
	Profetika: Jurnal Studi Islam P-ISSN: 14110881 E-ISSN: 25414534 Vol. 26, No. 2, 2025, pp. 439-459 https://doi.org/10.23917/profetika.v26i02.7500	
	Received December 04, 2024	

Integrative-Interconnective Approaches in AI-Islam and Muhammadiyah Education: Advancing the SDGs at UMS

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Abstract

Objective: This study examines the implementation of AI-Islam and Kemuhammadiyahan (AIK) with an integration-interconnection approach at the University of Muhammadiyah Surakarta (UMS) and its contribution to SDG 4 (quality education), SDG 16 (peace and justice), and SDG 17 (global partnership). **Theoretical framework:** The theoretical framework is based on KH Ahmad Dahlan's thoughts on modern Islamic education, the concept of integration-interconnection of knowledge, contextual curriculum theory, the warning of "normal science", and the AIK policy as a compulsory course in PTM. **Literature review:** AIK is seen as a praxis of educational values that shape Islamic character, although it still faces a dichotomy of science. Integration-interconnection is believed to make AIK more transformative, in accordance with the ideas of Brady and Kuhn. The relevance of AIK is increasingly evident in the context of SDGs 4, 16, and 17. **Methods:** The research uses a descriptive-qualitative method based on literature studies with primary data (Muhammadiyah policy, AIK curriculum, learning practices) and secondary data (academic literature). The analysis follows the Miles & Huberman model, with validity maintained through credibility, transferability, dependability, and confirmability. **Results:** The results of the study show that the application of AIK based on integration-interconnection in UMS can produce learning that is not only a transfer of knowledge, but also a transfer of values. AIK directs students to a comprehensive understanding that includes cognitive, affective, and psychomotor aspects. This model is relevant to Muhammadiyah's vision of modern Islamic education that progresses and supports the achievement of SDG 4 (quality education), SDG 16 (peace and justice), and SDG 17 (global partnership). **Implications:** It is necessary to reconstruct the AIK curriculum to be transformative and contextual, to strengthen the identity of PT Muhammadiyah, improve the quality of education, foster student character, and support sustainable development. **Novelty:** The novelty of this research lies in the association of AIK based on integration-interconnection in UMS with the achievement of the SDGs, so that AIK is positioned not only as a typical Islamic course of Muhammadiyah, but also as a strategic instrument for inclusive and sustainable global education development.

Keywords: integration-interconnection approach, islamic higher education, curriculum transformation, aik, sdgs.

INTRODUCTION

Education for Muhammadiyah has an important meaning because it is through this education that the understanding of Islamic teachings can be instilled and inherited from generation to generation. Muhammadiyah calls this process regeneration education [1]. One

of the regeneration efforts is realized through the establishment of educational institutions from the elementary to university levels. At the university level, Muhammadiyah instills an understanding of Islam through the Al-Islam and Kemuhammadiyah (AIK) courses, which are positioned as the praxis of value education [2].

Muhammadiyah universities are not only oriented towards instilling AIK values, but also develop an understanding that religious science and general science (science) must be studied in a balanced manner [3]. The University of Muhammadiyah Surakarta (UMS), as one of the Muhammadiyah Universities (PTM), carries out an Islamic mission and is required to have excellence in the religious field compared to public universities. The challenge that arises is how to implement and internalize AIK values in the daily lives of students, both in the campus environment and the community. The ideal of Islamic education itself is to form Muslim human beings who have noble character, pious in religion, broad in outlook, master worldly knowledge, and have social concern to advance society [4].

It is in this context that the scientific integration-interconnection approach is important. This approach rejects the dichotomy between religious science and general science, emphasizing that both are derived from the Qur'an and Hadith [5]. The implementation of integration-interconnection requires the development of a higher education curriculum that is not only oriented to the world of work, but also emphasizes the unification of Islamic values in the mastery of science. As emphasized by Brady, curriculum development must be adjusted to the context, process, management, translation, and evaluation to be able to produce excellent graduates [6].

AIK, as a compulsory course in all PTM (Perguruan Tinggi Muhammadiyah), has a strategic position. It is not only an instrument of religious teaching, but also a means of forming students' character to have an enlightening and moving understanding [7]. The challenge faced is to avoid AIK falling into the category of normal science, as criticized by Thomas Kuhn, namely, a science that is only taught dogmatically without encouraging a paradigm shift in thinking. AIK should be able to become a living, contextual science, and encourage the transformation of students into people with integrity, competitiveness, and contribution to society [8].

One of the innovations being developed at UMS is the application of the AIK learning model based on integration-interconnection. Through this model, AIK is not only a place for the transfer of knowledge, but also the transfer of values from Islamic values that are enlightening. This is important to realize the ideals of Muhammadiyah as an educational movement that gives birth to cadres of the people and the nation [9].

Furthermore, the relevance of AIK to the Sustainable Development Goals (SDGs) further strengthens its urgency. SDG 4 (Quality Education) emphasizes the importance of inclusive, quality, and equitable education, which is in line with AIK's goal in forming students who are knowledgeable and have an Islamic character. SDG 16 (Peace, Justice, and Strong Institutions) is closely related to AIK's mission in instilling the values of peace, justice, and institutional ethics. Meanwhile, SDG 17 (Partnerships for the Goals) can be realized through academic and social collaboration based on AIK values in the national and global scopes. Therefore, this study focuses on the Integration-Interconnection Approach in Al-Islam and Muhammadiyah Education: Efforts to Realize the SDGs at the University of Muhammadiyah Surakarta, to analyze how the implementation of AIK based on integration-interconnection can contribute significantly to the achievement of sustainable development goals [10].

Implications and Novelty. This research implies the urgent need to reconstruct the Al-Islam and Muhammadiyah (AIK) curriculum into a transformative and contextual model, strengthening Muhammadiyah universities' identity while enhancing educational quality, student character, and global competitiveness. By integrating cognitive, affective, and psychomotor aspects, AIK can serve as a vehicle for fostering peace, justice, and

sustainable partnerships, directly contributing to SDG 4, SDG 16, and SDG 17. The novelty lies in positioning AIK not merely as a characteristic Muhammadiyah subject but as a strategic instrument for sustainable development. This perspective redefines Islamic higher education as globally relevant, inclusive, and progressive in shaping civilization [11].

LITERATURE REVIEW

Studies on Al-Islam and Kemuhammadiyah (AIK) education in the context of Muhammadiyah Universities (PTM) have been conducted by many researchers. Syamsul emphasized that AIK is a value education praxis that functions to form students with Islamic character while being able to answer the challenges of modernity. This view is in line with the idea of KH Ahmad Dahlan, who, from the beginning, emphasized the importance of integration between religious science and general science as the foundation of Muhammadiyah education [12].

The concept of integration-interconnection initiated by M. Amin Abdullah provides an important theoretical foothold for the development of AIK. This approach rejects the dichotomy between religious science and general science, and instead encourages inter-disciplinary dialogue to give birth to a more comprehensive understanding of the complexities of contemporary life. Thus, AIK is not only a dogmatic instrument, but also a transformative means that can form critical, reflective, and solution-oriented students [13].

In the framework of curriculum development, Brady explained that the curriculum must be adjusted to the context, process, and evaluation to remain relevant to the needs of the community. This is very relevant to AIK, because the AIK curriculum at PTM was designed by the Muhammadiyah Central Higher Education Council as a compulsory course consisting of four levels, namely Aqidah Akhlak, Ibadah-Muamalah, Islam and Science and Technology, as well as Muhammadiyah Studies [14].

However, some studies show that there are still problems in the implementation of AIK. Hermawan found that the dichotomy between religious science and general science is still quite strong, so AIK is often seen as only a complement to the curriculum. The same thing is reminded by Kuhn, who states that science can be trapped in "normal science," that is, science that is taught dogmatically without encouraging a paradigm shift in thinking. Therefore, AIK needs to be tried to remain alive, enlightening, and transformative, so that it can avoid the trap of becoming a static normal science [15].

The relevance of AIK to the global development agenda is also increasingly clear when it is associated with the Sustainable Development Goals (SDGs). SDG 4, which focuses on Quality Education, is in line with AIK's goal to provide quality education that integrates faith, science, and morals [16]. SDG 16, which emphasizes Peace, Justice, and Strong Institutions, is related to AIK's mission in building public morality, social justice, and institutional ethics. Meanwhile, SDG 17, which emphasizes Partnerships for the Goals, can be realized through academic, social, and community cooperation based on AIK values. Thus, AIK at UMS not only functions as an Islamic identity but also as a strategic instrument in supporting the achievement of sustainable development at the national and global levels [17].

Based on the literature, this research was prepared with a theoretical framework that emphasizes the importance of three main pillars, namely modern Islamic education in the style of Muhammadiyah, the theory of integration-interconnection of knowledge, and the theory of sustainable development within the framework of the SDGs [18]. The theoretical framework of this research is based on the thoughts of KH Ahmad Dahlan regarding modern Islamic education that combines faith, knowledge, and charity; the theory of integration-interconnection by M. Amin Abdullah which encourages inter-disciplinary dialogue; Brady's curriculum theory which emphasizes the importance of curriculum relevance to social contexts; and Thomas Kuhn's theory of normal science (1970) which reminds of the need for innovation so that AIK is not just a dogma. All of them are

strengthened by the policy of the Muhammadiyah Central Higher Education Council, which places AIK as a core course in PTM. To clarify the theoretical framework map, the following is a concise table that connects the theory, relevance of AIK, and linkage to the SDGs.

Table 1. AIK Research Theory Framework with Integration-Interconnection Approach and SDGs

Theoretical Components	Tree of Thought	Relevance to AIK at UMS	Connectivity with the SDGs
Modern Islamic Education (KH Ahmad Dahlan)	Integration of faith, knowledge, and charity; education as the formation of Islamic character	AIK is the identity of Muhammadiyah Higher Education that instills Islamic and scientific values	SDG 4: Quality Education
Integration-Interconnection (M. Amin Abdullah, 2006)	The rejection of the dichotomy of science: Inter-disciplinary dialogue	AIK was developed by connecting religion, science, and socio-cultural sciences	SDG 4 & SDG 17: Holistic education and cross-disciplinary collaboration
Curriculum Theory (Brady, 1992)	The curriculum must be contextual, procedural, and evaluative	Design of the AIK curriculum that is relevant to the needs of students and the community	SDG 4: Improving the quality of education
Normal Science (Thomas Kuhn, 1970)	Science can stagnate if it is only taught dogmatically	AIK is directed to be not just doctrinal, but enlightening and transformative	SDG 16: Justice, integrity, and strong institutions
AIK PTM Policy (Muhammadiyah Higher Education Council, 2013)	AIK as a compulsory course (AIK I–IV), which includes faith, worship, science, and Muhammadiyah	Becoming the normative foundation of AIK at UMS	SDG 4, SDG 16, SDG 17: Strengthening education and institutional collaboration

Thus, this theoretical framework emphasizes that AIK at the University of Muhammadiyah Surakarta is not only an instrument for religious teaching but also a transformative vehicle to form a generation of Muslims who are competitive, characterful, and able to support the achievement of the sustainable development agenda through the SDGs.

METHODOLOGY

This study uses a descriptive method with a qualitative approach. The selection of this method is based on the consideration that the problems studied are directly related to the dynamics of academic life at the University of Muhammadiyah Surakarta, especially in the implementation of Al-Islam and Kemuhammadiyah (AIK) education based on integration-interconnection [19]. The qualitative approach is considered relevant because this research aims to understand in depth the learning system, the process of internalizing values, and its contribution to the achievement of the Sustainable Development Goals (SDGs), especially SDG 4 (Quality Education), SDG 16 (Peace, Justice, and Strong Institutions), and SDG 17 (Partnerships for the Goals).

The data sources in this study include primary data and secondary data. Primary data was obtained through direct observation of AIK's learning practices, in-depth interviews with lecturers, students, and managers of related study programs, while secondary data came from official university documents, AIK curriculum, policies of the Muhammadiyah Central Board of Research and Development, as well as literature relevant to AIK,

integration-interconnection, and SDGs. Observations were carried out to directly observe the learning process of AIK, interviews were used to explore perceptions and reflections on the experiences of stakeholders, while documentation studies were carried out by analyzing various official documents and supporting literature.

Data analysis was carried out using the Miles & Huberman interactive model, which includes three stages, namely data reduction, data presentation, and conclusion or verification [20]. Data reduction is carried out by sorting, simplifying, and organizing field data; data presentation is carried out in the form of descriptive narratives, matrices, or charts to facilitate understanding; while conclusions are drawn continuously throughout the research process to find patterns, meanings, and relevance of AIK implementation to the achievement of the SDGs.

To ensure the validity of the research results, the researcher uses qualitative validity standards consisting of credibility, transferability, dependability, and confirmability. Credibility is achieved through triangulation of sources, methods, and time; transferability is realized by presenting data in detail so that it can be applied to other NCD contexts; dependability is maintained through trail audits of the entire research process. Meanwhile, confirmability is carried out by checking data from respondents and verification using official documents [21]. With this approach, the research is expected to be able to provide an in-depth overview of the integration-interconnection model in AIK education at UMS as well as explain its contribution to the achievement of the SDGs.

RESULTS AND DISCUSSION

The New Paradigm of AIK Education

Social changes in the global era pose various challenges in the field of AIK education, which requires the implementation of a new paradigm of AIK education. On that basis, it is necessary to renew thinking, studying, and researching AIK education to reconstruct the theological, philosophical, substantive, methodological, and educational system aspects. In addition, it is necessary to reform in practice in the aspects of objectives, materials, methods, and evaluation, so that the implementation of AIK education can take place effectively. The discussion of theological and philosophical aspects in the reconstruction of the new paradigm of Al-Islam and Muhammadiyah education includes the discourse of Religious Thought, About God, About the Prophet, the Main Man, and Life View. Meanwhile, it substantively includes Curriculum Objectives, Materials, and Curriculum Properties. The methodological aspects include the Educational Model, the Role of Lecturers, the Role of Students, the Direction of Learning, and the Approach and Evaluation of Learning [22].

In the Muhammadiyah paradigm, AIK education contains a theo-anthropocentrism perspective that combines the orientation of "habl min Allah" (relationship with Allah, theocentrism) and "habl min al-nas" (relationship with humans, anthropocentrism) so that it is intact and balanced. Al-Islam as a manifestation of the nature of Rahman and the Rahim of Allah provides guidance to the right path (not misguided) to humans who are endowed with free will by Him (QS. Al-Baqarah/2:37-38). Al Islam in this case is the guidance (hudan) of Allah SWT for human life. In addition to being endowed with guidance and free will, humans are also endowed with fitrah and hanif, which can guide them with guidelines for the happiness of their lives [23].

Muhammadiyah education is a modern Islamic education that integrates religion with life and between faith and holistic progress. From the womb of Muhammadiyah education, it is hoped that an educated generation of Muslims will be born who have strong faith and personality, as well as being able to face and answer the challenges of the times. This is what Muhammadiyah is, allegedly a progressive Islamic education [24].

The essence of Muhammadiyah education, according to Kiai Dahlan, is to spread Islamic teaching to the people throughout the earth. For Kiai Dahlan, the purpose of education is to obtain the salvation of this world and the hereafter. The way to achieve salvation in this world and the hereafter can be achieved with sound reason. In this case, Muhammadiyah education in teaching education combines general education and religious education. The goal is, of course, to achieve happiness in this world and the hereafter. From the womb of Muhammadiyah education, it is hoped that an educated generation of Muslims will be born who have strong faith and personality, as well as being able to face and answer the challenges of the times. This is a progressive Islamic education. This progressive education is the spirit of the Al Islam and Muhammadiyah (AIK) Course, which must be given to students at PTMA throughout Indonesia [25].

The existence of AIK must be part of the efforts of Muhammadiyah universities to achieve the vision and mission of Muhammadiyah universities. The vision of Muhammadiyah Education, as stated in the Decision of the 46th Muhammadiyah Congress on the Revitalization of Muhammadiyah Education, is "The formation of human learners who are devoted, have noble character, progress and excel in science and technology as the embodiment of *tajdid da'wah amar ma'rufnahi munkar*". There are three reasons why AIK needs to be taught in Muhammadiyah educational institutions: (a) Studying Muhammadiyah is basically studying some of the Indonesian people who are Muslim and have a modern mindset (b) Introducing the nature of the mind, it is hoped that students can be touched and at the same time practice it (c) The need for the ethics of students who study at Muhammadiyah Universities.

History illustrates that in schools established by the Netherlands (during the colonial period), students were not introduced to Islamic education at all, thus making the way of thinking and behavior of the graduates deviate from the teachings of Islam, even though the majority of them were Muslims [26]. Seeing this concerning reality, KHA. Dahlan and several Muhammadiyah leaders were determined to reform education for Muslims. The reform in question covers two aspects, namely the ideals and the technical aspect. In terms of ambition, it is to form Muslim people who are moral, knowledgeable in diversity, broad outlook, and understanding of worldly problems, spoken, and willing to fight for the advancement of Islam and society. Thus, the targets to be achieved by every graduate of Muhammadiyah education include the correct faith, noble morals, intelligence, skills, and being ready to serve for the interests of Islam and society. Meanwhile, in terms of engineering, it is more related to the ways of implementing modern education, especially the system that is applied during the implementation of education [27].

Implementation in the development of Islamic education consists of several aspects, *first*, the Learner Aspect (Students). Muhammadiyah education is an education that animates the conscience of students. So that the learning aspect is a learning model that is allowed to develop common sense, and at the same time also encourages the growth of a pure heart in students and *soft skills* (IQ, EQ, SQ). With the competencies possessed by learners produced by Muhammadiyah education, these learners at the next stage will have the ability to live in society, beneficial to the nation, state, and ummah.

Second, the Learning Aspect (Method), Muhammadiyah education requires a critical integration between normative legitimacy (Al-Qur'an and Al-Hadith) and social reality. Muhammadiyah education cannot be an educational institution managed by other socio-religious institutions. However, Muhammadiyah education is bound by the basic values of the struggle of the organization, which means that education in Muhammadiyah must ensure the creation of intelligent graduates as well as the position of organizational cadres for the continuity of the Muhammadiyah organization. Muhammadiyah education must pay attention to the social dimension that is useful for humanity and pay attention to the ideological dimension so that it can be an enlightenment of civilization, and at the same time as a means of creating organizational cadres who can interpret the signs of the times.

Third, the aspect of education educators (teachers) in Muhammadiyah universities is a figure who has academic competence, pedagogic competence, social competence, personality competence, and commitment to the Muhammadiyah organization. Educators who serve Muhammadiyah educational institutions are educators who have basic competencies as educators supported by their commitment to the ideology of the Muhammadiyah organization, values, and understanding of Islam as understood by Muhammadiyah.

Fourth, the Aspect of Organization, Muhammadiyah education that will realize human learners must also be a medium and instrument for the existence and development of social humanitarian activities of the Muhammadiyah organization. The synergy of Muhammadiyah educational institutions as an instrument of organization to achieve the goal of realizing an Islamic society is really important to respond to the challenges of rapid development and change. Educational institutions need to develop the organization's mission consistently so that educational institutions truly become tools of the organization.

Muhammadiyah's educational mission is also a solution and response to the drying up of religious spirits in education. Muhammadiyah has a distinctive characteristic, namely al-Islam and Kemuhammadiyah (AIK) education. These two things are characteristics as well as solutions in filling the drought of spiritual spirit in education, both in primary and secondary education, and in higher education in Muhammadiyah.

All Muhammadiyah Charity Enterprises (AUM) education must carry out al-Islam and Kemuhammadiyah education as the foundation of education. AIK, which has been running in Muhammadiyah institutions, must be optimized in its function. So that the four roles and missions of Muhammadiyah education can run as aspired. The reality in the field is that AIK is not so important in Muhammadiyah education. We need to respond positively to the weakening spirit immediately. Optimizing AIK learning for teachers and employees in Muhammadiyah schools and revitalizing the function of AIK that has been running by considering several aspects. The educational goals of Muhammadiyah in the grand design of a plan that will encourage the realization of a progressive Indonesia must begin with the optimization of AIK in Muhammadiyah schools.

Conditions and Problems of AIK Education at UMS

AIK education at UMS has been running for a long time and is a form of part of the curriculum at UMS. The curriculum is in the form of materials and activities related to Islam and Muhammadiyah. However, so far, AIK is only in the form of Islamic material that only touches the spiritual realm, not the realm of knowledge, so it is felt to be less comprehensive in answering life problems. In addition, the learning model is also still textual and practice-based. So it is still monotonous, non-interactive, and problem-based. That is the situation that happened at UMS.

Based on experience since 1983, it is felt that religious learning applied or carried out on campus only touches on the cognitive aspect, not touching the affective or psychomotor aspect. In this case, it is necessary to make a breakthrough, how AIK, which is only packaged with textual and practical religious knowledge materials, can be more interactive and encourage creative and critical thinking to connect Islamic science and science. Therefore, it is necessary to integrate science and science, so that AIK becomes a more comprehensive material and answers the problems of life and scientific development. One of the efforts made by UMS is to organize AIK education with a dormitory model (pondok) as an alternative model chosen to reduce the gap between ideality and reality.

The AIK curriculum is prepared by referring to the guidelines issued by the Muhammadiyah Central Board of Higher Education. The general goal of AIK education is the formation of human learners who are devoted, have noble character, progress, and excel in science and technology as a manifestation of *tajdid da'wah amar makruf nahi munkar*. These general objectives are described in more measurable objectives as follows:

AIK I: To form Muslim scholars who know themselves and God, their mission, purpose, and benefits of life as guided in the Qur'an and as-Sunnah.

AIK II: To form Muslim scholars who are obedient and correct in worship, excel in muamalah, and are beneficial to society and the environment.

AIK III: To form Muslim scholars as cadres of the Muhammadiyah organization who can be amar makruf nahi munkar in the life of the nation and state.

AIK IV: Forming Muslim scholars who have a soul and behave as scholars (*ulul albab*).

Periodically, the AIK curriculum is reviewed and approved by the UMS Quality Assurance Institute as a control over the implementation of the learning process in accordance with the courses in each semester. Likewise, AIK materials have been compiled in the form of package books as lecture materials for all student lecturers. The package book is arranged according to AIK 1 (Aqidah Akhlak), AIK 2 (Mu'amalah Worship), AIK 3 (Islam and Science and Technology and AIK 4 (Muhammadiyah Studies). UMS is part of the AUM in the form of education owned by Muhammadiyah. AUM is stated to be the soul and foundation. "Muhammadiyah Higher Education, hereinafter referred to as PTM, is a charity of Muhammadiyah in the field of higher education that is imbued with and based on the values of Al-Islam and Kemuhammadiyah at the *ideological-philosophical* and *practical-applicative* levels and is one of the strengths for the continuity and continuity of Muhammadiyah in achieving its goals as a da'wah and tajdid movement that crosses the ages."

Historically, the background of KH Ahmad Dahlan, who founded Muhammadiyah, is related to his idea of an education system that should be for Muslims in accordance with the source of its progressive teachings. From the beginning, even before establishing Muhammadiyah, KH Ahmad Dahlan had paid special attention to the importance of innovative and progressive education for Muslims without having to lose their identity. In this context, A. Mukti Ali, as quoted on the first page of this paper, calls it "*Islamic teaching and education reform*"; or, according to M. Basit Wahid, "*to reform the Islamic education system in a modern way in accordance with the will and progress of the times*" [28].

In line with this view in Sispenmuh's formulation, three important points must be linked. *First*, the formulation of faith and progress as the pillars of the movement and ideals that must be realized for the benefit of human life. Kuntowijoyo has long underlined these two important words, because it is not only original from KH Ahmad Dahlan's mind but also reflects the depth of spirituality and the breadth of its progressivity. Among the reforms in religion and education, Muhammadiyah may occupy its own position because of its hard work to combine faith and progress, just like Taman Siswa, which tried to integrate Western and Eastern cultures in its educational philosophy [29].

This formulation of faith and progress, if initiated further, will become the basic principle of Muhammadiyah's educational philosophy and the basis for the preparation of the Muhammadiyah educational curriculum to eliminate the scientific dichotomy as mentioned earlier, which is the first fundamental problem. So far, the impression of this dichotomy is still obvious, for example, with the separation of general sciences and religious sciences or with the placement of AIK as a mere course called "*characteristic*". So far, to eliminate this dichotomy, the term *integrated curriculum* has been used. Although it is known as an integrated curriculum, in reality, it still leaves problems because the *integrated curriculum* shows two entities that are combined or united, and each has different scientific paradigms and unequal epistemological characteristics, so that the two entities cannot be unified or become one unified and intact unit.

In the midst of these epistemological crossovers, a comprehensive and coherent curriculum deserves to be elaborated more carefully. This idea departs from the essence of Muhammadiyah itself, which cannot be understood if it is just an organization by negates and denies the soul of Islam. The genuine meaning of Muhammadiyah was once formulated

by Djindar Tamimy as follows, ... *The birth of Muhammadiyah did not come into existence, driven by the understanding of the late K.H.A. Dahlan about "What is Islam?" So to be able to understand the real Muhammadiyah must start from understanding the true Islam. Willing to live the true Islam. Willing to practice the true Islam and be enthusiastic to fight for the true Islam. If one wants to understand Muhammadiyah but does not depart from such an understanding, then he will only find Muhammadiyah as an organization. They will not know their idealism.*

Departing from such an understanding of Muhammadiyah and then reflected in the Muhammadiyah educational curriculum, it will result in a curriculum design that is not separate and fragmentary. This curriculum reflects the interconnected and intertwined and intertwined wholeness that describes the cosmic unity of science that is interconnected and imbued by AI-Islam. AIK is the center and soul of all sciences or courses taught on the PTM campus. On the one hand, with the restructuring and reformulation, AIK remains a taught subject; and on the other hand, with the reconstruction of the curriculum inherent in the AIK Sispenmuh, it is the AIK that animates and frames it. Furthermore, the idea that places AIK as the soul or soul in Sispenmuh has the potential to become a new variant in the movement of "Islamization of science" or "Islamic science" to end the dichotomy of science.

Second, cadres that are *intrinsic* or *built into* the Muhammadiyah education system. Cadre and education in one breath have strong historical roots, because when KH Ahmad Dahlan pioneered the forerunners of Muhammadiyah schools, the purpose and purpose was not only to educate the ummah but also to prepare educated young people as cadres and the next generation of the reform movement that he had initiated.²⁸ Among the decisions of the 38th Muhammadiyah Congress in 1971 stated, "Repurify the function of Muhammadiyah Education in accordance with the Decree of the Tanwir Ponorogo Session in 1969, namely: a. As a da'wah medium, b. As a cadre nursery, c. As gratitude for the blessings of reason."²⁹ Three decades later, in the 45th Muhammadiyah Congress in Malang (2005) and the 46th in Yogyakarta (2010), the interconnectedness of cadres and education was re-strengthened, "Affirming the position and implementation of Islamic values, Muhammadiyah, and regeneration in the entire Muhammadiyah education system".

Third, character education must again be part of the excellence and peculiarities of Muhammadiyah schools and colleges to build the main values. With the principle of faith and progress as well as awareness of the urgency of cadres in education as outlined in the Muhammadiyah-style education curriculum at all levels of education, the efforts of character education by design will be felt by students and become more valuable when they graduate from Muhammadiyah universities; religiosity, integrity, competence, capability, independence, and superior culture. Tanwir Muhammadiyah 2009 in Bandar Lampung has re-underlined the significance of this character education: "Building the culture of Muhammadiyah schools and universities to blossom the character of students who are superior and progressive in the context of nationality and community".

LPPIK as the Executor of AI-Islam and Muhammadiyah at UMS

AIK includes academic and non-academic activities, both carried out within the scope of leaders, lecturers, employees, and students. Academic activities are in the form of learning classes on Moral Faith, Worship, Muamalah, Islam, and Disciplines and Muhammadiyah. AIK is a form of Islamic integration in various fields of Academic (lectures and materials), non-academic (Islamic activities), as well as integrating the value of AIK in community service and student KKN. Non-academic activities are one of the important things that are of concern, such as the ability to read the Quran. So, AIK held a BBQ (Bina Baca Al-Quran) for students, Islamic Recitation, Tadarus Al-Quran, both for lecturers and staff as well as the Aisiyah community; both at the rectorate level or faculties with the assistance of UPP-AIK Faculties. Baitul Arqam and Darul Arqam were carried out

within UMS as a form of deepening and implementation of AIK, which was attended by students, staff, lecturers, and UMS leaders.

AIK at UMS is managed by LPPIK. The Institute for the Development of Pondok, Al-Islam, and Kemuhammadiyah (LPPIK) of the University of Muhammadiyah Surakarta (UMS) is *The Guardian of Muhammadiyah Ideology* within UMS. The presence of LPPIK UMS is a necessity as an effort to maintain and develop the ideology of Muhammadiyah in UMS. LPPIK UMS is also entrusted with the development of 3 (three) boarding schools, namely: Pondok Hajjah Nuriyah Shabran (HNS), Ma'had Abu Bakar Ash-Shidiq UMS, and KH Mas Mansur UMS International Student Islamic Boarding School. The three lodges have their own characteristics that complement each other in an effort to produce qualified cadres of the Association.

LPPIK's vision is that in 2029, it will become a center for the development of al-Islam, Muhammadiyah, cottage education, and regeneration. Its mission is to organize Islamic education from the perspective of Muhammadiyah, integration of knowledge, charity, and da'wah. Developing the cottage as a center for the development of cadres with a progressive Islamic spirit and a global perspective. Conducting research and community service about Islam and Muhammadiyah. Meanwhile, the goal is to create an academic community that can practice Islamic values, Muhammadiyah, based on the Qur'an and as-Sunnah. In line with the Vision, Mission, and Goals of LPPIK, the goals of the LPPIK program are: 1) The development of al-Islam and Kemuhammadiyah education for the entire academic community of the University of Muhammadiyah Surakarta, 2) The development of boarding school education at Pondok Hajjah Nuriyah Shabran, Ma'had Abu Bakar Ash-Shiddiq (Maba), and PESMA International KH Mas Mansyur, 3) The development of cadre education for the entire academic community of the University of Muhammadiyah Surakarta.

Starting from the academic year 2005/2006 until now, LPPIK UMS can only hold Baitul Arqam in 2 (two) semesters. The curriculum that will be delivered to Baitul Arqam students includes: 1) Semester 1 (RELIGION): Aqidah, Tawheed, Pillars of Faith as the Realization of the Sentence of the Creed, Morals, Ethics, and Fashion of Dress according to Islamic Sharia, the Qur'an (Tadarus/Tafsir), Tadabbur Alam/Sports, Worship Practices (Thaharah, Obligatory Prayers, Sunnah Prayers, Congregational Prayers). 2) Semester 2 (MUAMALAH WORSHIP); Worship, Prayer, Fasting, Zakat, Hajj and Umrah, Qurban, Marriage in Islam, Distribution of Inheritance, Business in Islam, Financial Institutions in Islam, Muhammadiyah Islamic Life Guidelines (PHIM), Al-Qur'an (Tadarus/Tafsir), Tadabbur Alam/Sports, Worship Practices (Jama' Qashar Salat, Eclipse Prayer, Various Prostrations, Care of the Corpse).

The learning of the Baitul Arqam model uses the POD (Adult Learning) approach, so that they are treated as adults who can do tasks independently and responsibly, and they are even involved in actively evaluating the learning process. The learning strategies used are in accordance with the adult approach, namely: *lecturing, questions student have, everyone is a teacher here, peer lessons, reading guide, snow balling, information search, concept map, physical self assessment card sort, answer gallery, power of two, index card math, jigsaw, carousel, point counter point, and true or false, etc.*

AIK With an Integration-Interconnection Approach at UMS

The Integration-Interconnection Approach is an approach initiated by M Amin Abdullah (Amin A, 2006: 12), Muhammadiyah leader and Former Chairman of the Tarjih Council of Muhammadiyah Central Committee. In an effort to integrate general science and religion, there are several kinds of attachments, namely Islamization, Integration, and Integration-Interconnection. Kuntowijoyo, in the Integration of Science and Religion, stated: "That the essence of integration is "The effort to unite (not just combine) the revelation of God and the findings of the human mind (integralistic sciences) does not exclude God (*secularism*),

or exclude man (*other worldly ascetianism*) where the model of integration is "Making the Qur'an and the Sunnah, as the *grand theory* of knowledge. So that the verses of qauliyah and kauniyah can be used [30].

In Amin Abdullah's view, in *Islamic Studies in Higher Education*, explaining *Integration-Interconnection* is: "Efforts to understand the complexity of the phenomena of life that humans face and live, so that any scientific building, whether religious science (Islam, Christianity, Buddhism, etc.) social sciences, humanities, and natural sciences cannot stand alone, so it requires cooperation, mutual reprimand, mutual need, mutual correction and interconnectedness between scientific disciplines" [31].

The Integrative-Interconnective paradigm offered by Amin Abdullah is the answer to these various problems. With this paradigm, the three main areas in science, namely *the natural sciences*, *social sciences*, and *humanities*, will no longer stand alone but will be interrelated with each other. *Hadrarah al-ilm* (civilization of science), that is, empirical sciences such as science, technology, and sciences related to reality, no longer stand alone but also come into contact with *hadarah al-falsafah* (philosophical civilization). Likewise, on the other hand, *hadarah al-falsafah* will feel dry if it is not related to the religious issues contained in the culture of the text (*hadarah al-nash*) and even more so if it moves away from the problems caused and faced by *hadarah al-ilm*. From this blood, a pattern of *single entity*, *isolated entities*, and *interconnected entities* was born [32].

The Integrative-Interconnective approach is an approach that will not crush each other. The Integrative-Interconnective Approach is an approach that seeks mutual respect and general science and religion, both of which are aware of the limitations in solving human problems. This will make a cooperation, at least knowing things that touch *on the issue of approach* and method of thinking (*process and procedure*) between the two sciences. The Integration-Interconnection approach in AIK Courses is an effort to find AIK learning methods that are in accordance with the pace of the times.

For M. Amin Abdullah, there needs to be an effort to give a new colour to Islamic Education, so steps forward are needed; *First*, in the development of the course, students should also be introduced to the very complex questions of the present as faced by Muslims today in their daily lives. The social-religious scientific approaches that are currently developing also need to be introduced. *Second*, the teaching of Islamic sciences is no longer doctrinal, but it is necessary to put forward a description of the historical dimension of these religious doctrines. Thus, there will be a critical, appreciative-constructive analysis of the intellectual treasures of Classical Islam, as well as providing opportunities and opportunities to train students to reformulate the main points of the formulation of the realization of religious doctrine in accordance with the challenges and conditions of the times, and how they can find solutions (*problem solving*).

Third, the implementation of contemporary Islamic education emphasizes too much on the cognitive aspects of students and does not provide affective and psychomotor aspects that can be achieved through morals and ethics. *Fourth*, Islamic education is inadequate if it focuses only on the formation of *pious "individual morality"*, but is not so sensitive to *"public morality"*. In fact, public morality is closely related to the reality of socio-economic, socio-political, and socio-cultural structures that have a logic of their own interests. The unity between socio-political and socio-economic structures can be seen from the phenomenon of advertising on various private television channels. The AIK course with *the Integration-Interconnection* approach is a course that uses many approaches (*Multi Approach*), so that it can choose an approach that suits the condition and soul of students. In the *Integration-Interconnection* approach, dialogue between sciences, both religious and general sciences, is needed, so that they can complement each other. In the AIK Course with *the Integration-Interconnection* approach, the author offers several AIK approaches. The AIK learning approach offered by the author is as follows:

Table 2. Comparison of Traditional and Integration-Interconnection Approaches in AIK Learning

Method	The Old Method	Integration-Interconnection
Teaching Concepts	Pedagogy	Andragogi
Method	Single Method	Multi Method
AIK Material	Standard	Integration-Interconnection

AIK Teaching Concept

Students have their own character in the world of education. Students have independence in learning, so the concept of teaching and learning on campus must be dialogical and hone their reasoning. The AIK course combines the concepts of religious doctrine and the realm of modern thought. So that the concept of learning must be in accordance with the condition of the student's soul. The concept of education that is suitable for students who are given space to be active and dialogical is Andragogi, and no longer [33]. If pedagogy is suitable in elementary and junior high schools, then the concept of Andragogy is suitable for students.

Andragogi comes from the Greek, *aner* or *andr*, which means adult, and *agogos*, which means to direct/lead. Andragogy is formulated as a science and art to help adults learn. *Andragogy* carried out in the AIK Course for students shows that students are adults who have the ability and responsibility for their lives. As a student, of course, the most important responsibility is to seek knowledge. Lecturers who teach with the Andragogi approach serve as a partner who provides motivation, which directs students to acquire knowledge that is in accordance with what has been prepared by the lecturer. Kiai Haji Ahmad Dahlan also called on every teacher to be a student, that the learning process is not only about the smart lecturers, but students also have the advantage of dialogue between lecturers and students. Muhammadiyah Universities certainly have an interest in making AIK teaching more attractive to students; of course, the Andragogi approach is the right approach [34].

It is different from the pedagogy approach, where the term that is often used as a comparison is pedagogy, which comes from the word *paid*, which means child, and *agogos*, which means to lead/guide, where pedagogy literally means the art and knowledge of teaching children. Because pedagogy means the art and knowledge of teaching children, using a pedagogical approach for adults is not appropriate, because students are no longer children. The differences in the Pedagogy and Andragogy approaches in AIK Courses are as follows:

Table 3. Differences Between Pedagogy and Andragogy Approaches in AIK

Course Components	Pedagogy at AIK	Andragogy at AIK
Learning Methods	More Dominant Talk	Students are invited to discuss case studies, simulations, etc.
Lecture Materials	More Theories	Theory and Practice
Learning Resources	Learning Resource is a lecturer who knows everything	Learning Resources are lecturers as facilitators for students
Lecture Venue	Determined by the Lecturer	Mutually agreed upon by lecturers and students
Evaluation	Determined by the Lecturer	Co-Designed by Lecturers and Students

AIK Learning Methods

The purpose of education according to *Muhammad Natsir* is "Effort and power to lead the body and spiritually towards the perfection and completeness of the meaning of humanity with the true meaning," and *Ki Hadjar Dewantoro* is "The power and effort to advance the ethics (inner strength), mind (intellect) and body of children, in harmony with nature and society [35]. To achieve educational goals, of course, methods that are in accordance with the context of the times are needed. The Integration-Interconnection approach offers an effort to bring AIK closer with a learning method that understands the conditions of the times. The basis of the AIK Learning Method with an Integrative-Interconnective approach is to understand issues and practices that are in accordance with the conditions of the times. The existence of interconnectivity between AIK and appropriate teaching can be achieved by lecturers and students. The form is to understand the interesting methods of interpretation today [36].

The discourse and methods of education today are diverse. For example, critical education, multicultural education, *Quantum Learning*, *Quantum Teaching*, *Deschooling Society*, *Az-Zarnuji*, *Al-Ghazali*, and *Mohammad Thoumy Al-Syaibany*, etc. By understanding the practice of education in a global world, of course, students and lecturers will understand the direction and purpose of Islamic education that is best in the space and time they understand. So that the AIK Learning Method can be compatible with current conditions. As stated by *Muhammad Thoumy Al-Syaibay*, "Education contains choices that students will receive and can lead to where the development of students will be directed".

The need for an interesting learning methodology, interconnection with global learning methods, and giving deep meaning to learning, especially in the educational space, will make the learning process more interesting. The advantage of having an interesting teaching method from lecturers is that students understand the AIK material happily. With the existence of dialogical learning methods, of course, forms of learning will be created that are applied in the cognitive, affective, and psychomotor realms in various Islamic religious education materials. This dialogical learning process will make *Tarbiyah Islamiyah* more dynamic [37].

A more dialogical learning process will allow lecturers and students to exchange ideas and information related to the material taught will be further developed. The existence of an interconnection between lecturers and students will build a culture of intellectuality. Related to the educational process in the classroom, which is dialogical, it can be started by using *the Active Learning* learning method, where the basis of *the Active Learning* method is to break the *ice* in the classroom, so that learning is sweeter and more fun [38].

Quantum Learning, *Accelerated Learning*, and several other learning methods also provide knowledge for the development of more interesting learning models. The existence of a variety of intelligences in humans also allows schools and campuses to understand that success in life is not necessarily only based on brain intelligence (IQ), but the most influential on life success is emotional intelligence (EQ) and spiritual intelligence (SQ). So that there are Multiple Intelligences or multiple intelligences, which is a form of understanding the potential for intelligence in different students.

AIK Material

AIK's teaching and learning activities are carried out in a structured manner in the form of credits. The amount of credits for regular 8 credits and spread into AIK 1, AIK 2, AIK 3, and AIK 4 with the names of the Courses as follows: AIK 1 (sem 1): Humanity and Faith, AIK 2 (sem 2): Ibadah, Akhlaq, and Muammalah, AIK 3 (sem 3): Islam and Science and Technology, AIK 4 (sem 4): Kemuhmadiyah. The *Integrative-Interconnection* approach at the AIK material level is interpreted that each course must be given existential fundamental value in relation to other scientific disciplines and in relation to Islamic and Muhammadiyah materials [39].

Teaching Muhammadiyah, for example, in addition to its fundamental meaning as explaining Muhammadiyah, also makes Muhammadiyah Rahmahan lil Alamin. In the teaching of Muhammadiyah, it must also be instilled in students that the teaching of Muhammadiyah does not stand alone, but only teaches the history of Muhammadiyah. Rather, it develops together with the problems of the ummah and nationality. Muhammadiyah must live in space and time in the current era so that Muhammad can carry out the mission of Islam that progresses in developing the Islamic religious orientation for success in this world and the hereafter in a balanced manner. Likewise, in terms of teaching the theme of Humanity and Faith. It is also necessary to study social interactions between humans. Interconnectivity like this will empower each other between humanitarian issues and faith in one unit. *Integrative-Interconnective* at the material level is interpreted as a process of how to integrate the values of universal truth in general and Islam in particular into Health Sciences, Social Sciences, and Science and Technology. In addition, it also includes relating disciplines to each other in *epistemological* and *axiological integration*. Teaching fiqh must certainly relate it to health problems; teaching Islam is associated with the development of science in the past and present. Therefore, the implementation of *the Interconnected Integration approach* at the material level can be done with three models, namely:

First, the integration model into the lecture material package. At UMS, AIK 3 Islam and Science and Technology have begun, where contemporary Islamic materials will be given to all students across faculties. For example, in AIK 3, there are materials on Islam and Democracy, Darul Ahdi Wa Syahadah, Bank Interest, and themes that are suitable for students of the Faculty of Economics and Humanities, also given to students from the Faculty of Health Sciences and the Faculty of Science and Technology. Likewise, the theme of midwifery and motherhood connects between childbirth in science and Islam, explaining the postulates of the Qur'an-Hadith related to childbirth starting from pre-delivery, during childbirth, and postpartum, namely matters related to the phase of human formation in the Uterus, maintaining the health of pregnant women and fetuses, and maintaining the health of the baby and its care until adulthood in addition to also discussing family planning in Islam, Immunization in Islam, Transplant in Islam which is suitable for Health Sciences students, is also given to students of the Faculty of Economics and Economics and the Faculty of Science and Technology [40].

Second, the existence of an *Integration-Interconnection process* in this lecture material package aims to ensure that every student in each faculty at UMS will understand each other's knowledge of other faculties. Health Sciences students also need to understand democracy. Biotechnology students also need to understand family planning in Islam. Management Science students also need to understand Water Fiqh and Environmental Fiqh. With this cross-faculty understanding, it is hoped that students will understand that between sciences there needs to be dialogue with each other and that between sciences cannot stand alone; they need each other. *Third*, the AIK course also needs to discuss contemporary themes such as *civic values*, democracy, human rights, gender, etc. When learning worship fiqh, it is also discussed how actual cases, such as rampant corruption, occur, and what the function of prayer is in social life. In the interconnected paradigm, the books given in addition to the AIK Module books also need to be presented with books on the theme of literature, philosophy, politics, culture, and so on. Of course, the books are not only displayed as a symbol of interconnectivity, but are really included in classroom discussions in the learning process [41].

After going through the learning process with this integrated system and method, it can be obtained more effective results on the understanding of the material obtained by students. The existence of an *active learning* system can help and facilitate students in understanding AIK material [42]. The learning process with an *integration-interconnection* approach leads students to a more comprehensive understanding, not only at the cognitive level, but also touches on affective and psychomotor understanding. The data and evaluations carried

out at the end of each semester show that there are significant changes. This is shown by the increase in student achievement both in terms of cognitive, affective understanding, and changes in attitudes (morals).

AIK and Its Relevance to the SDGs

The new paradigm of AIK at the University of Muhammadiyah Surakarta, through an integration-interconnection approach, not only serves to overcome the dichotomy of religious science and general science, but is also relevant to the global development agenda through *the Sustainable Development Goals (SDGs)*. This relevance is evident in several key aspects: SDG 4 (Quality Education). AIK, based on integration-interconnection, encourages active, dialogical, and student-centered learning, so that it includes the cognitive, affective, and psychomotor domains. This is in line with efforts to improve the quality of higher education, producing graduates who are academically competent and have Islamic character [43]. SDG 16 (Peace, Justice and Strong Institutions). Through the internalization of the values of justice, democracy, and amar ma'ruf nahi munkar, AIK contributes to forming a generation that upholds ethics, social justice, and concern for others. AIK plays an important role in strengthening a culture of peace and equitable educational institutions [44]. SDG 17 (Partnerships for the Goals). The implementation of AIK based on integration-interconnection requires collaboration across disciplines, faculties, and external partnerships. This opens up space for academic networking, joint research, and community service that can expand UMS's contribution, both at the national and international levels [45]. To clarify the relevance of AIK to the SDGs, it can be seen in the following table:

Table 4. Relevance of AIK to the SDGs

Aspects of AIK at UMS	Contribution	Related SDGs
Integrative learning (cognitive, affective, psychomotor)	Improving the quality of education and forming graduates with an Islamic character	SDG 4 – Quality Education
Internalizing the values of justice, democracy, and amar ma'ruf	To create a generation that upholds ethics, social justice, and a culture of peace	SDG 16 – Peace, Justice and Strong Institutions
Cross-disciplinary collaboration and external partnerships	Building a global network of academic, collaborative research, and community service	SDG 17 – Partnerships for the Goals

Thus, AIK is not only a characteristic course of Muhammadiyah Universities, but also a strategic instrument in supporting the global agenda. Its existence shows that modern Islamic education can make a significant contribution to sustainable development that is just, inclusive, and oriented towards the progress of civilization.

CONCLUSION

Al-Islam and Muhammadiyah (AIK) education at the University of Muhammadiyah Surakarta, through an integration-interconnection approach, can be the answer to the dichotomy problem of religious science and general science that has been happening. AIK not only serves as a religious course, but also as the spirit of Muhammadiyah education that combines theological, philosophical, substantive, methodological, and practical aspects. With this approach, AIK learning becomes more active, dialogical, and touches the cognitive, affective, and psychomotor realms to produce intellectually intelligent graduates, have an Islamic character, and are ready to face global challenges. The implementation of an integration-interconnection based on AIK is relevant to the sustainable development agenda (SDGs), especially SDG 4 on quality education, SDG 16 on peace, justice, and strong institutions, and SDG 17 on global partnerships. Through the internalization of the value of justice, amar ma'ruf nahi munkar, and cross-disciplinary collaboration, AIK

becomes a strategic instrument in building a progressive Muslim generation while strengthening UMS's role in national and international contributions. Thus, AIK at UMS not only functions as a typical Islamic learning of Muhammadiyah, but also as a transformative instrument that affirms the identity of Muhammadiyah Higher Education, improves the quality of education, fosters organizational cadres, and makes a real contribution to a global civilization that is just, inclusive, and sustainable.

Acknowledgments

The authors sincerely thank Universitas Duta Bangsa Surakarta, Universitas Islam Negeri Raden Mas Said Surakarta, colleagues, and students for their valuable support, contributions, and collaboration throughout this research project.

Author Contribution

All authors contributed equally to conceptualization, data collection, analysis, and writing. Each author reviewed and approved the final manuscript collaboratively.

Conflicts of Interest

The authors declare no conflicts of interest regarding this article's content, ensuring transparency, integrity, and impartiality in the entire research process.

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