Electronic Journal of Education, Social Economics and Technology
Vol. 5, No. 2, (2024), pp. 161~168
ISSN 2723-6250 (online)
DOI: https://doi.org/10.33122/ejeset.v5i2.353

SAINTIS publishing

Research Article

Model of Implementation of Integration of Islamic Religious Education and Science at MAN 2 Model Medan

Aldi Wijaya Dalimunthe*, Salminawati and Zaini Dahlan

Faculty of Islamic Education, Universitas Islam Negeri Sumatera Utara, Medan, Indonesia
*Corresponding Author: aldiwijaya182@gmail.com | Phone: +628 1375511813

ABSTRACT

The Research and Development and Training Agency of the Ministry of Religious Affairs of the Republic of Indonesia has instructed every madrasah unit to integrate science because madrasahs have a mission of integrating science, MAN 2 Model Medan as a pilot madrasah in North Sumatra certainly implements integration but the pattern and model of integration applied are not yet known. The purpose of this study is to describe and analyze the understanding of MAN 2 Model Medan policy makers about the integration of Islamic religious education and science and to determine the planning, implementation and model of integration of Islamic religious education and science at MAN 2 Mode Medan . The type of research used by the researcher is qualitative research. The researcher conducted observations and collected data naturally without manipulating the subjects studied. The researcher used data collection techniques by means of observation, observation, interviews and documentation. While the data analysis technique by means of data reduction, data presentation and drawing conclusions of data takes place and after the completion of data collection in a certain period, in the form of all written or oral data from people and observed behavior. Based on the research results, it was found that: 1) The understanding of MAN 2 Model Medan policy makers regarding the concept of integrating Islamic religious education and science does not yet have original administrative guidelines. However, policy makers continue to implement the integration of Islamic religious education and science with the guidelines of the independent curriculum, namely KMA No. 437 of 2022 and its renewal in KMA No. 450 of 2024; 2) Planning the integration of Islamic religious education and science in learning through annual independent curriculum workshops and MGMP meetings and planning P5RA activities; 3) Implementation of the Integration of Islamic religious education and science through several activities, namely teaching and learning activities, extracurricular activities, Madrasah Science Competition (KSM) activities, P5RA activities and superior activities of the MAN 2 Model Medan Dormitory; 4) The model for the integration of Islamic religious education and science at MAN 2 Model Medan is the integration of scientific materials (Religion, Science and social) and integration through the instillation of Islamic studies in various madrasah activities .

Keywords: Integration; Islamic Religious Education; Islamic Education; Science

1. INTRODUCTION

Without ignoring the advantages and disadvantages of human reason, we can see in the practical world where the education we describe above has crystallized into variants that seem to be able to separate and differentiate the creations of the maestro, namely God. This variation and separation have emerged in the world of education for a long time, known as dichotomy, where science as an object of educational work becomes a dualistic variation between general science that represents science with its steady progress and religious science which is represented by misunderstood deterministic normativity that religious science only dwells in sacred texts with sacredness without being able to get out to think about the phenomena of the universe that are very sophisticated. With such an understanding, religious science will receive negative implications by being looked down upon because its existence cannot go hand in hand with existing progress. Although in its history, dichotomy has unconsciously begun since long ago with the mapping of intellectual sects such as the Mu'tazilah and Khawarij, what is clear is that the current dichotomous tradition has degraded the culture of Islam in its entirety. The roots of the dichotomy have at least been formulated by Al-Faruqi based on western imperialism and colonialism in the Islamic world and the separation between thought and action within the Muslim community seems very clear in the scientific treasury of our country which historically was still colonized by the Dutch who began to establish colonial education for the children of Bumi Putra which then continued to develop until the duality of science, namely religion and general, became increasingly deeply rooted and gripping (Wathoni, 2018) .

Such conditions further sharpen the gap between science and religion and strengthen the dichotomy of science (separation of religious and general science, classical and modern, afterlife and worldly) which in turn spreads to

educational dualism (Akmalia, 2023) . On the one hand, there is education that only deepens modern science that is far from Islamic values: on the other hand, there is education that only deepens religious science that is separated from the development of modern science. The first category only produces secular scientists, while the second only produces religious figures who have exclusive insights and separate or even throw away modern science from the paradigm of understanding and interpreting their religion. Commenting on this, the emergence of a tendency for dichotomy actually stems from the failure of humans (Muslims) to understand the relationship between science and religion proportionally (Tamami, 2019) . In the view of the Muslim community, Islam is not only limited to religion, teachings and instructions for safety in life in the world and the hereafter, but also contains knowledge sourced from the Qur'an and Sunnah. (Sa'dijah, 2022) . There are many signs in these two sources that are directly related to science as well as clues to human potential as creatures capable of absorbing and applying knowledge. In the history of science, Muslim society made these two sources a spiritual-transcendental basis so that science and knowledge were born (Marsan, 2022) .

Integrative education, namely the integration of religion and science, has been widely exemplified by Muslim scholars in the past, namely the golden age of Islam (Naibin et al., 2021) . They studied and mastered various disciplines, both religious and scientific, giving rise to several scientists at that time such as Ibn Khaldun who studied social sciences by creating the foundations of social sciences, Ibn Sina as a medical expert and philosopher and many other Muslim scientists. The emergence of these scientists provides evidence that religion teaches balance between worldly life, namely science, and the afterlife, namely religious science. However, this is currently experiencing a problem, namely the dichotomy of science which has a view of separating religious science and science (Ikmal et al., 2022) . The idea of integration is a renewable episteme that continues to be developed in an effort to harmonize and counter the gap that already exists so as not to leave space for duality of science (Hanifah, 2018) . The design of integration between religion and science continues to be encouraged starting from universities with various typologies and scientific buildings, such as the tree of knowledge manifested as a scientific metaphor at UIN Maulana Malik Ibrahim Malang. The metaphor of the tree of knowledge is a concrete form of the integration of Islam and science within the scope of UIN Maulana Malik Ibrahim Malang. The design of the scientific structure is explored as a sturdy tree, with shady branches, fertile leaves, and abundant fruit because it rests on strong roots. Strong roots function to support the tree and absorb food sources in the soil (Rifai et al., 2014) . While the horizon of the scientific spider web of UIN Sunan Kalijaga Yogyakarta. Integration of science based on three Islamic epistemologies, namely bayani, burhani and irfani, is seen as having a relationship that M. Amin Abdullah maps as follows: First is the parallel that is elaborated as a form of relationship between the three epistemologies owned by a Muslim scientist and scholar cannot dialogue with each other. So that the mastery of one single epistemology will be very dominant, and does not accept space for other epistemologies. This parallel relationship depends on the situation and conditions. For example, someone who is in the theological doctrinal area will use bayani epistemology (Aminuddin, 2010) .

UIN North Sumatra has also integrated religious knowledge and science under the umbrella of Wahdatul Ulum. 'Wahdatul 'Ulûm' in question is the vision, conception, and paradigm of science which, although developed in a number of fields of science in the form of departments or faculties, study programs, and courses, has a unity as a science that is believed to be a gift from God. Therefore, its ontology, epistemology, and axiology are presented as devotion to God and dedicated to the development of civilization and the welfare of humanity (Harahap et al., 2019) . The three paradigms in the university have provided examples and concepts of the integration of religious knowledge and science that can be applied in elementary to secondary education units. However, each educational unit will carry out the model of integration of Islamic religious education and science with its own characteristics and methods due to the background of the culture and types of students in each region and each level of education (Rafiq, 2017) . The Research and Development and Training Agency of the Ministry of Religious Affairs of the Republic of Indonesia has instructed every madrasah unit to integrate knowledge because madrasahs have a mission of integrating knowledge. Then this integration of knowledge should have been implemented from the lowest level, namely Raudhatul Athfal (RA) to the level of higher education, namely universities. In the process of integrating knowledge from each level, it will have its own model of how the educational unit integrates religious knowledge and science because in accordance with the diversity of educational levels, the integration of knowledge also takes a different form or pattern at each level (Indonesia, 2012) .

One of the efforts that is currently being taken by several madrasahs in Indonesia is to integrate, namely integrating religion with science in the learning process. The program is not preparing students to become religious experts or religious speakers in society, but rather so that students are able to think integratively about religion and science, not dichotomously and most importantly, they are not secular. Secularism in the context of education has several negative sides for students themselves as individuals and also as future leaders. Personally, they will fall into great losses, because their social and professional actions will lose their afterlife values, and will not become good deeds that are indexed with rewards, because they lose the religious spirit in them. Then socially and professionally, the nation will be harmed, because it loses the power of auto-controlling that someone will obtain when he has good religious integrity, and all of that can only be achieved or obtained, if students understand that behind all that exists there is a universal existence, which continues to monitor them in every second they move both in the context of professional and social work.

In the context of education in Indonesia, especially in religious-based schools, the implementation of this integration is becoming increasingly relevant. MAN 2 Model Medan as an educational institution that has a vision to produce a generation of believers and knowledge, needs to have an effective implementation model. This model must be able to accommodate students' needs in understanding science without ignoring religious values. The integration of Islamic religious education and science can provide a strong foundation for students to understand the realities of life (Sari & Amin, 2020) . With this approach, students are not only taught to think critically and logically, but are also trained to associate every scientific knowledge with the spiritual values that have been taught in religion. This is in accordance with the

principle of holistic education, where education does not only focus on cognitive aspects, but also affective and psychomotor. One approach that can be applied is through interdisciplinary learning, where science material is taught together with relevant religious concepts (Turmudi et al., 2021) . For example, when discussing the laws of physics, teachers can relate them to verses of the Qur'an that describe the order and greatness of Allah's creation. This approach not only makes learning more interesting, but also helps students to see the connection between science and faith.

Initial observations conducted at MAN 2 Model Medan, it can be seen that the integration of Islamic religious education and science is not only in the scope of learning materials but has also formed an integrated curriculum. Researchers obtained data that in the MAN 2 Model Medan curriculum, an interdisciplinary approach has also been implemented, as evidenced by the fact that MAN 2 Model Medan has six majors. Namely, the Health major with class code F1, the Engineering major with class code F2, the Business Economics major with class code F3, the Humanities major with class code F4, the Technology and Informatics major with class code F5, and the Religion major with class code F6. The six majors are a reflection of the madrasah, which not only studies religious knowledge but also merges it into a general major about Islamic religious knowledge. The integration of religious knowledge and science is not only in the major, but in the learning process a teacher must strive to integrate Islam and science. How a teacher can integrate religious knowledge and science in every learning, both when studying religious knowledge can integrate into science and vice versa when studying science can integrate it into Islamic religious knowledge so that the term dichotomy of knowledge in MAN 2 Model Medan can be said to no longer exist. Through this study, it is expected to provide an empirical picture of the model for implementing the integration of Islamic religious education and science in MAN 2 Model Medan.

2. RESEARCH METHOD

This study uses a qualitative-analytical research type with a case study approach. Qualitative-analytical research is a study that intends to understand the phenomenon of what is experienced by the research subject, for example behavior, perception, motivation, actions and others, holistically, and by means of analysis, namely in the form of words and language that are arranged and explained in a structured manner in a specific natural context and by utilizing various natural methods (Moleong, 2016) . The data source is the subject from which the data is obtained. The main data source in qualitative research is words and actions, the rest is additional data such as documents and others. The primary data sources in this study were the Head of Madrasah/Deputy Head of Madrasah, Science Teachers including Biology Teachers, Physics Teachers, Chemistry Teachers, Mathematics Teachers and Islamic Religious Education Teachers including Fiqh Teachers, Akidah Akhlak Teachers, SKI Teachers, Al-Qur'an Hadith Teachers and Students. While the secondary data sources in this study are archives and official documents stored at MAN 2 Model Medan. To collect data in the field in order to answer the focus of the research, data collection methods are used, namely observation, interviews and documentation (Sugiyono, 2015) . To get an overview of the data results from the research, procedures need to be carried out, such as data reduction, data presentation/data display, and drawing conclusions. Checking the validity of data in qualitative research can be done by testing credibility (interval validity), transferability (external validity), dependability (reliability) and confirmability (objectivity) (Rasimin, 2018) .

3. RESULTS AND DISCUSSION

3.1 Results

3.1.1 Planning the Integration of Islamic Religious Education and Science at MAN 2 Model Medan

In this context, the integration of PAI and Science becomes an important foundation in forming students who are not only intellectually superior but also have high spiritual awareness. Integration planning at MAN 2 Model Medan is designed from several activities, this is in accordance with what was conveyed by the WKM curriculum of MAN 2 Model Medan, Mr. ABS, that:

> "The planning of scientific integration activities at MAN 2 Model Medan is designed with various activities in accordance with the orders and flexibility of the independent curriculum that provides madrasas to determine the policies and programs of the madrasah. Integration planning in activities in our school, for example in teaching and learning activities in class, P5RA activities, extracurricular activities and activities in our school's dormitory program"

The Independent Curriculum emphasizes improving learning outcomes according to the abilities of each student. Therefore, there needs to be a learning design that takes into account students' needs. This was explained by one of the Biology Teachers at MAN 2 Model Medan, Mrs. RSH, that:

> “Learning planning is very crucial according to the mother. As teachers, we must really prepare learning carefully. Without good planning, we cannot design learning activities that are in accordance with the current needs of students. Especially in the digital era like today, students' needs are increasingly complex and diverse.”

In this case, the learning planning is integrated with science and Islamic religion, the Economics subject teacher, Mr. HH also revealed that:

> "Integrative learning planning is also very important because with integrated learning between science and Islamic religious lessons, according to you, it will make students understand the material better, meaning their insight will increase. This integrative learning will also increase their belief that there is no difference between general and religious lessons."

In the independent curriculum, teachers are required to develop contextual and meaningful learning. Teachers need to link learning materials to students' daily lives and current issues, so that learning becomes more relevant and easier to understand. The first planning for the integration of PAI and science at MAN 2 Model Medan is from integrative learning planning in the classroom. In principle, the steps (syntax) of integrated learning follow the stages that are usually used in each learning model which includes three stages, namely the planning stage, the implementation stage, and the evaluation stage. The syntax of the integrated or integrated learning model can be reduced from various learning models such as direct instruction models, cooperative learning models, and problem-based instructions learning models . WKM Curriculum MAN 2 Model Medan Mr. AB said:

> "At MAN 2 Model Medan, students are guided to love learning as a necessity that will prepare them to become Muslim leaders in the future. The learning system and activity programs are designed by considering the life skills needed to face the challenges of the times. Project Based Learning (PBL) is a project-based learning method that prepares students to be able to think critically, solve problems, develop communication skills, coordination, be proactive and creative. We have not yet created a formal and written concept for learning planning that integrates Islamic Religious Education and Science that can be given to religious and science subject teachers. Only in the curriculum implementation workshop held every year, this integration is always mentioned and given an understanding so that it can be implemented during learning."

Learning planning that integrates Islamic religious education and science at MAN 2 Model Medan does not yet have a formal concept that is perfectly structured in a special document. Nevertheless, this integration effort remains a serious concern and is routinely discussed in various academic forums at the school. Furthermore, in monthly meetings that focus on evaluating learning outcomes and planning follow-up actions, the aspect of integrating Islamic religious education and science always gets an adequate portion of discussion to ensure that its implementation runs according to the expected learning objectives. This was stated by the biology teacher, Mrs. RS, that:

> "The school has not given us a complete concept as a guide to integrating Islamic religious education and science. However, because we already know when we attended the IKM workshop that this integration is recommended and also important in our learning, we often discuss with fellow MGMP teachers and often share with religious teachers regarding the correlation of the materials we teach as science teachers with the verses of the Qur'an or in other words, the verses of the Qur'an that are used as references for the science materials we teach."

Based on observations, only a small number of teachers explicitly include and develop the integration aspect in their teaching modules. This shows that although the concept of integration has been recognized as important, its application in the form of learning documentation still varies and is not evenly distributed among educators. This situation may be influenced by various factors, such as individual teacher understanding of the concept of integration, ability to develop integrated materials, and availability of time and resources in compiling comprehensive learning modules. Although the integration of Islamic religious education and science is not formally stated in the teaching module, its implementation continues to take place dynamically in the learning process in the classroom. This was explained by one of the economics teachers, Mr. HH, that:

> "In the teaching module, I don't include anything about Islam in it, just the usual learning steps. But sometimes when I explain the material to the children, if I remember its relationship to our Islamic religion, I also convey it. For example, when I explain about profit. I tell them that the profit percentage is also regulated in the Islamic religion."

Based on the researcher's analysis related to integration planning in learning, namely in the creation of teaching modules, there is a gap between formal documentation and learning practices in the context of integrating Islamic Religious Education (PAI) and science in madrasas. This phenomenon shows an interesting pattern, where although the formal aspect in the form of learning documentation does not fully reflect the integration of PAI and science, teachers still show awareness and commitment in implementing the integrative approach in their learning practices. This is reflected in the lack of teachers who include integrated learning syntax in their teaching modules. However, in practice, they actively and spontaneously integrate Islamic values with the science concepts taught. This condition indicates that the integration of PAI and science has become part of the teachers' pedagogical understanding and awareness, although it has not been formally documented. This situation also illustrates the flexibility in the learning approach, where teachers are able to creatively link science material with verses of the Qur'an and Islamic teachings without being strictly bound to written planning. However, this gap also suggests the need to strengthen the documentation and planning aspects of integrated learning, so that it can guarantee the consistency and sustainability of this integrative approach in the long term.

MAN 2 Model Medan has taken a strategic step in integrating science through an innovative program called the Pancasila Student Profile Strengthening Project and the Rahmatan Lil Alamin Student Profile (P5RA). The WKM Curriculum of MAN 2 Model Medan explains as follows:

> "MAN 2 Model Medan has a program that we call P5RA or the Pancasila Student Profile Strengthening Project and the Rahmatan Lil Alamin Student Profile. This program is one of our efforts in integrating various dimensions of knowledge, especially Islamic religious education and science. P5RA not only focuses on developing students' academic competencies, but also emphasizes character formation that is in accordance with the values of Pancasila and the concept of Rahmatan Lil Alamin. In practice, we encourage teachers to develop learning that integrates Islamic values with modern science concepts, while still upholding national values. This program has helped us in creating a meaningful learning environment for students."

The implementation of the P5RA program at MAN 2 Model Medan began with a thorough and systematic planning stage. The school understands that the success of this program, especially in integrating Islamic Religious Education and science, is highly dependent on well-planned preparation. The strategic step taken was to form a special team consisting of

selected teachers who have competence in the fields of religion and science. This team was tasked with developing the P5RA module which would be an operational guide in implementing the program. This was explained by one of the teachers selected to be on the P5RA module creation team, namely Mrs. RS, who said that:

> "In the past two years, you are one of the teachers chosen by the madrasah to be the team compiling the P5RA module. According to you, it is an honor for you to be able to contribute to the madrasah in this P5RA activity. You really support this activity because this activity is very useful for students in the meaningful learning process. From this activity, they apply their knowledge with various disciplines. Well, we compiled this module in groups according to the P5RA theme consisting of approximately 5 to 6 people per group."

MAN 2 Model Medan also plans the integration of Islamic Religious Education (PAI) and Science through various innovative and structured extracurricular activities. Extracurricular programs are not only designed as a forum for developing students' interests and talents, but also as a strategic means in implementing scientific integration. Through activities such as Scientific Writing (KTI), Robotics, and various other science clubs, the madrasah integrates Islamic values into the exploration of science and technology. In addition, religious extracurricular activities such as tahfidz, tilawah, and Islamic studies are also packaged with a scientific approach, for example by analyzing natural phenomena mentioned in the Qur'an using a modern scientific perspective. This was explained by the Head of MAN 2 Model Medan, he said:

> "At MAN 2 Model Medan, we do not only rely on classroom learning to integrate PAI and Science. We also utilize extracurricular programs as a forum for developing this scientific integration. For example, in the KIR (Teenager Scientific Work) activity, we encourage students to conduct scientific research based on Islamic values. Likewise with the Robotics program, students not only learn about technology, but also understand how Islam views the development of technology as a form of worship and the welfare of the community."

Added again by the supervisor of the Qur'an Recitation Development Institute (LPTQ) MAN 2 Model Medan, Mr. MI, he said:

> "In the LPTQ Extracurricular at MAN 2 Modem Medan, it is clear that our guidance and teaching to children is not just about giving them knowledge about the Qur'an, but we have developed it by guiding them to understand the Qur'an by integrating current scientific phenomena so that they can better understand and appreciate the learning of the Qur'an."

The integrative approach in this extracurricular activity allows students to understand that science and religion are two entities that complement and strengthen each other. This is in line with the vision of the madrasah to produce graduates who are not only superior in academic achievement but also have a deep understanding of Islamic values.

3.1.2 Implementation of Integration of Islamic Religious Education and Science at MAN 2 Model Medan

In the context of developing modern Islamic education, the philosophy of integration between Islamic Religious Education and science becomes a fundamental foundation that colors every aspect of policy, planning, and implementation of learning at MAN 2 Model Medan. Chemistry Teacher Mrs. Sy said:

> "Regarding the implementation of the integration of Islamic religious education and science, apart from the KMA guidelines, we also base it on the philosophy of our madrasah's vision and mission. Creating students who excel but do not forget about superior Islamic character. So, in the implementation, the madrasah also carries out several programs that reflect the integration of science in accordance with the goals of the school's vision and mission."

The implementation of the integration of Islamic Religious Education and science at MAN 2 Model Medan is realized through various comprehensive and structured activities. In its implementation, this integration is not only limited to one aspect of learning, but is applied comprehensively in various madrasah programs. Intracurricular activities are also included in the implementation of this integration, where the learning process in the classroom is designed to combine Islamic perspectives with modern science studies. In addition, extracurricular activities are also a strategic forum for students to develop an integrative understanding of religion and science through various practical and experimental activities. In addition, the Madrasah Science Competition Program (KSM) is also a competitive arena that allows students to apply their integrative understanding in the form of scientific projects that are inspired by Islamic values. Furthermore, the boarding program at MAN 2 Model Medan provides a conducive environment for strengthening this scientific integration, where students can internalize and practice Islamic values while developing their science skills in everyday life.

The implementation of the integration of Islamic religious education and science at MAN 2 Model Medan is specifically applied through the ayatization approach in science learning. Science subject teachers at this madrasah creatively integrate verses of the Qur'an that are relevant to the science learning material being discussed. This approach does not simply display the verses of the Qur'an literally, but further explores the substantive relationship between the content of the verses and the scientific concepts being studied. For example, in biology learning when discussing the water cycle and its role in the ecosystem, the teacher relates it to QS An-Naba' verses 14-16 which explain how Allah sends down rainwater from the clouds to grow grains, plants, and shady gardens. The integration of these verses provides a more comprehensive perspective to students, where they can understand that the natural processes in the ecosystem they are studying have been scientifically hinted at in the Qur'an for centuries. Another example in economics lessons also applies the integration of Islamic religious education and science at MAN 2 Model Medan which provides a unique perspective in understanding modern economic concepts through the lens of Islam. This is clearly seen in the discussion of the material on profit-taking, where the teacher not only explains conventional economic theory on determining profit margins, but also integrates it

with the principles of Islamic economics that have been formulated by scholars for centuries. In Islamic teachings, profit-taking is not solely oriented towards maximizing profits, but also considers aspects of welfare and justice. Scholars have provided guidance on the recommended limits of profit-taking, taking into account various factors such as the type of commodity, business risk, and market conditions.

The implementation of the integration of Islamic Religious Education and Science at MAN 2 Model Medan applies a two-way approach that reinforces each other. Not only is science learning integrated with the verses of the Qur'an, but religious learning is also enriched with contemporary scientific discoveries. This is clearly seen in the learning of the Al-Qur'an Hadith, especially in the material on the miracles of the Qur'an, where teachers relate the verses of the Qur'an to various relevant modern scientific discoveries. This approach provides students with a deeper understanding of how the verses of the Qur'an that were revealed fourteen centuries ago have hinted at various natural phenomena that can only be scientifically proven in the modern era. The discoveries of contemporary scientists in various fields such as astronomy, embryology, geology, and other sciences are empirical evidence that strengthens the truth of the verses of the Qur'an.

Based on the results of the study, it can be concluded that the implementation of the integration of Islamic Religious Education and Science at MAN 2 Model Medan has been implemented through classroom learning activities with the ayatization approach to science materials. In practice, some teachers have succeeded in integrating learning by linking science materials with relevant verses of the Qur'an and linking them to the values of Islamic teachings. This integrative approach provides a new dimension in learning, where students can understand the unity between modern science and the truth of the Qur'an. However, in its implementation, several significant obstacles are still found. Not all science teachers and Islamic religious teachers apply this integrative approach comprehensively in their learning. There are still science teachers who deliver material conventionally without linking it to verses of the Qur'an, while on the other hand, some religious teachers have not been optimal in integrating modern scientific findings into religious learning.

3.1.3 Integration Model of Islamic Religious Education and Science at MAN 2 Model Medan

MAN 2 Model Medan, as one of the leading madrasahs, has implemented various forms and models of integration of Islamic religious education and science in its learning process. Although administratively there is no formal document that explicitly lists the integration model used, in practice, this integration has become an integral part of the daily learning process. Through this integrative approach, MAN 2 Model Medan has succeeded in creating a learning environment that combines modern science with Islamic values. Students not only gain a deep understanding of scientific concepts, but are also able to see their relationship with Islamic teachings, so that a complete and comprehensive understanding of science from an Islamic perspective is formed. The implementation of the integration model at MAN 2 Model Medan also has a positive impact on the cognitive and spiritual development of students. They not only excel in understanding science, but also have a strong religious foundation, in accordance with the vision and mission of the madrasah in producing graduates who are academically and religiously qualified.

Based on the results of the study through interviews and observations conducted at MAN 2 Model Medan, it is clearly illustrated how educators strive to integrate Islamic values with science learning. Teachers do not only focus on teaching science material theoretically, but also actively link it to Islamic perspectives and relevant religious values. This was explained by the Principal of MAN 2 Model Medan that:
"Indeed, we have not yet created a formal integration concept as a guideline for teachers in this MAN 2 model, but what I see is that these MAN teachers continue to try and make efforts to combine or integrate these lessons, both science lessons that are integrated with Islamic religious education lessons."

This was also explained directly by the WKM Curriculum MAN 2 Model Medan, Mr. ABS, that:
"If we talk about special models in MAN 2, we haven't made any of these Medan models. And I just heard that there are models like those explained and some of those models are the same as the implementation in our school, right? We can see it from the implementation and activities in our school. For example, learning in class with a variety of teacher models in implementing it. For example, with science lessons when learning is linked to verses of the Qur'an. Or during P5RA, several disciplines are made into one learning activity. Yeah, that's the model."

Based on the interview results above, in the researcher's opinion, the integration model used at MAN 2 Model Medan is a model of integration of scientific materials (science, religion, social) and a model of integration of activities with Islamic studies. This integration process is carried out very systematically in teaching and learning activities in the classroom. Teachers design learning that combines scientific concepts with Islamic values, while still considering relevant social aspects. This creates a holistic learning experience, where students can understand natural phenomena not only from a scientific perspective, but also from a religious perspective and its social implications. One concrete example of this implementation can be seen in learning Biology subjects, especially in ecosystem material. Teachers carefully integrate the discussion of ecosystems with verses of the Qur'an, especially those contained in Surah An-Naba verses 14-16. This integration allows students to understand the concept of ecosystems not only from a scientific perspective, but also to see how the Qur'an has explained this phenomenon for centuries. This applied integration model has proven effective in developing students' deeper understanding of the interconnections between science, religion, and social reality. Furthermore, this integrative approach has helped create a more dynamic and meaningful learning environment. Students not only gain partial knowledge, but also understand how various fields of science are interrelated and contribute to the formation of a complete understanding of the reality of life.

Based on the researcher's analysis, it can be concluded that this madrasah has implemented two complementary integration models. These models are manifested in various aspects of madrasah learning and activities, creating a holistic and meaningful educational environment. These two integration models operate synergistically, creating a learning

environment that allows students to understand the unity between science and Islamic teachings. Students not only gain a theoretical understanding of the integration of science and Islam, but also experience its direct application in various aspects of their academic and social lives. The successful implementation of these two models at MAN 2 Model Medan shows that the integration of Islamic religious education and science can be carried out effectively and meaningfully. This approach has contributed to forming a generation of Muslims who not only excel in academics, but also have a deep understanding of Islamic values and are able to integrate them into their daily lives. The normative aspect in curriculum integration is reflected in how Islamic values and teachings are integrated into the learning process. The team of teachers carefully analyzes how Islamic norms can be a guide in character formation and ethical decision making. This approach helps students understand that every field of knowledge has a moral dimension that needs to be considered. Meanwhile, in the axiological dimension, curriculum integration focuses on how the knowledge and values learned can be implemented in everyday life. This helps to form a comprehensive and integrated worldview in students.

3.2 Discussion

In its practical implementation, integration planning at MAN 2 Model Medan is carried out through three complementary strategic channels. The first channel is classroom learning planning which, although it does not yet have a formal structured concept in a special document, remains the main focus in educational development. These integration efforts are routinely discussed in annual curriculum development workshops that provide teachers with the opportunity to develop and evaluate strategies for integrating these two areas. In addition, the topic of integration is also an important agenda in Subject Teacher Deliberation (MGMP) meetings which allow teachers to exchange ideas and share experiences related to effective integration methods. However, the implementation in the learning module still shows variation, with only a small number of teachers explicitly including integration aspects in their teaching modules. The findings of this study have significant alignment with research conducted by (Nurmaidah, 2022) in the context of planning the integration of Islamic religious education with science.

The implementation of the integration of Islamic Religious Education and science in this madrasa has two main foundations that strengthen each other. First, referring to the KMA (Decree of the Minister of Religious Affairs) guidelines as a formal basis, and second, based on the philosophy contained in the vision and mission of the madrasa. This shows the seriousness and consistency of the madrasa in implementing scientific integration, where each program and learning activity is systematically designed to achieve a balance between the formation of Islamic character and the achievement of academic achievement in the field of science (Muflihin, 2016) . The implementation of the integration of Islamic Religious Education and science at MAN 2 Model Medan applies a two-way approach that strengthens each other. Not only is science learning integrated with the verses of the Qur'an, but religious learning is also enriched with contemporary scientific discoveries. This is clearly seen in the learning of the Al-Qur'an and Hadith, especially in the material on the miracles of the Qur'an, where teachers associate the verses of the Qur'an with various relevant modern scientific discoveries. The findings of this study show a deep correlation with the theory presented by (Wathoni, 2018) in his work on the urgency of exploring the verses of the Quran related to science. The process of exploring and identifying verses of the Quran that have a scientific dimension is a fundamental step in realizing a harmonious integration between science and Islam. This argument is strengthened by the findings of scientists who revealed that there are around 750 verses of the Quran that explicitly or implicitly discuss various aspects of science and technology.

The superior dormitory program at MAN 2 Model Medan has shown success in integrating Islamic religious education and science through various innovative activities that are systematically designed. One of the prominent superior programs is the muhadhoroh activity, where students are trained to develop their foreign language skills (Arabic and English) through Islamic preaching and speech methods. In this activity, students not only hone their language skills, but also deepen their understanding of Islamic teachings and relate them to the development of modern science. The nature contemplation program which is held every year is an effective experiential learning medium, where students can directly observe natural phenomena as evidence of the greatness of Allah SWT, while studying the underlying scientific concepts. The findings of this study are in line with the findings of research conducted by (Fauzan, 2017; Rusdiana, 2014) that the integration between religious education and science is a necessity. This is very important because there is no conflict between religion and science. Moreover, this integration activity is carried out by Islamic educational institutions which are pioneers in realizing civilization.

4. CONCLUSION

The planning and implementation of the integration of Islamic religious education and science is carried out through three complementary strategic channels. First, through classroom learning planning discussed in the annual curriculum development workshop and MGMP meeting, although it does not yet have a formal structured concept. Second, through the innovative P5RA program that combines Pancasila values, the Rahmatan Lil Alamin concept, and scientific integration, designed by a special team with superior competencies in the fields of religion and science. Third, through innovatively designed extracurricular activities, such as Scientific Writing and Robotics, which integrate scientific methodology with Islamic values. In its implementation, madrasas face several challenges such as time constraints in developing integrated learning modules, variations in teachers' understanding of the two fields of science, limited reference sources, and differences in educational backgrounds and teaching experiences of teachers that affect the uniformity of the application of the integration concept, where science teachers have difficulty linking material to verses of the Qur'an, while religious teachers face challenges in understanding modern scientific concepts in depth. MAN 2 Model Medan has implemented the integration of Islamic religious education and science through two main models, namely the model of integration of scientific materials covering science, religion, and social, and the model of integration of activities with Islamic studies.

Although both models have not been formally documented in the concept and administration of the madrasah, their implementation has been realized and observed in real terms through various learning activities and development programs implemented in this madrasah.

REFERENCES

Akmalia, R. (2023). Integration of Religious Moderation in Science Subjects in Class VI SDS Plus Anbata. *Book Chapter of Proceedings Journey-Liaison Academia and Society* , 81–90. https://www.j-las.lemkomindo.org/index.php/BCoPJ-LAS/article/view/645

Aminuddin, LH (2010). Integration of science and religion: a study of the interconnective integrative paradigm of UIN Sunan Kalijaga Yogyakarta. *Kodifikasia*, *4* (1), 1–34. https://doi.org/10.21154/kodifikasia.v4i1.746

Fauzan, F. (2017). Integration of Islam and Science in the Curriculum of the MI Teacher Education Study Program Based on KKNI. *JMIE (Journal of Madrasah Ibtidaiyah Education)* , *1* (1).

Hanifah, U. (2018). Islamization of Contemporary Science (The Concept of Scientific Integration in Islamic Universities in Indonesia. *ADRIS: Journal of Islamic Education*, *13* (2).

English: The Study of the Islamic Community in Indonesia*: Paradigm of Integration of Knowledge and Character of Graduates of State Islamic University (UIN) of North Sumatra Medan*. Perdana Publishing.

Ikmal, I., Tobroni, T., & Sutiah, S. (2022). Implementation of Integrative Curriculum Development at UIN Maulana Malik Ibrahim Malang. *Islamic Education: Journal of Islamic Education* , *11* (4), 399–416. https://doi.org/http://dx.doi.org/10.30868/ei.v11i4.3419

Indonesia, BL and DKR (2012). *Fulfillment of National Education Standards*. https://balitbangdiklat.kemenag.go.id/berita/pemenuhan-standar-nasional-pendidikan

Marsan, U. (2022). *Indonesian Muslim Intellectual Response to the Idea and Movement of Islamization of Science* . Paradigma Institute.

Moleong, LJ (2016). *Qualitative Research Methodology* . Rosdakarya Youth.

Muflihin, A. (2016). *Integration-Interconnection Scientific Paradigm: Study of the Design and Implementation of the Curriculum of the Master Program in Islamic Education Study Program, Faculty of Islamic Education and Teacher Training, UIN Sunan Kalijaga Yogyakarta* . UIN Sunan Kalijaga Yogyakarta.

Naibin, Nurhidin, E., & Abi, MR (2021). Integrative Islamic Education Paradigm. *Proceedings of the PMII Lecturer Thought Conference*, 1027–1040.

Nurmaidah. (2022). *Integration of religion and science: analysis of research-based learning at the Pesantren Alam Sayang Ibu Lombok* [Doctoral dissertation, UIN Mataram]. https://etheses.uinmataram.ac.id/4406/1/Nurmaidah 190701015.pdf

Rafiq, MN (2017). Integration of religious knowledge and science in educational practice. *Falasifa: Journal of Islamic Studies* , *8* (1), 127–148. https://doi.org/https://doi.org/10.36835/falasifa.v8i1.43

Rasimin. (2018). *Research Methodology; Qualitative Practical Approach*. Cendika.

Rifai, N., Fauzan, Sayuti, W., & Bahrissalim. (2014). Integration of science in curriculum development at UIN throughout Indonesia: Evaluation of the implementation of UIN scientific integration in the curriculum and learning process. *Tarbiya: Journal of Education in Muslim Society*, *1* (1), 13–34.

Rusdiana, A. (2014). Integration of Islamic religious education with science and technology. *Istek*, *8* (2), 123–143. https://etheses.uinsgd.ac.id/10230/1/012-Integrasi Pendidikan Istek 2014.pdf

Sa'dijah, SL (2022). *Formation of Student Character Through Learning Sirah Nabawiyah at Putra Harapan Purwokerto Boarding School* . State Islamic Institute of Purwokerto.

Sari, RM, & Amin, M. (2020). Implementation of Interdisciplinary and Multidisciplinary Science Integration: Case Study at Postgraduate UIN Sunan Kalijaga Yogyakarta. *Proceedings of the Conference on Integration of Interconnection of Islam and Science*, 245–252.

Sugiyono. (2015). *Educational Research Methods*. Alphabet.

Tamami, B. (2019). Dichotomy of Islamic religious education and general education in Indonesia. *TARLIM: Journal of Islamic Religious Education*, *2* (1), 85–96.

Turmudi, M., Arifin, Z., & Qomar, M. (2021). Multidisciplinary, Interdisciplinary and Transdisciplinary Studies in Islamic Higher Education. *In International Seminar on Islamic Education & Peace*, 274–281.

Wathoni, LMN (2018). *Integration of Islamic and Science Education: Reconstruction of the Islamic Education Paradigm* . Uwais Inspiration of Indonesia.