islamic theology, Tafsir, Hadith and other Islamic studies. Thus, there is no difference in science learning in madrasah and public schools. Thus, learning and research of science accommodate the values of spirituality, ethics and theology into integrative parts that are inseparable.

Second, teacher education background. Some teachers with a science background, find differences in the scientific approach. They tend to understand the object of study in exact and definite, while it deals with the dimensions of spirituality, theology and metaphysics.

Third, the curriculum is not intergrative yet. The absence of obligations on the implementation of the paradigm of unity of knowledge into the Lesson Plans (RPP). The fundamental constraint found is the difficulty of finding relevance

INTEGRATIVE SCIENTIFIC MADRASAH IN INDONESIA

between the theme of science study and the sources of Islamic studies, both from the Qur'an, the Hadith, and historical data on Islamic civilization. Ayatization only leads to the search for keyword similarity, while irrelevant from the aspect of the theme and its interpretation.

This research tries to describe the design of integrative science madrasah in the device and the implementation of learning. The integration of science and religion is presented based on the view of the relationship of science and religion according to Ian G. Barbour. Barbour presented four views on the relationship between science and religion, namely conflict, independence, dialogue, and integration. Furthermore, the implementation of integration of science and religion in an institution must include four implementations, namely at the level of conceptual, institutional, operational, and architectural.

RESEARCH METHODS

This research is a descriptive research, because it aims to create a systematic, factual and accurate description of the facts, and the characteristics of the population (Suryana, 2010). The approach used in this research is to use qualitative approach. Qualitative methods are used to describe the results of expert validation, questionnaires, interviews and observations about the integration of science and religion in the device and the implementation of learning in MTsN Kota Salatiga. Research design starts from planning, instrument development, data collection, data analysis, and description of findings. At the planning stage, the researcher identifies the information needed and from which the information will be obtained. The flow of research implementation to be carried out in this research, is as follows:

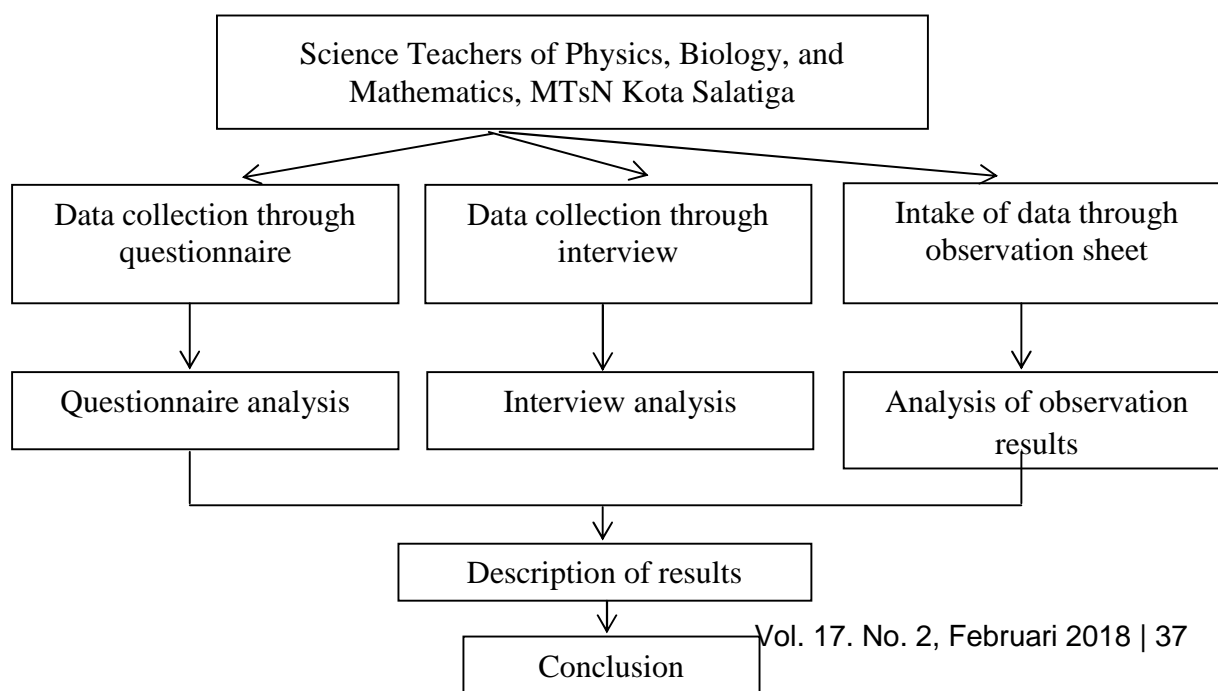


Figure 1: Flow of Research Implementation

The instrument used is adapted from the approach of science and religion relations developed by Ian G. Barbour (2005). Barbour states there are 4 approaches to relationships and science: conflict, independence, dialogue and integration.

Qualitative data analysis is used based on the results of questionnaire instruments, observation sheets, and interviews. The results obtained are analyzed descriptively, categorized in patterns with data reduction process to obtain a description of the application of scientific integration in science and math learning MTsN Kota Salatiga using Miles and Huberman model.

After data collected, data analysis using Miles and Huberman model through three processes (M.D & F, 2012):

1. Data reduction process. The researcher discards the unnecessary data and organizes it. It can describe the integration of science and religion in the device and implementation of learning in MTsN Kota Salatiga.
2. The process of presenting the data. After the data reduction process, the information collected is presented narratively.
3. Conclusion. From the information presented, the researcher concludes the integration of science and religion implementations in the device and implementation of learning in MTsN Kota Salatiga.

A. Integration of Science

W.J.S Poernawadarmint explains the definition of integration with unification to become rounded or whole. Integration is an attempt to make two or more things into one indivisible entity. Integration in general can be interpreted as a union / integrate into one unified whole (Mahfudzoh, 2011). The forms of scientific integration include the following:

1. The form of scientific integration based on classical philosophy, which is trying to explore the legacy of classical Islamic philosophy.
2. The form of scientific integration of tasawuf based science, namely Islamization of science or islamization of knowledge which means the discussion of science from interpretation based on ideology, and mystical meanings.

INTEGRATIVE SCIENTIFIC MADRASAH IN INDONESIA

3. The form of science-based integration of fiqh, namely the Islamization of science departed from the fiqh scholars thought in making the Koran and as-Sunnah as the peak of truth.

The forms of science integration studies include:

1. Comparison, comparing the concept or theory of science with the concept or religious insight about the same symptoms.
2. Inductification, the basic assumptions of scientific theory supported by empirical findings are continued in theoretically abstract theories towards metaphysical or supernatural thinking, then connected with the principles of religion and the Koran on the subject.
3. Verification, revealing the results of scientific research that supports and proves the truths of the verses of the Qur'an.

KBBI explains that science is defined as knowledge of a field arranged systematically according to certain methods, which can be used to explain certain symptoms in the field of knowledge (Hamzah, 2016). Etymologically, science is part of knowledge that is coherent, empirical, systematic, measurable and provable. In contrast to faith, that is knowledge based on belief in the unseen and appreciation and personal experience. While knowledge is a phenomenon that is captured by the five senses and organized as an information.

The classification of science according to Al-Farabi is divided into two main groups namely intellectual science ('aqliyyah) and doctrinal (naqliyyah), or the science of philosophy and religion. Intellectual science is further divided into two parts: theoretical and practical. The theoretical group consists of three parts: metaphysics, mathematics, and physics. Another science that is part of theoretical science is logic. On the one hand, the ontological status of logic serves as a science, and on the other hand, logic also serves as a tool. While practical science is divided into two parts, namely ethics and politics (Humaidi, 2015).

As for the group of religious sciences, Al-Farabi only mentions three groups of knowledge, namely kalam science, jurisprudence, and language rules. The science of kalam's position is the same as the science of metaphysics in rational science which is one of the objects of his study of God, while the jurisprudence of his position is the same as the practical science because it explains the best way of gaining perfection. As for the rules in Arabic which are called as instruments of

measuring the truth, its position is the same as the science of logic in intellectual science.

In the modern context, science is classified into four parts: natural, formal, sociological, and applied sciences. The natural sciences consist of physics, earth science, and the sciences of life or biology. While formal science consists of two kinds, logic and mathematics. This formal science is also called pure science. The last two are sociology and applied sciences.

Pure science and formal science are distinguished from applied science, such as medicine, architectural engineering, and business administration. Formal science is useful only for the knowledge itself. This knowledge has the purpose of obtaining description, explanation, truth, control, and control. While the function and purpose of applied science is something behind knowledge, such as the utilization of natural resources for human life.

B. Learning Process of SMP / MTs in Curriculum 2013

Subjects are the smallest organizational unit of Basic Competence. For the SMP / MTs curriculum, Basic Competence organizations are conducted by considering the continuity between classes and harmony between the lessons tied to the Core Competencies. Based on this approach, there is a reorganization of the basic competencies of subjects so that the Curriculum Structure of SMP / MTs becomes simpler because the number of subjects and the amount of materials are reduced (Kemendikbud, 2014).

Implementation of primary and secondary education as stated in Government Regulation No. 17 of 2010 on Management and Implementation of Education aims to build a foundation for the development of potential learners to become human beings who:

1. Faithful and fearful to God Almighty, have a noble character, and noble personality;
2. Knowledgeable, competent, critical, creative, and innovative;
3. Healthy, independent, and confident; and
4. Tolerant, sensitive social, democratic, and responsible.

The curriculum as defined in Article 1 Paragraph (19) of Law Number 20 Year 2003 is a set of plans and arrangements concerning objectives, content, and

INTEGRATIVE SCIENTIFIC MADRASAH IN INDONESIA

lesson materials and ways used as guidelines for the implementation of learning activities to achieve certain educational goals. Curriculum Development 2013 is an advanced step of Competency Based Curriculum Development that has been initiated in 2004 and KTSP 2006 which includes integrated attitude, knowledge and skills competencies.

Curriculum is one of the elements that contribute to realize the process of developing the potential quality of these learners. The 2013 curriculum is developed based on an indispensable competence as an instrument to direct learners into: (1) qualified human beings capable and proactively respond to the challenges of an ever-changing age; (2) educated human beings who believe and cautious to God Almighty, have a noble character, healthy, knowledgeable, capable, creative, independent; and (3) democratic, responsible citizens.

The purpose of National Education as already formulated in Law Number 20 Year 2003 is to develop the potential of learners to become human beings who believe and pious to God Almighty, have a noble character, healthy, knowledgeable, capable, creative, independent, and become citizens democratic and responsible. In short, the law hopes that education can make learners competent in their field. Where such competent, in line with the national educational goals described above, should include competencies in the sphere of attitudes, knowledge, and skills as described in the lesson elucidation 35 of the law.

In line with the direction of the law, has also established the vision of education in 2025 is to create a smart and competitive Indonesian people. Intelligence is meant here is a comprehensive intelligent, the spiritual and social intelligent / emotional intelligence in the sphere of attitude, intellectual intelligence in the realm of knowledge , as well as kinesthetic intelligence in the realm of skills.

Thus, the 2013 curriculum is designed with the aim of preparing the people of Indonesia to have the ability to live as individuals and citizens who are faithful, productive, creative, innovative, and affective and able to contribute to the life of society, nation, state and civilization world. The curriculum is an educational instrument to bring Indonesians with the competence of attitudes, knowledge, and skills so that they can be productive, creative, innovative and affective individuals and citizens.

Competencies in the Curriculum 2013 are designed below.

ANGGUN ZUHaida

1. Contents or curriculum content of competence expressed in the form of Core Competence (KI) class and further details in the Basic Competence (KD) subjects.
2. Core competence (KI) is a categorical description of the competencies in attitude, knowledge, and skills (cognitive and psychomotor) aspects that learners should learn for a school, class and subject. Core Competence is the quality that a learner must have for each class through KD learning organized in the active student learning process.
3. Basic Competence (KD) is a competency that learners learn for a theme for SD / MI, and for subjects in certain classes for SMP / MTS, SMA / MA, SMK / MAK.
4. Core Competence and Basic Competence in secondary education is preferred in the area of attitude while at secondary education level on intellectual ability (high cognitive ability).
5. Core competence becomes the organizing element (Basic Competence) Basic Competence that is all KD and learning process developed to achieve competence in Core Competence.
6. The basic competencies developed are based on accumulative principles, reinforced and enriched in the lesson and educational level (horizontal and vertical organization).
7. The syllabus is developed as a learning design for one theme (SD / MI) or one class and one subject (SMP / MTS, SMA / MA, SMK / MAK). In the syllabus all KDs are listed for themes or subjects in the class.
8. Learning Implementation Plan developed from each KD for the subject and class.

The 2013 curriculum in the reconstruction of competencies includes: attitude, knowledge, and skills.

1. Behavioral competence includes spiritual attitudes (KI-1) and social attitudes (KI-2).
 - a. Spiritual attitudes (KI-1) to reach people who believe and piety to God Almighty.
 - b. Social attitude (KI-2) to achieve human beings who have noble character, healthy, independent, democratic, to be responsible.

INTEGRATIVE SCIENTIFIC MADRASAH IN INDONESIA

2. Knowledge competence (KI-3) to reach the knowledgeable human being.
3. Skill competence (KI-4) for qualified and creative man.

2013 curriculum brings a balance between attitude, skills, and knowledge to build soft skills and hard skills. One of the characteristics of Curriculum 2013 is the balance between attitude, skill, and knowledge to build soft skills and hard skills of learners from elementary, junior high school, vocational, and university level as revealed by Marzano (1985) and Bruner (1960). At the elementary level, the attitude aspect should be more or more dominant to be introduced, taught and / or exemplified in the child, followed by the skill domain, and the less knowledge domain is taught to the child. This is inversely proportional to build soft skills and hard skills at the level of university. In university domains knowledge is more dominant taught than the realm of skills and attitude.

In the 2013 curriculum for elementary, junior and senior high schools, and PT combines the attitude taxonomy trajectory of Krathwohl, skills (skill) from Dyers, and Knowledge from Bloom with revisions by Anderson. The attitude taxonomy of Krathwohl includes: accepting, responding, valuing, organizing / internalizing, and characterizing / actualizing. Taxonomy skills (skills) from Dyers include: observing, questioning, experimenting, associating, and communicating. Taxonomy of knowledge from Bloom, Anderson revision includes: knowing / remembering, understanding, applying, analyzing, evaluating, and creating (Kemendikbud, 2014).

C. Science and Religious Relations According to Ian G. Barbour

Science and religion have quite basic differences to consider before knowing the correlation between the two. These differences and issues sparked many discourses on the integration of science and religion by experts. One approach to the integration of science and religion popularized by Ian G. Barbour, Barbour is well aware of the existence of a second conflict and seeks to find a constructive partnership between the two. Barbour seeks to characterize integration in general by distinguishing it from conflicting approaches (science and religion inevitably contradict), or independence (that both should, or even selogically, walk individually)

According to Barbour, the relationship between science and religion is divided into four variants of relationships: konilik, independence, dialogue, and integration.

1. Conflict; in conflict relations, science asserts the existence of religion and religion negates science. Each only recognizes the validity of his existence. In this connection states that science and religion are hostile / contradictory (Barbour, 2005). The biblical interpreters of scripture believe that the theory of evolution contradicts religious beliefs. Atheist scientists claim that the scientific evidence for the theory of evolution is not in line with faith. These two groups agree that one can not trust God and the theory of evolution simultaneously when they are not in agreement with what they believe. For them, science and religion are contradictory (Barbour, 2005).
2. Independence; in a relationship of independence, each acknowledging the validity of another existence and stating that between science and religion there is no slice of each other. Independence states that science and religion are two independent domains that can live together as long as maintaining a safe distance from each other. Conflict can be avoided if science and religion remain in separate human spaces. Science and religion deal with different domains and different aspects of reality. Science asks about how things work and rely on objective public data. Religion asks about values and a larger frame of meaning for personal life. In this view, two forms of discourse are not competitive because they serve totally different functions. The two types of investigation offer complementary views of the world, insights that do not exclude one another. Such spatial separation (compartmentalization) avoids conflicts, but with the risk of establishing constructive interactions(Barbour, 2005).
3. Dialogue; in the dialogue relationship, it is acknowledged that among science and religion there are similarities that can be dialogued between scientists and clerics, even able to support one another. Dialogue photographed a more constructive relationship between science and religion rather than views of conflict and independence. However, dialogue does not offer the conceptual unity as the one proposed by the integrationist. Dialogue may arise by considering prejudices in scientific endeavors, or exploring the alignment of methods between science and religion, or analyzing concepts in one field with concepts in other fields. In comparing science and religion, dialogue emphasizes similarities in prejudices, methods, and concepts. Instead independence emphasizes the differences(Barbour, 2002).

INTEGRATIVE SCIENTIFIC MADRASAH IN INDONESIA

4. Integration; some seek a more systematic integration between science and religion. A more systematic and extensive partnership between science and religion occurs among those seeking a common ground between the two. Barbour states the existence of three variants of integration, namely: natural theology, theology of nature, and systematic synthesis.

In natural tea, it is stated that the argument is based on science alone. The existence of a claim that God's existence can be inferred from (or endorsed by) evidence of the design of nature, of which nature makes us more aware of it. Theology sought support for scientific discoveries.

In Theology of Nature, the main source of theology lies outside of science, but scientific theories can have a powerful impact on the re-formulation of certain doctrines, especially the doctrine of creation and human nature. Theological view of nature must be changed, adapted to the latest scientific findings of nature. In natural theology, science and religion are seen as sources of ideas that are relatively independent, but overlap in their areas of interest.

Whereas in systematic synthesis, science or religion contributes to the development of inclusive metaphysics(Barbour, 2002).More systematic integration can be done if science and religion contribute to a more coherent world-view elaborated within a comprehensive metaphysical framework. Metaphysics is the search for a set of general concepts that can interpret various aspects of reality (in an integrated way)(Barbour, 2005).

D. Scientific Integration in Devices and Implementation of Learning

This research reveals the integration of science and religion in the device and the implementation of learning in MTs Negeri Kota Salatiga as the research sample. The science and religious integration indicators are adapted from the approach developed by Ian G. Barbour (2005) which consists of approaches to conflict, independence, dialogue, and integration (natural theology and natural theology). That approach will reveal later on:

1. Application of scientific integration in science and mathematics learning in learning tools
2. Application of scientific integration in science and math learning in the implementation of learning.

ANGGUN ZUHaida

In order to disclose these two findings, 4 (four) aspects will be observed through our research instruments: religious content in the lesson plans, character-based content of religious values in instructional plans, teaching materials, and learning execution. The instruments developed in this research are: observation sheet, questionnaire, and interview.

Table 1: Exposure of Components, Aspects, and Instruments

No	Component	Aspect	Instrument
1	The design of integration of science and religion in learning devices	- Religious content in the lesson plan	- Observation sheet - Questionnaire - Interview
		- Content-based character of religious values in the lesson plan	- Observation sheet - Questionnaire - Interview
2	The design of integration of science and religion in the implementation of learning	- Teaching materials	- Observation sheet - Questionnaire - Interview
		- Implementation of learning	- Observation sheet - Questionnaire - Interview

Aspects used to know the integration of science and religion in learning tools are religious content in lesson plans, and character-based content of religious values in the lesson plan. The instruments used were questionnaires, observation sheets, and interviews.

The questionnaire used in this study was a joint questionnaire (closed and open). Used joint questionnaire because in addition to teachers can choose the answers that have been provided, the teacher can also reveal the findings experienced. The second instrument used is the observation sheet, the observer observes the Learning Implementation Plan (RPP) which has been prepared by the teacher in the lesson. The results of observational data on aspects of religious content in the lesson plans and character-based content of religious values in the lesson plan. The results of questionnaires and observation sheets can be seen in the following table:

Table 2: Results of Questionnaires and Observation Sheets on Integration of Science and Religion in Learning Devices

INTEGRATIVE SCIENTIFIC MADRASAH IN INDONESIA

Approach	Questionnaire		Observation sheet	
	Content of Religion	Character Content	Content of Religion	Character Content
Conflict	0%	0%	16,67%	0%
Independence	0%	0%	0%	0%
Dialog	100%	66,67%	66,67%	66,67%
Natural Theology	0%	33,33%	16,67%	33,33%
Theology of Nature	0%	0%	0%	0%

Based on the results of questionnaires and observation sheets, it is known that the approach that looks dominant is the dialogue approach. This is because teachers have not included religious content in the lesson plan (RPP) mainly on core activities, but it appears that religion has a contribution in the discussion of science. Religious content only appears in KI-1 about appreciating and living the religious teachings it embraces. In the character content aspect it is found that in the prepared RPP does not include character content in the execution of core activities. But there is an alignment of the character of students in the discussion of science. Character content only appears in KI-2 which shows respect and appreciation of honest, disciplined, responsible, and caring behavior.

The third data is based on the interview, the result of the interview is known that the religious content, the character content is known not to be included in the core activities of learning contained in the RPP. Teachers only include character content on KI-2 as an attitude and behavioral assessment. It shows the level of dialogue approach according to Barbour (2005). Based on data obtained from 3 instruments: questionnaires, observation sheets, and interviews conducted to teachers of science and mathematics at MTs N Salatiga, can be found on the basis of religious content and character-based content of religious values in RPP, it is known that the visible approach is a dialogue approach.

Aspects used to determine the application of integration of science and religion in the implementation of learning is teaching materials, and implementation of learning. The instruments used were questionnaires, observation sheets, and interviews. The results of questionnaires and observation sheets of the design of science and religious integration in the implementation of learning can be seen in the following table:

Table 3: Result of Questionnaire and Observation Sheet on Integration of Science and Religion in Learning Tool

Approach	Questionnaire		Observation sheet	
	Teaching Materials	Implementation of Learning	Teaching Materials	Implementation of Learning
Conflict	0%	0%	0%	0%
Independence	0%	0%	0%	0%
Dialog	100%	100%	66,67%	50%
Natural Theology	0%	0%	33,33%	16,67%
Theology of Nature	0%	0%	0%	33,33%

Based on the following table can be seen from the questionnaire, both on the aspects of teaching materials and implementation of learning shows the same dominance in the dialogue approach. The teaching material aspect shows that the teaching materials only explain the science only. While religious material is taught or discussed directly in learning. The implementation aspect of learning reveals that religious material does not appear in the implementation of science learning. But there is an explanation that religion has a relationship contribution in the discussion of science.

The results of observation indicate that on the aspect of teaching materials. The most dominant finding is the dialogue approach. Observers observe teaching materials based on student handbooks and powerpoint media. All teaching handbook material shows that teaching materials only explain science only. However, there are some teachers who use the power point media, seem to teach and include the integration of science and religion in their learning.

Aspects of the implementation of learning, obtained a balanced outcome between the approach of dialogue and integration. This is because some teachers have not included religious content in the implementation of learning, but the teacher explains the contribution of religion in the discussion of science. In addition, observers also found some teachers have incorporated religious material in science learning through the mention of verses as well as explaining and interpreting new findings associated with religion.

The next instrument is the interview, found that in teaching materials, the implementation of teacher learning in the classroom has introduced the relationship of science and religion through connecting with the verses of the Qur'an. And some

INTEGRATIVE SCIENTIFIC MADRASAH IN INDONESIA

teachers have begun connecting these verses with natural phenomena. This shows the level of integration approach (natural theology) according to Barbour (2005).

Based on the data obtained from 3 instruments: questionnaires, observation sheets, and interviews based on the aspects of teaching materials and learning implementation, it is known that in the teaching material aspect, there is still a dominant approach to dialogue. This is because teachers are still using teaching materials in the form of Student Worksheets (LKS) whose content is only about science material only. While religious material is explained in the implementation of learning. In the implementation aspect of the approach, the apparent approach is the integration approach (natural theology). Although in the questionnaire said that 100% of respondents stated the dialogue approach at the time of implementation of learning. But after more in-depth development through observation and interviews, found in the classroom teachers have started to give religious material in science learning through the mention of verses and some teachers have begun to relate those verses with natural phenomena.

The relationship of science and religion that we observe, adapted from Barbour (2005) theory which divides the relationship of science and religion into four approaches are: Conflict, Dialogue, Independence, and Integration. The results of our findings are summarized in the following table:

Table 4: Science and Religious Relations According to Barbour (2005)
in Learning in Madrasah

Component	Approach of Science and Religious Relations
Implementation in Learning Tool	Dialog
Implementation in Implementation of Learning	Integration (natural theology)

Based on the findings data, it can be seen that there is an integration of science and religion at the level of concept and application in the implementation of learning. It shows that the teacher has understood about the concept of integration of science and religion and able to apply it in the implementation of learning. While the strategy of application and implementation in learning tools seems to have a dialogue approach. This indicates that the institute does not have a policy to integrate science and religion which ultimately impact on the preparation of learning tools in the form of Learning Implementation Plan (RPP).

Based on these findings, Mahzar argued that implementation of science and religious integration within an institution should include four implementations, namely at the conceptual, institutional, operational, and architectural levels (Bagir, 2005). Conceptual means madrasah as an educational institution should be able to understand, direct, and educate students to be kamil who in addition to understanding science also understand the science of religion. Institutional means the institution must have a firm policy on the implementation of integration of science and religion. Operational which means the curriculum that must incorporate the fundamental concepts of religious science in tandem with science that will be applied in learning tools, teaching materials, and implementation of learning. While the architectural level, madrasah as an educational institution also in addition to having room for the development of the field of science must also turn on the means of worship such as mosque and mosque. So it can be seen that the integration of science and religion in Madrasah has been seen at the operational and architectural level. This is because already seen a mosque built in Madrasah. So it is needed to be supported in the conceptual, and institutional level so that the implementation of science and religious integration in madrasah can run maximally.

CONCLUSION

Integrative science madrasah design applied to the device and the implementation of learning. In the learning tool component, the observed aspect is the religious content and the character content in the learning tool, in both aspects the dominant approach is the approach of dialogue approach. While the component of learning implementation aspects observed is teaching materials and implementation of learning in the classroom. In that component, there is an integration of science and religion. This is because teachers have started to give religious material in science learning through the mention of verses and some teachers have begun to relate these verses with natural phenomena. Implementation of visible integration is at the operational level.

BIBLIOGRAPHY

- Bagir, Z. A. (2005). *Integrasi Ilmu dan Agama: Interpretasi dan Aksi*. Mizan Pustaka.
- Barbour, I. G. (2002). *Juru bicara Tuhan antara sains dan agama*. Pustaka Mizan.

INTEGRATIVE SCIENTIFIC MADRASAH IN INDONESIA

- Barbour, I. G. (2005). *Menemukan Tuhan dalam Sains Kontemporer dan Agama*. Bandung: Mizan Pustaka.
- Guiderdoni, B. (2004). *Membaca Alam Membaca Ayat*. Bandung: Mizan Pustaka.
- Hamzah, F. (2016). STUDI PENGEMBANGAN MODUL PEMBELAJARAN IPA BERBASIS INTEGRASI ISLAM – SAINS PADA POKOK BAHASAN SISTEM REPRODUKSI KELAS IX MADRASAH TSANAWIYAH. *Adabiyah: Jurnal Pendidikan Islam*, 1(1), 41–54. <https://doi.org/10.21070/ja.v1i1.163>
- Humaidi. (2015). *Paradigma Sains Integratif Alfarabi*. Jakarta: Sadra International Institute.
- Kementerian Pendidikan dan Kebudayaan. (2014). *Materi Pelatihan Implementasi Kurikulum 2013 Tahun 2014*. Jakarta: Badan Pengembangan Sumber Daya Manusia Pendidikan dan Kebudayaan dan Penjaminan Mutu Pendidikan.
- M.D, G., & F, A. M. (2012). *Metodologi Penelitian Kualitatif*. Yogyakarta: Ar Ruzz Media.
- Hasanah, Nur.& Anggun Zuhaida. (2017). *Integrasi Keilmuan dalam Pembelajaran Sains dan Matematika di Madrasah (I)*. Salatiga: LP2M Press IAIN Salatiga.
- Purwanto, A. (2015). *Ayat-Ayat Semesta*. Mizan.
- Mahfudzoh, Siti. (2011). Pengaruh Integrasi Islam Dan Sains Terhadap Matematika. *Matematika Dan Pendidikan Karakter Dalam Pembelajaran*. Diambil dari <http://www.uny.ac.id>
- Suryana. (2010). *Metode Penelitian Metode Praktis Penelitian Kuantitatif dan Kualitatif*. Bandung: UPI Bandung.
- Zuhri, M. K. (2017). Spiritualitas Sains Modern: Pembacaan Terhadap Relasi Agama dan Sains. *JURNAL PENELITIAN*, 14(2). <https://doi.org/10.28918/jupe.v14i2.1015>