

The Trend of Wahdatul 'Ulum Between the Qur'an and Science in Indonesia Education: Literature Mapping with Nvivo

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Abstract: This study aims to determine how the implementation of various integrations of religious and scientific knowledge in learning activities in Indonesia with the concept of wahdatul 'ulum. Through the search for articles with keywords that match the objectives, 35 articles have been obtained that have concretely carried out research with various wahdatul 'ulum designs. The literature obtained was then analyzed and mapped with NVivo 12 based on the integration process and its implementation in learning activities. The results obtained are that most of the literature adopts the values of Islamic teachings originating from the Qur'an (57%), compared to the adoption of scientific concepts that are in line with the ayah of the Qur'an (43%). In the implementation of learning activities mapped into media, models, and learning assessments. It was found that the development of learning media in the form of modules that applied the concept of wahdatul 'ulum became the most dominating (18 articles). The findings of this study become a discourse for educators to continue to strive to implement wahdatul 'ulum in various components of learning so that there is no longer a dichotomy between religion and science because, in fact, various kinds of knowledge originate from Allah SWT with no contradictions in them.

Keywords: Knowledge of the Qur'an; NVivo 12; Science learning; Wahdatul 'ulum

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INTRODUCTION

Humans were created to be *khalifah* on earth (Al-Baqarah: 30), are people who partially replace others one after another, century after century, and generation after generation, as the meaning contained in the Qur'an (And it is He Who made you rulers over the earth (Al An'am:165). As a *khalifah*, humans are required to have comprehensive abilities (Shofan et al., 2020). Apart from being a leader, they are also guardians of the benefit and prosperity of the earth (Zain & Vebrianto, 2017). Being a perfect human being according to Islamic teachings, of course, requires humans to be able to balance the vertical relationship between humans and nature, as well as a horizontal relationship with Allah SWT.

Al-Quran as the source of knowledge for people Islam called *dalil qauliyah* must be understood from the religious interpretation or description of knowledge (Muspiroh, 2013; Nuraeni & Irawan, 2021; Sulaiman, 2020). Another thing not lost importance is to make understanding the teachings of the Qur'an as a reference in reading *ayah kauniyah* as visible in everything aspect of life (Hanifah, 2018; Nuraeni & Irawan, 2021). One aspect the life that becomes the main attention moment is how could guard nature and everything in it by studying science. Learning about real science is Proof implementation from Allah has been teachings, which are contained in every *ayah*. Paragraph first in the Qur'an is beginning from God to set an example so that humans become loving people of each other of course, with all existing things in his life, one of them is nature.

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The Qur'an and the Hadith of the Prophet commanded the development of science by thinking about the creation of the heavens and the earth, instructing to think, observe, and research the universe. The Qur'an challenges humans to examine the universe to its smallest detail. For example, QS. al-Ghasiyah, (88): 17-30. If these verses are deeply understood, they are actually orders and recommendations to explore knowledge as broadly as possible by conducting research on the universe. The problem is that so far, scientists such as; biologists, chemists, physicists, sociology, psychologists, and so on, in developing and researching the universe, have not referred to *the ayah* of the Qur'an (Aziz, 2013; Wahyuni, 2018). While most of the scholars who have studied the Qur'an and Hadith have only stopped studying the text, they have not yet given birth to a passion for scientifically researching the universe created by Allah, as ordered by the Qur'an.

Various studies about *wahdatul 'ulum* theoretical and practical already many developed. Well, through the integration of religion with knowledge, a social nor with knowledge is natural (Izudin, 2017; Mustopo, 2017; Zain & Vebrianto, 2017). These fields of study do not make the knowledge of the Qur'an a part of it, especially in the learning activity and also in related activities with science and technology (Muspiroh, 2013; Sulaiman, 2020).

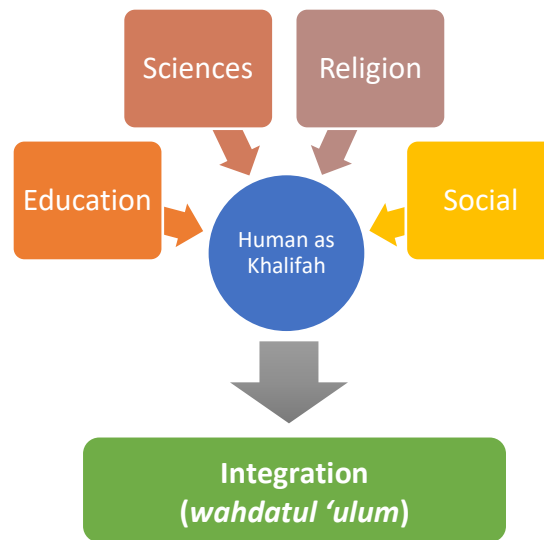


Figure 1. Efforts to realize humans as *khalifah* through the integration of science education and religion

Wahdatul 'ulum, the Arabic term for the integration of various sciences, has the aim of reuniting the sciences between religious science and general science, which have experienced a dichotomy (Fatimah, 2021). Various forms of integration have various terms of the unity of sciences, unity of knowledge, or Islamization of science (Hanifah, 2018; Tisna Nugraha, 2020; Wahyuni, 2018). Although in different ways in the process of unification, this idea is still a unification. Wahdatul 'ulum comes from two sentences, namely *wahdah*, which means one. What is meant by *wahdah* here is different from monotheism, *wahdah* is a unity in that we know that knowledge is manifested in many ways, but the essence of knowledge is only one. *Al-'ulum* is the word plural from *'ilm*, which means the knowledge, not just one science but several sciences consisting of different sciences. Science is a way of *nur* (light) that gives directions and directions because the essence of science is *nur*, so it can be concluded that wahdatul 'ulum is the unity of the sciences.

Science learning is part of factual concepts and is quantized with precision, Science is fact-based scientific knowledge, science is part of the knowledge that must be learned by students at various levels of education. The characteristics of science are considered far different from the concept of the Qur'an as Islamic teaching that must be believed to be true even without verification by scientific methods. This encourages researchers to map out various studies that have applied the concept of wahdatul 'ulum to science learning activities as an initial study to continue the concept of wahdatul 'ulum in science learning.

METHOD

The research method is a study of literature from various research results that have been published in the form of articles from journals in Indonesia. A total of 35 articles were obtained between 2012 to 2022, and then the articles were ordered according to the researcher's objectives, only reviewing articles that were research-based or practical in learning. There are 35 research-based articles, further analyzed by grouping, including:

1. The relationship between science education and the Al-Qur'an is based on the Al-Qur'an. In this group, the researcher analyzes articles based on the integration process that starts from *the ayah* of the Al-Qur'an and then discusses them in an interpretive way with linkages to scientific concepts.
2. The relationship between science education and the Al-Qur'an is based on science. In this grouping, researchers analyze articles that integrate scientific concepts in learning by linking related verses of the Al-Qur'an.

Both based on the Al-Qur'an and based on science concepts, each is further grouped into two are from the integration process and its implementation in learning activities. In the integration process, it is divided into two are knowledge and value. Knowledge is an integration that focuses on the concept of science only, or related to science, while value focuses on values that can be adopted from the Al-Qur'an and from science as good values that have been taught to be implemented in everyday life. The results of the analysis are mapped using the NVivo 12 program, and each group is a node between parent nodes and child nodes (Figure 1).

RESULT AND DISCUSSION

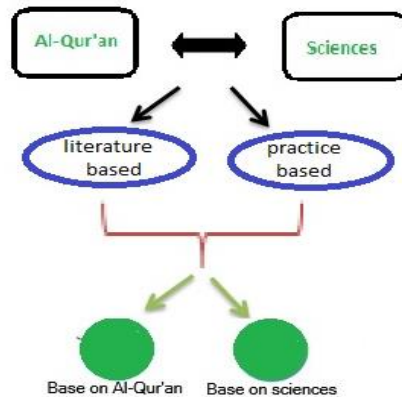


Figure 2. Mapping the trend of *wahdatul 'ulum* between the Al-Qur'an and science education

The results of the literature review showed that the results of the articles studied were 35 science-based articles and not based on the Qur'an e.g (Husna et al., 2020; Khoirudin, 2019). Science-based, meaning that the research conducted is based on the science learning curriculum. Because every research always starts from the concept of science that exists in learning activities, not starting from the composition of the Qur'an or based on the clumps of scientific studies in the Qur'an e.g (Faizah & Mubin, 2018; Fauzan, 2017). This finding becomes a discourse for Muslim researchers, especially those who are concerned with the study of integration between the Qur'an and science in learning activities. It may be true if learning is based on the curriculum, but the foundation of the Qur'an-based curriculum can be an effort for Islamic Religious Colleges (PTKI) to initiate the integration of science, especially in the field of education, the curriculum reference is the concepts of science learning from a series of *ayah*. The following is a more detailed description of the researchers' studies on articles that integrate the Qur'an and science in science-based learning activities.

Based on Sciences

The literature review in this study focuses on research based on the concept of science, and this is because the literature collected is practical research in relation to *wahdatul ulum*, which begins with learning content and then is linked to appropriate verses of the Qur'an both in value and concept. The group division in the analysis is divided into two, namely in terms of integration (concepts and values) and their application to learning tools (media, models, and assessments) (Figure 3).

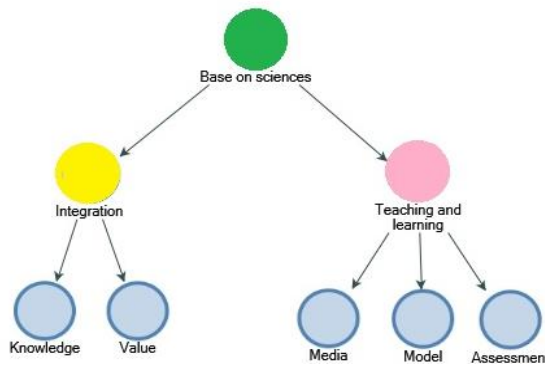


Figure 3. The trend of *wahdatul 'ulum* between the Al-Qur'an and science education (based on sciences)

Furthermore, mapping with NVivo 12 by labeling the criteria that the researchers have set in the form of nodes and linked to the articles that have been analyzed. The labeling of articles is coded (year_sub-field of science study_order of articles), S code (sciences), B code (biology), C code (chemistry), and P code (physics). The following is a more detailed discussion of each group based on the analysis with NVivo between nodes and analyzed articles:

Integration

Figure 4 shows that the implementation of *wahdatul ulum* in science learning is still dominated by value implementation based on ayah of the Qur'an, which is applied during learning activities (57%). Meanwhile, in conceptual implementation, namely the concept of science that is in line with *the ayah* of the Qur'an, it still gets a smaller portion (43%). In the value group, the research started in 2017, although the search was between 2012 and 2022. Likewise, the research knowledge group started from 2015 to 2021.

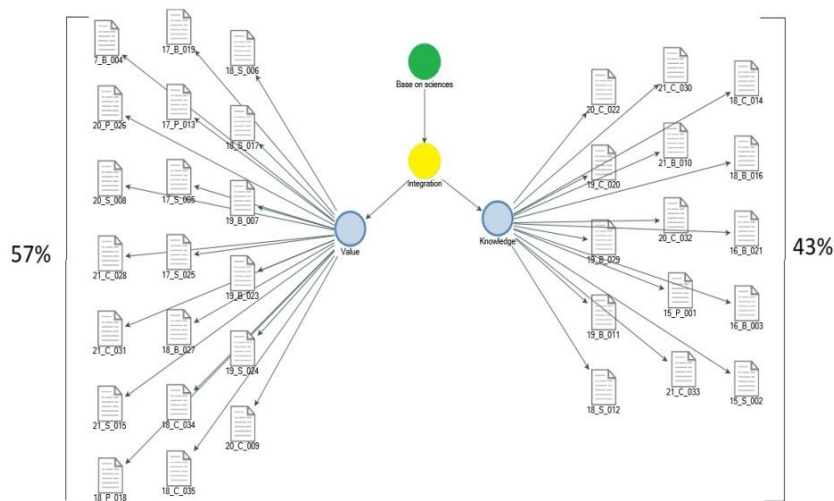


Figure 4. Implementation of *Wahdatul Ulum* in science learning

Value

Various articles that focus on the integration of the Qur'an in science learning activities from the aspect of value, including the results of research from (17_P_013) (Khoiri et al., 2017), show application learning physics based on integration science-Islamic could Upgrade results study, attitudes religious and social attitude. This is proven with a student no cheat or give cheat as well as report activity study by transparent. Application learning based on integration science-Islamic could Upgrade results study and character Islamic in the form of honesty and cooperation student on lesson physics about fluid. Likewise, in research (17_S_025) (Susilowati, 2017), the results of the study show that science teaching materials are integrated with Islamic values and influence the attitude toward the religion of students at school.

The results of the study also focused on instilling Islamic values to be able to increase, among others, students' motivation in learning activities (18_S_006), (18_C_034), (21_C_031), (21_S_015) (Edarwati, 2018;

Nuraeni & Irawan, 2021; Syafitri & Darmana, 2018; Wibowo et al., 2021), the integrated values of the teachings of the Qur'an can also improve students' spirituality. So that students are capable get drafts through the scientific process, and the student will believe more existing signs of the power of Allah (18_P_018) (Faizah & Mubin, 2018). Another thing that is part of the implementation of *wahdatul 'ulum* is to improve the morality of students so that morality will be formed by habituation of learning activities in schools (18_C_035) (Ningrum et al., 2018).

Other efforts in science learning in instilling Islamic values from the Qur'an include increasing faith and belief in the Oneness of Allah through moral messages conveyed from science learning activities (19_B_023) (Ali & Arif, 2019). The evidence of belief in Allah and the teachings of the Qur'an are certainly reflected in the understanding and implementation of the pillar of Islam and faith. The output of the implementation is in the form of mutual respect between fellow creatures, low heart, loyalty, can trustworthy, honesty, responsibility, peaceful, patience, forgiving, helpful, tolerant, and harmonic (19_B_007) (Umam, 2019).

The good attitudes of students who implement the values of the teachings of the Qur'an will support the independent character of students who are the embodiment of Islamic teachings to create a strong generation in the future (19_S_024) (Utami et al., 2019). Instilling the values of Islamic teachings through science learning, including valuing other people's opinions, please help and prioritize interest together beside interest private. This thing is capital for the student in undergo life, not only in the neighborhood school but also in the environment community (20_C_009) (Widiyowati, 2020).

The learning process includes science, which should be capable bring repair on the morals and morale of students to become better in meaningful character. It turns out not yet there is an action real poured in the learning activity, and by unilateral still handed over on religious eye lessons (20_S_008) (Putra & Aslan, 2020), physics lessons are no exception in the material motion straight, teacher permanent could embed values teachings Islam (20_P_026) (Husna et al., 2020). If every stage of science learning becomes a teaching tool in instilling the attitudes taught in the Qur'an, openness and tolerance will be built, and furthermore, peace and harmony between humans will no longer be a rare thing because of differences in ethnicity and race, and religion.

Knowledge

Implementation of *wahdatul 'ulum* on research results that have been analyzed apart from the values of Islamic teachings, and also through the integration of scientific concepts written in *ayah* of the Qur'an (Figure 4). As in research (15_S_002) (Hamzah, 2016) through integrated verses of the Qur'an with eye science lessons as applicable curriculum. Integrated science concepts Islamic teachings about the prohibition of consuming substances addictive and psychotropics in biology learning (16_B_003) (Arimadona, 2016), in biology lessons are also discussed about various living things that are always in harmony with what is written in the Qur'an such as the reproductive system (21_B_010) (Priyanti et al., 2021), plant moss (*Bryophyta*), plants nails (*Pteridophyta*), and plant the seed (*Spermatophyta*) To do reproduction with water aid and wind, described in Surah (Al- An'am:95), and Surah (Al-Hijr: 22) (16_B_021) (Hanif et al., 2016), as well as the concept of heredity (19_B_029) (Khasanah et al., 2019), which contains various amino acids and proteins that are specific to each individual (20_C_022) (Suryaningsih et al., 2020).

Studying science cannot be separated from studying nature as verses of *kauniah* while still making the Qur'an the main reference source so that, in the end, it will further strengthen the existence of Allah as *al-khaliq* (19_B_011) (Khoirudin, 2019). By positioning the Qur'an and Hadith as source science, then could trace all branches of knowledge have basic nature concepts in it (20_C_032) (Zammi & Hakim, 2020). Scientific concepts that can explain the contents of the Qur'an include the content in honey (QS. An- Nahl 69), the reason scientific it is forbidden alcohol (result fermentation carbohydrates) (Surat Al-Baqarah:219), milk Continued exclusive breastfeeding until child 2 years old, a suggestion Rasulullah to "break "with sweet", miracle oil zaitun (QS. Al- Mu'minun 20), fat and protein from milk (Surat al- Mu'minun 21) (18_C_014) (Nirwana & Fitriyana, 2018). Scientific explanation from the scientific aspect of the contents of the Qur'an will increase our understanding of the Qur'an (19_C_020) (Chasanah et al., 2019). Furthermore, it will increase our faith in the Almighty God with all the knowledge that has been stated in the Qur'an (21_C_033) (Zammi et al., 2021).

Teaching and learning

Learning activities cannot be separated from a series of learning tools (Imania & Bariah, 2019; Khairunnisah et al., 2019; Pane et al., 2020), including learning media such as modules, teaching design,

and all facilities used for teaching and learning. Another tool is the learning model as the basic framework for implementing learning, including methods, designs, and learning strategies (Arianti & Zainul, 2020; Lestari et al., 2018; Virtayanti & Rohmah, 2021). As a measuring tool for learning success, of course, in the form of evaluation, in the form assessments on cognitive aspects, attitudes, and skills (Figure 3). Analysis of 35 articles on the implementation of *wahdatul 'ulum*, there are 10 articles that simultaneously implement assessments, models, and learning media (Figure 5). 5 articles include integrating religious knowledge with science on learning models and assessments, 4 articles on assessment and learning media, and 1 article between learning models and media (15_S_002).

The research was started in 2015 (15_S_002) by combining the design of Islamic science integration with the Integration model *Diadic Dialogic* as reference development teaching materials (modules) (Chasanah et al., 2019; Putra & Aslan, 2020). This research endeavors for presenting science-based marks to improve and grow awareness of participants educate from aspect intellectual, emotional as well as spiritually. *Wahdatul 'ulum* in this study uses an interdisciplinary approach, with entering *ayah kauniyah* in the Qur'an into lesson theory to deepen and strengthen mean resulting understanding (Black et al., 2015).

The implementation of *Wahdatul 'ulum* through the media is accompanied by an assessment of development p device p learning b biology (16_B_021) (21_B_010), physics (18_P_018), and science at the elementary school level (17_S_025) which has been linked with paragraph Al-Qur'an which contains a discussion of the concepts studied as an effort to improve students' mastery of concepts in the material studied. The development of learning media is a great opportunity for educators to integrate *ayah* of the Qur'an, especially with appropriate scientific concepts (Fadli & Sudrajat, 2020), then evaluate through measuring changes in student learning outcomes with the learning media used (Figure 6).

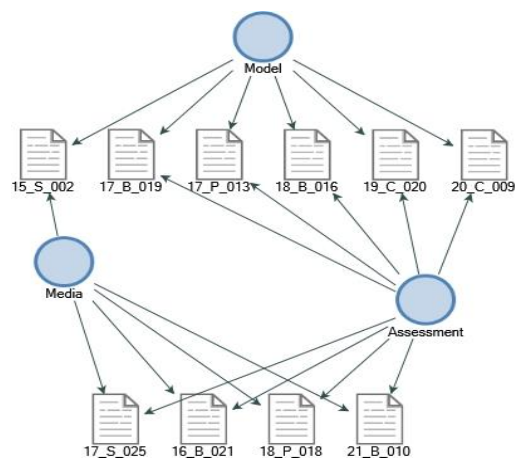


Figure 5. Map of the implementation of *wahdatul 'ulum* in science learning simultaneously on three learning components

Figure 5 shows how research on the assessment process in learning is carried out in tandem with the learning model, which integrates Islamic teachings. Both are contained in the application of the DBUS (Discovery-Based Unity Of Sciences) model to biological materials to improve students' high order thinking, such as critical thinking skills (17_B_019) (18_B_016) (Khasanah, 2018; Khasanah et al., 2019; Priyanti et al., 2021). Another implementation of the two learning components (assessment and learning models) is in chemistry through the application of the Four Steps Teaching Material Development (4 STMD) model, which consists of four stages, namely selection, structuring, characterization, and reduction (19_C_020), and model learning student teams achievement divisions (STAD) (20_C_009). Both models are applied in an effort to improve student learning outcomes and critical thinking skills. There are not many learning models that claim to be learning models by applying the concept of *wahdatul 'ulum*, and this has become a discourse for researchers who focus on developing learning models in accordance with current conditions (era 4.0) by integrating the teachings of the Qur'an; as the main basis (Sanusi, 2017).

Model

Research that separately applies the learning model with the concept of *wahdatul 'ulum* in science learning is the model learning which describes draft integration interconnect, with visualization net Spider scientific spider web (19_B_007) (Figure 6). The integration model is quite popularly used in

applying *wahdatul 'ulum* between the knowledge of the Qur'an and various general sciences e.g (Umam, 2019).

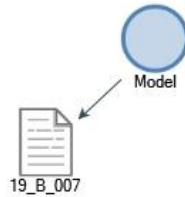


Figure 6. Implementation of *wahdatul 'ulum* on the application of science learning models

Media

The results of a review of the various literature in this study obtained the results of the development of the most dominating learning media, because learning media is developing very rapidly (Asmara, 2015; Khairunnisah et al., 2019; Pramita & Agustini, 2016), as many as 18 articles. Equally, various fields of science studies have developed learning media by applying the concept of *wahdatul 'ulum* from 2015 to 2021 (Figure 6).

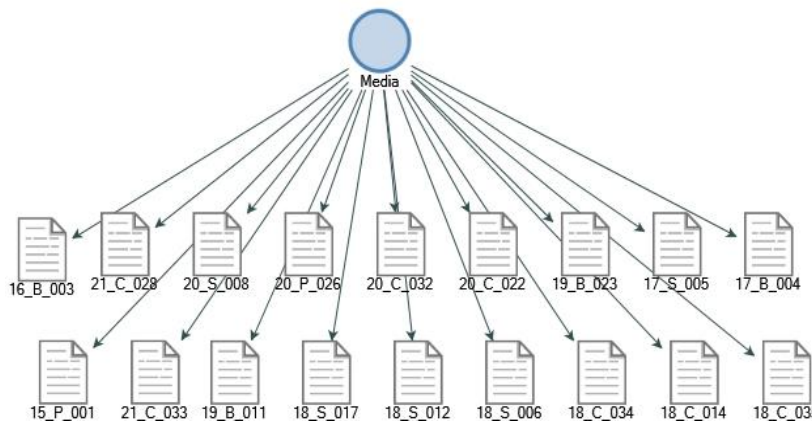


Figure 7. Implementation of *wahdatul 'ulum* on media development in science learning

In biology, teaching materials or learning media that have been developed include modules on the theory of substance addiction and integrated psychotropic Islamic teachings (16_B_003), modules on Plantae material (16_B_021), and practical instructions (19_B_023). The module, which was developed with the concept of *wahdatul 'ulum* expected' could Become wrong one choice ingredients study independent (19_B_011) and worth it used in activity learning (21_B_010). Various biological concepts that are closely related to living things can be an interesting study to link *ayah* of the Qur'an that discusses living things. In the end, learning biology is not only memorizing concepts but rather a tool to sharpen understanding when reading verses of the Qur'an that discuss living things, as discussed in science learning, one of which is biology material (Hayat, 1970; Mohamed et al., 2015).

Living things are a unity of various compounds, various compounds are the main discussion in chemistry (Morales et al., 2020; Mulyanti & Kadarohman, 2021; Nastiti et al., 2018), and many verses of the Qur'an have been scientifically proven through chemical concepts. Among the research on the development of chemistry learning media with the concept of *wahdatul 'ulum*, namely modules that refer to the higher education curriculum (18_C_034). The developed module can improve students' good attitude (18_C_035) and increase students' belief in the Oneness of Allah SWT (20_C_022), (20_C_032), and (21_C_033). The modules developed in these studies have proven to get a good response from experts who validate and research subjects who have used them (21_C_033).

The development of learning media on physics material includes encyclopedias science (18_S_006) and thematic module based on the integration of Islam and science (18_P_018). Module development aims to instill spiritual values in students (15_P_001), so it can Upgrade the results of the study as well as grow the character of Islamic students (17_P_013). The general concept of science in the development of learning media that is integrated with *the ayah* of the Qur'an includes the development of science learning media at the elementary school level as a starting point for students to recognize Islamic teachings

(17_S_025), with an approach contextual (18_S_17), as well as based on faith and era revolution industry 4.0 (20_S_008). The development of science learning modules has reached people with disabilities, namely the Braille-based science Islamic integration and science for participants educated blind in elementary school (18_S_012).

Various studies on the development of learning media with the concept of *wahdatul 'ulum* show that many researchers have tried to design learning media in various fields of science that are integrated with Islamic teachings. The media that have been developed from basic education to higher education, however, do not mean that this does not dampen the enthusiasm of the researchers to continue to develop learning media based on *wahdatul 'ulum* (Hanifah, 2018; Mustopo, 2017; Winarti, 2017). Because the more reference modules in various scientific studies, the more options for educators to use in learning activities. In the end, *wahdatul 'ulum*-based learning media became the main part of every learning activity (Guci et al., 2018; Hafinah et al., 2019; Ridwan et al., 2021).

Assessment

Figure 8 shows 6 articles that only focus on assessment, including developing critical thinking skills assessment (18_B_027). Implementation of *wahdatul 'ulum* in learning activities as an effort to improve students' attitudes (21_C_031) and motivation in participating in learning (21_S_015). Various studies that evaluate students' abilities show that learning with the concept of *wahdatul 'ulum* can improve students' various abilities, from cognitive skills (19_B_029) to attitude (21_C_031).

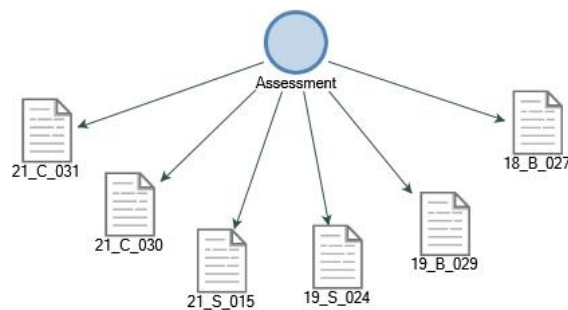


Figure 8. Implementation of *wahdatul 'ulum* in science learning assessment

Forming a complete human being according to Islamic teachings is not a simple matter but requires a lot of effort from various parties, one of which is through learning activities. Learning activities are the best media to introduce Islamic teachings based on the Qur'an, from basic education to higher education (Basari, 2019; Hidayatulloh, 2017; Juanda, 2014). Implementation of *wahdatul 'ulum* is an effort to harmonize the science of religion and general science, one of which is through science. Science is very close to everyday life, so the *wahdatul 'ulum* between the Qur'an and science is the best effort to abolish the dichotomy between religious knowledge and general science. In the end, it will form humans who can protect nature by adhering to the teachings of the Qur'an and analyzing them through mastering scientific concepts that are very well understood.

CONCLUSION

Education is something that is essential for humans. Through education, humans can face the universe in order to maintain their lives so that they can become *khalifah* as the main purpose of their creation. Because of the importance of education, Islam places education in an important and high position in its doctrine. Science and religion are one complete and interrelated science, and knowledge will not be separated from the knowledge of the Qur'an and Hadith, which there is no doubt in it. But there are some scientists who say that they view that science and religion stand in their respective positions because the field of science relies on empirically supported data to ensure the truth of the science. On the other hand, religion can accept the abstract and uncertain based on belief.

Religion and science must coexist with each other because both have similarities in their scientific mission, which is to bring benefits to life. The basic difference between the two, namely religion based on belief and science-based on scientific research results, presents a conflict that will resonate at the core of each. So that the integration between science and religion is almost incompatible because it is certain that there is a mutually weakening process between the two.

Problems surrounding the integration of knowledge are now often used as the desire of most Muslims to improve and improve the quality of Islamic education, which is still lagging behind. Until now, there is still a gap between what it should be and what it actually is—the emergence of the disintegration of science, which causes a scientific dichotomy with all its aspects. A series of studies that have implemented *wahdatul 'ulum* between the Qur'an and science in learning activities have become a discourse for researchers who continue to focus on developing the concept of *wahdatul 'ulum* between the Qur'an and science.

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Place acknowledgments, including information on grants received, before the references, in a separate section, and not as a footnote on the title page

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