THE PERCEPTION OF MI/SD TEACHERS ON THE INTEGRATION OF ISLAM AND SCIENCE

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ABSTRAK

Penelitian ini bertujuan untuk mengetahui persepsi guru terhadap integrasi islam dan sains. Penting untuk melakukan penelitian terkait persepsi guru terhadap integrasi islam dan sains sebagai upaya untuk memperbaiki sudut pandang tehadap hubungan antara islam dan sains, dan harapanya dapat menghilangkan dikotomi yang menjadi salah satu penyebab kemunduran islam. Penelitian ini merupakan penelitian dasar dengan jenis pendekatan kualitatif dan metode deskriptif. Teknik pengumpulan data menggunakan kuesioner, wawancara, dan analisis bukti dokumen. Hasil penelitian menunjukkan bahwa persepsi guru terhadap integrasi islam dan sains dapat dideskripsikan sebagai berikut: 1) mayoritas guru mengatakan bahwa hubungan antara sains dengan islam adalah hubungan integrasi, 2) tanggung jawab untuk mengajarkan sains terintegrasi nilai islam ada pada guru kelas dan guru agama islam, 3) mayoritas guru mengatakan yakin jika diminta mengajarkan sains dengan integrasi islam jika ada topik yang mendukung, dengan menggunakan orientasi sains-islam, meskipun sebagian besar guru belum pernah mengikuti workshop atau pendidikan informal lain terkait integrasi islam dengan sains. Penelitian tentang persepsi guru tentang integrasi Islam dan sains ini hanyalah langkah awal dari penelitian selanjutnya. Dengan mengetahui persepsi guru di beberapa sekolah tentang integrasi Islam dan sains, dapat dilakukan penelitian lebih lanjut berupa pengembangan metode/model/media pembelajaran terkait pemahaman dan penerapan integrasi Islam dan sains.

Kata kunci: persepsi guru, integrasi Islam dan sains

ABSTRACT

This research aimed to know teacher's perceptions about the integration of Islam and science. It is important to conduct research related to teachers' perceptions of the integration of Islam and science as an effort to improve the perspective on the relationship between Islam and science, and the hope is to eliminate the dichotomy that is one of the causes of the decline of Islam. This research is basic research with a qualitative approach and descriptive method. The data collection technique used questionnaires, interviews, and document analysis. The result of the research shows that description on teacher's perception about science and Islamic integration are as follows: 1) most teachers state that the relationship between science

and Islam was integration; 2) both Islamic and science teacher have a responsibility to teach science with the integration of Islamic value; 3) most of them said that they believe their selves can teach science with Islamic integration; although most of them never participate at an educational workshop or informal class about Islamic and science integration. This research on teacher perceptions regarding the integration of Islam and science is only the first step of further research. By knowing the perceptions of teachers in several schools regarding the integration of Islam and science, further research can be in the form of the development of learning methods/models/media related to the understanding and application of the integration of Islam and science.
***Keywords**: teacher perception, Islamic and science integration*

INTRODUCTION

The history of Islamic civilization has recorded big names of Muslim scientists who have expertise in religious knowledge as well as mastering science (science). In the VII-XIII centuries AD, Islam was at the peak of its glory both in religious science and in science. Some of the famous scientists include Ibn Sina or Avicenna as the father of medicine, Al Khwarizmi an expert in mathematics, Al Jazari a founder of robotics, Umar Khayyam, the author of algebra books and other Muslim scientists whose discoveries are the basis for today's science. This shows that at that time, religion and science were not two contradictory things.

The rapid development of science in Islamic society at that time influenced the western world. New discoveries began to emerge and some of them sparked conflict between scientists and church doctrine. One of the scientists who received the death penalty for violating church law was Galileo. Galileo confirmed Copernicus's idea that the center of the universe was the sun based on the results of experiments and observations. This is contrary to the teachings of the church which emphasizes that according to the bible, the earth is the center of the universe. As a result of this incident, there began to be a separation between science and religious doctrine in the church. The impact is that the development of science is increasingly moving towards a secular direction.

The current condition where science is far apart from religion makes Muslim scientists motivated to reunite Islam with science. Many studies on the integration of Islam and science have been carried out both internationally and in Indonesia. Some well-known figures in the idea of integrating Islam and science are Ismail Raji Al Faruqi, Syed Muhammad Naquib Al-Attas, Fazlur Rahman, and Ziauddin Sardar. In Indonesia, several figures who sparked the idea of integrating Islam and science include Kuntowijoyo with his ideas on Islamic science and Amin Abdullah with the idea of integration-interconnection. There is also another view on the relationship between science and Islam in the "Islamic Science" approach where the construction of science is based on the revelation of Allah which is used as the inspiration of science. Islamic science is not just making a combination or finding a match between science and the Koran, but also its interactions. (Khoirudin, 2017: 195).

Science can be defined as all knowledge. However, in the discussion in this paper, science refers to science as natural science. Science is the study of various natural phenomena. Hewitt (2007: xvi) explains that the field of science studies includes physics, chemistry, biology, earth, astronomy and various other sciences that include studies of the natural sciences. Science or science forms a concept and is interconnected with each other (interdisciplinary).

Islamic scientists in its golden age realized that Islam did not prevent them from conducting various investigations in order to study nature more deeply. In the Qur'an there are verses that command humans to study the universe. The command to study nature is not intended so that humans control the universe for personal gain, but so that humans are closer to their creator. Islamic scientists in ancient times believed that there were many lessons from God through all of His creation. One of the ideas related to the integration of Islam and science is the idea of universal verses. This idea demands the birth of science from understanding the Kauniyah verse from the Qur'an, as well as natural

scientific instruments that are inspired directly from understanding the structure of the Qur'an, vocabulary, and all dimensions of the miracles of the Qur'an (Khoirudin: 2017: 208).

The goals of national education in Indonesia are stated in UU No. 20 of 2003 concerning the National Education System. The expected result of education is that the potential of students can develop so that they become human beings who believe and fear God Almighty, have noble character, are healthy, knowledgeable, capable, creative, independent, and become democratic and responsible citizens. From these objectives it can be concluded that the first purpose of education in Indonesia is to develop the potential to become human beings who believe and fear God Almighty.

Learning science or science in schools today faces challenges where in some science materials it seems contrary to religion (Mansour, 2010: 130). Some topics in science are also considered controversial topics such as evolution, cloning, and genetic engineering. The teacher's perception or the way the teacher interprets religious views on some topics can create misconceptions that can have an impact on students' understanding. Therefore, the teacher's perception of a material will affect the learning received by students (Chen, 2014: 2). Perception is the process of organization and interpretation of stimuli from the environment through the five senses, so that individuals can associate objects with certain memories so that they can influence their behavior (Rahmat: 2002); (Mulyono: 2000). A person's religious perception is shaped by his understanding and experience.

Based on the results of observations in several MI/SD in Pekalongan, the formulation of science learning objectives tends to only emphasize knowledge mastery. So learning is only centered on science material without linking it to other aspects, including aspects of the integration of Islamic religious values. Science learning, especially in Islamic elementary schools and madrasah Ibtidaiyah, has the aim that students master science-related knowledge, develop process skills, and respect nature and all its regularities as one of God's creations.

It is important to conduct research related to teachers' perceptions of the integration of Islam and science as an effort to improve the perspective on the relationship between Islam and science, and the hope is to eliminate the dichotomy that is one of the causes of the decline of Islam. Teachers play an important role in improving the quality of the nation's next generation. Thus, the role of a teacher becomes very important to provide an overview to his students about the relationship between science or science and Islam.

This research is a basic research. The research is developed to examine the basic sciences in the social and exact fields and aims to develop scientific theories or basic principles related to these fields of science. The results of the basic research will then underlie practical problem solving.

The research approach used is a qualitative approach, where this research emphasizes meaning, reasoning, definition of certain situations, and generally relates to everyday life. Qualitative research is research from the participant's point of view aimed at understanding social phenomena.

The method used is descriptive method. The descriptive method aims to describe a symptom, event, and event that is happening now. Descriptions are made in a systematic, factual, and accurate way to reveal the facts and characteristics of a population. The research subjects in this study were 4th, 5th, and 6th grade MI/SD teachers in Pekalongan City. There are four sub-districts in Pekalongan City, including West Pekalongan, East Pekalongan, North Pekalongan, and South Pekalongan.

The research procedure begins by translating the instrument adapted from the instrument in Mansour's (2008b) and Mansour (2011) research, then the results of the translation and analysis of the instrument are combined with the instruments used in Islamic research (2017). Furthermore, the questionnaires were distributed to the schools that were sampled in the study and filled out by the respondents. The completed questionnaire was then re-examined and used as material for interviews.

DISCUSSION

This research on teacher perceptions uses a questionnaire adapted from the questionnaire used in the research of Mansour (2008b), Mansour (2011), and Islam (2017). The questions in the questionnaire used in this study were developed based on 7 indicators as mentioned in Table 1 below.

Table 1. Research Instrument Indicator

No.	Indicator	Item Question
1	The relationship between Islam and science	1
2	Responsibility to teach Islam	2
3	The influence of Islamic insight on the way of teaching	3
4	When to teach the relationship between Islam and science	4
5	Belief in material that contains Islamic-science issues	5, 6
6	Teaching material that contains Islamic-science issues	7
7	Experience in activities related to the integration of Islam-science and the way of teaching	8

In general, the research results show that most teachers state that religion is the main one, while science comes next. In detail, each indicator is described as follows:

1. The relationship between Islam and science

The view on the relationship between science and religion has been discussed by Ian G. Barbour who maps views on the relationship between science and religion in four typologies, namely conflict, independence, dialogue, and integration (Waston, 2014: 80-84). Questions are given based on the theory. Details of the answers from respondents are 15 people answered integration, 1 person answered dialogue, and 1 person did not choose an answer among the four answer choices provided. Each answer choice has a reason stated by the respondent.

From the respondents' answers, it is known that almost all

respondents choose integration as a view of the relationship between Islam and science. As explained in the theory of mapping the relationship between science and Islam, the integration type has two versions, namely the natural theology which believes that God's existence can be inferred from His creation, and the theology of nature type which states that although religious sources are outside science, the development of science can used to reformulate several things to adapt to the times and technology by sticking to the source of religion, namely the holy book.

Of the 15 answers that chose integration, it can be concluded that all of them have an integrated view of the theology of nature. This is evidenced by the opinions of the respondents, namely: scientific explanations are also found in the Qur'an; scientific research provides evidence of the truth of Islamic teachings; science is part of Islam; and there is a connection between Islamic civilization and science. However, there are three teachers who state that the relationship is in the form of integration but when they state the reasons, they say that there are some things in science that are contrary to Islam.

Of the 17 respondents, one person answered that the relationship between Islam in science includes dialogue. This type of dialogue does not necessarily unify science and religion but explores the similarities or similarities in views between religion and science. Here are teacher 10 opinion:

Dialogue, analysis of conformity between Islam and science. Islam and science, I think there is a match between the two. Because in the Qur'an there are also explanations related to science, for example the development of human creation, the solar system, the oceans and others. Not only other sciences that are described in the Qur'an, such as the environment, philosophy, character education etc.

2. Responsibility to teach Islam

This question aims to explore the views of teachers about who has the responsibility in teaching science that is integrated with Islamic values. From the results of questionnaires and interviews, it is known that 14 people answered class teachers and

Islamic religion teachers, while 3 people answered others.

Teacher 3 did not give reasons for his choice, namely class teacher/science teacher and Islamic religion teacher. The opinions of teachers 4, 5, 11, and 10 stated that the responsibility lies with the class teacher/science teacher and Islamic religion teacher because both will complement each other.

The following is the opinion from one of the teachers:

Science teacher/class teacher and Islamic religion teacher. Those who are responsible for working on the relationship between science and Islam are both, namely the science teacher and the Islamic religion teacher, with their existence complementing each other and balancing the developing knowledge.

Teachers 6, 7, 8, 12, and 14, have slightly different reasons, namely although they have the same opinion that the responsibility for teaching the integration of Islam and science is on the class teacher/science teacher and Islamic religion teacher, the underlying reason is that both the science teacher and Religions need to know each other's fields of knowledge to provide an accurate picture of the relationship between science and Islam. The following is the reason from one of the teachers:

Science teacher/class teacher and Islamic religion teacher because science needs to be taught accompanied by religious knowledge. Because basically, everything that exists in the earth and sky is God's creation and happens by His will. So, both science teachers and Islamic religious teachers need to teach the relationship between science and Islam. So that students' understanding is balanced.

While according to teachers 13, 15, 16, and 17 the responsibility lies with two parties, namely the science teacher/class teacher and the Islamic religion teacher because it makes learning more meaningful.

3. The influence of Islamic insight on the way of teaching

In this question, all respondents have the same answer, namely "yes". Thus, it can be said that all respondents studied have the same view, namely that the Islamic insight of a teacher affects the way of teaching. Here are the answers from

some respondents: according to teachers 11, 12, 13, and 14 the quantity of Islamic insight can affect the learning process. The opinions of teachers 4, 6, 9, and 16 of a teacher's Islamic insights that are applied in learning can encourage students to grow faith and be more grateful.

4. When to teach relationship between Islam and science

Teachers' perceptions develop throughout life and are influenced by several factors, including: life experiences and the influence of other people in their lives (Knowles, 1992). Some are directly adopted from the existing culture, others are formed from experiences that are framed by culture. In life, each individual shares experiences in his or her role as a child, as a family member, or as a parent. These experiences then shape teachers' perceptions of students, curriculum development, and the overall process in schools (McGillicuddy-De Lisi and Subramanian, 1996).

In this question, out of 17 respondents, 15 respondents answered if there was a topic that supported, while 2 people answered otherwise. According to some teachers, when there are topics that support and science is taught with the integration of Islam, the learning can be more focused and effective.

5. Belief in material that contains Islamic-science issues

When exploring individuals' views on the relationship between science and religion, the influence of culture on their understanding of interpreting the science-religion relationship should be considered. Personal religious beliefs possessed by a teacher will affect the development of perceptions and practices in the field of science, this influence is very important in the fields of science, technology and society (STS) because of the complexity of the topics handled (Richardson, 2003).

This point was reduced to two questions to find out the teacher's views on the limits of science material that can be integrated with Islam and the teacher's beliefs when asked to teach science material with Islamic integration. For questions about the limits of material that can be integrated, 12 respondents answered that all science materials can be integrated with Islam, while 5

people answered only partially. This is somewhat different from the answer to question number 4 where 15 respondents answered that the teaching of Islam is integrated in science only if there is a topic that supports it.

For the question of belief when teaching Islamic integrated science material, 16 teachers stated they were sure, while 1 teacher stated they were not sure. Of the 16 people, 14 people expressed confidence because in some scientific material it has been listed in the Qur'an. The reasons put forward are as presented by the following teacher 12:

Sure. Because all scientific material (in the sense that the outline is already explained in the Qur'an), for example an explanation regarding "the development of the human embryo" is found in the Qur'an S. Al-Mu'minun: 12-15.

6. Teaching material that contains Islamic-science issues

Mansour (2008) argues that personal religious beliefs (PRB) are one of the most powerful factors influencing the performance of science teachers in science classes. PRB is a social construction based on a person's various experiences, including their religious experiences. PRB is defined as views, opinions, attitudes, and knowledge built by a person through interaction with his socio-cultural context through his life history.

This seventh question is intended to find out what orientation the teacher uses when teaching science material with Islamic integration. From the results of the questionnaire, it is known that 14 people stated that they would use an Islamic science orientation, while 3 people stated that they would use a scientific orientation. By using Islamic science orientation, teachers can show knowledge through two points of view, namely from the point of view of science and from the point of view of Islam.

7. Experience in activities related to the integration of Islam-science and the way of teaching

Richardson (2003) identified three main sources that shape teacher perceptions, namely personal experience, experience with school and teaching, and experience in acquiring formal knowledge (subject and pedagogical knowledge). Among

the three, experiences with schools and teaching are the most important formal sources in shaping teacher perceptions. However, what is no less important is the informal experience, the experience that teachers have in everyday life, which can change their perceptions and knowledge.

From the results of questionnaires filled out by respondents, it is known that only 2 people have attended workshops related to the integration of Islam and science. The other 15 people have never attended a similar workshop or training. Some teachers who stated that they had never attended a workshop hoped for a synergy between campuses and schools in the development of knowledge, one of which was through the provision of workshops.

From the results of the analysis of the respondents' answers, it can be concluded that in general the respondents expressed the integration between Islam and science. This is in accordance with Amin Abdullah's opinion, that religious knowledge can be interconnected with other general sciences, because in essence Islam and science are one unit (Abror, 2010). The idea of integration-interconnection conveyed by Amin Abdullah is a solution to avoid the phenomenon of single entities (feeling the only ones who are right, scientific arrogance), isolated entities (there is "isolation" from various scientific disciplines, there is no greeting each other), so that we arrive at interconnected entities (aware of the limitations of each discipline, resulting in collaboration between different disciplines) (Abdullah, 2006: 404-405).

According to Amin Abdullah, every scientific field, whether religious, scientific, social, and humanities, cannot be a single entity, each must be interconnected. Cooperation, mutual correction, mutual need, interrelationships between scientific disciplines will be able to assist humans in understanding and dealing with the complexity of phenomena in the life they live. When humans can link Islam and other sciences, one of which is science, solving problems in life will be easier. Science can

provide benefits for human benefit (Abror, 2010).

The integration-interconnection paradigm as offered by Amin Abdullah is truly relevant for the development of Islamic scholarship (Islamic Studies). Interdisciplinary dialogue will strengthen Islam in facing the challenges of the times with all the complexities that exist. Changes are needed to meet post-modern civilization in the future, namely through the reconnection of religion (Islam) with other sciences, one of which is science. Islam can bring up an objective theory, so that science can be accepted by adherents of any religion or even an atheist as a symptom of objective science, not just as a norm. Optics and Algebra in the era of Al-Haythami and Al-Khwarizm, for example, without being associated with Islamic culture, were objective and acceptable to all mankind. Likewise, about the science of the efficacy of honey, which in the Qur'an there is knowledge about the properties of honey. Science that was born from Theo anthropocentric theory, which is the result of integration between religious ethics and human exploration (of nature and the environment) objective, independent, and impartial to a particular interest, can be useful for all human beings from various backgrounds (Kuntowijoyo, 2007: 57).

CONCLUSION

In general, it can be said that teachers' perceptions of the integration of Islam and science in schools that are the object of research can be described as follows: 1) the majority of teachers say that the relationship between science and Islam is an integration relationship, 2) the responsibility to teach integrated science Islamic values lies with classroom teachers and Islamic religion teachers, 3) the majority of teachers said they were sure if they were asked to teach science with Islamic integration if there were topics that supported it, using an Islamic-science orientation, even though most of the teachers had never attended workshops or other informal education related to the integration of Islam with science.

This research on teacher perceptions regarding the integration of Islam and science is only the first step of further research. By knowing

the perceptions of teachers in several schools regarding the integration of Islam and science, further research can be in the form of learning methods/models/media related to the understanding and application of the integration of Islam and science.

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