



# Science Flipbook Integrated Al-Quran: Needs Analysis

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Received: July 27, 2023

Revised: November 20, 2023

Accepted: December 20, 2023

Published: December 31, 2023

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DOI: [10.29303/jppipa.v9i12.4812](https://doi.org/10.29303/jppipa.v9i12.4812)

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**Abstract:** The current state of science learning in madrasah reveals a lack of integration between teaching materials and technology, as well as a failure to incorporate relevant al-Qur'an verses connecting propositions to scientific content. Moreover, the absence of assessments evaluating students' motivating attitudes toward learning further compounds these challenges. This study seeks to assess the necessity of developing integrated teaching materials for science education in Temanggung Regency's madrasah, employing flip books as a technological tool. Participants included six science teachers and nine students, and data was collected through interviews. Analysis involved data reduction, presentation, and conclusion. The findings indicate a shared need among teachers and students for teaching materials that seamlessly blend technology and al-Qur'an verses through flipbooks in science education. Consequently, future research should focus on the development of flipbooks that incorporate al-Qur'an verses as integral components of teaching materials for enhanced science learning experiences.

**Keywords:** al-Qur'an verses; flipbook; needs analysis; science learning

## Introduction

The education emphasis in the 4.0 era is students with superior competence and good morals (Defitrika & Mahmudah, 2021). Education can also take advantage of the use of technology and maintain character, including religious attitudes. The rapid development of technology can be used as an opportunity to instill character education in students (Yuni Sugiarti, 2013). Character education can be implemented to strengthen teacher behavior in teaching and character building of students (Islamiyah & Yusuf Sobri, 2019).

Based on the Decree of the Minister of Religion Number 347 of 2022 about the guidelines for the application of the Merdeka Curriculum in *Madrasah*, there is a change in the 21st-century learning paradigm and a very dynamic and uncertain world development. Thus, a new pattern is needed in managing education and learning in *madrasah* or religion-based school. *Madrasah* can use information technology to the fullest (Siskandar, 2020), make innovations (Sofanudin & Rokhman, 2016), and make improvements and changes on an ongoing basis to optimize the quality of service to their *madrasah*

residents. *Madrasah* needs to have the autonomy to manage education as well as independence in innovating, being creative, and creating services that are friendly, humane, and adaptive to technological advances. One of the efforts by the Ministry of Religion of the Republic of Indonesia is to encourage and provide a platform for a *madrasah*. It develops the operational curriculum at the education unit level that is adjusted to the characteristics of each *madrasah* (Saputra, 2021; Nuraini et al., 2022).

Science as part of national education has an essential role to improve education quality. Education at this time should be able to increase a person's ability to adapt to technological advances (Cholily et al., 2019). In the process of learning, learning media is needed which functions as a tool and learning resource that influences the climate, conditions, and learning environment arranged and created by the teacher (Arsyad, 2011). Learning media represents something that cannot be conveyed by the teachers. It has a significant impact on learning and teaching activities (Priatmoko et al., 2012).

Learning outcomes can be influenced by various factors, namely the meaningfulness of being studied. Meaningful learning can take place if students seriously

## How to Cite:

Aris, M. A., Ariswan, Widowati, A., & Ilma, A. Z. (2023). Science Flipbook Integrated Al-Quran: Needs Analysis. *Jurnal Penelitian Pendidikan IPA*, 9(12), 10816-10822. <https://doi.org/10.29303/jppipa.v9i12.4812>

decide to combine the new knowledge gained with existing knowledge. It involves students having problem-solving skills and challenging concepts needed to achieve educational goals (Gupte et al., 2021; Hsbollah & Hassan, 2022). Students can be involved creatively and intellectually-emotionally to create situations that are suitable for learning so that meaningful learning is created (Northcutt & Novak, 2002).

Efforts are being made to realize meaningful learning in *madrasah* by integrating learning through various Islamic values. This can be seen from the integration of al-Qur'an verses in science learning. According to Mansour (2008), the integration of Islamic values in science learning explains science as a part of God's creation. According to the implicit view, the Qur'an instructs humans to integrate various religious values into knowledge. As Surat al-Ghasiyah verses 17-20 and An-Nisa verse 82 reveal all the material structures in the universe which are signs of God's power, but only knowledgeable people pay attention to these natural phenomena.

The urgency of developing flipbooks integrated with Al-Quran in science education lies in fostering a holistic approach that intertwines scientific knowledge with religious values, as emphasized by Hapiz et al. (2019). It goes beyond a mere search for Quranic verses or Hadith to support scientific arguments; rather, it advocates for science to serve as a meaningful intermediary, facilitating a deeper connection with God. This perspective aligns with the notion that knowledge, including scientific knowledge, can be a pathway to spiritual enlightenment.

For science teachers, the call to compile or utilize teaching materials oriented toward religious values is not merely a pedagogical recommendation; it's a transformative initiative that contributes to the comprehensive development of individuals. This approach aims to nurture complete intelligence encompassing not only intellectual prowess but also emotional, social, and spiritual intelligence. It reflects a commitment to producing well-rounded individuals who are not only proficient in scientific concepts but also grounded in moral and spiritual values.

The integration of Al-Quran verses in electronic teaching materials, facilitated by flipbook makers, represents a practical application of this urgent need. Utami and Yuwaningsih (2020) highlight the versatility of flipbook makers, incorporating features such as video, image, audio, and hyperlinks to enhance the appeal of teaching materials. This multimedia approach serves to capture students' interest, making the learning experience more dynamic and ultimately improving learning outcomes.

Several studies, including those by Asrial et al. (2019), Haryanto et al. (2020), and Abror et al. (2020), underscore the effectiveness of flipbooks in various educational contexts. From enhancing science process skills to creating interactive and engaging learning environments, flipbooks prove to be versatile tools. In the Indonesian educational landscape, the research analyzing the necessity of developing science teaching materials with integrated flipbooks and Al-Quran verses signifies a forward-thinking endeavor to align education with religious values, ultimately contributing to the holistic growth of students. This integration not only makes science more accessible but also instills a sense of purpose by connecting scientific understanding with spiritual enrichment.

Previous research shows that result developing an experimental KIT module based on Al-Qur'an studies is very useful in supporting students' knowledge of literacy skills and achieving psychomotor, cognitive and spiritual results for students with the results of 83.33 percent of students showing mastery of classical skills, classified as very proficient. (Zohdi & Azmar, 2023). Pramita & Yulkifli (2023) Science e-books based on the RADEC (Read-Answer-Discuss-Explain-Create) model are valid and practical to use in science learning and to improve the 4C skills of junior high school students

Based on research by Ramadhan et al (2023), the QISI-based science e-module was successfully developed with very valid results, obtaining an average percentage value of 87.40% and very practical, an average percentage of 86.88% and was effectively used in studying the solar system, with The N-gain value is 0.62.

## Method

This research method is qualitative descriptive research. It is to describe and provide information regarding the topic under study through further analysis of qualitative data (Hashimov, 2015). The research was conducted in November 2022. It was carried out at the *Madrasah Tsanawiyah* (MTs) in the Temanggung district. The subjects consisted of six teachers and nine students from three MTs, namely MTsN 1 Temanggung, MTs Ma'arif Jumo, and MTs Banirosyid Ngadirejo. The reason for using three *madrasah* is to represent state *madrasah*, pesantren-based *madrasah*, and private *madrasah*. Aspects and indicators of interview questions can be shown as in Table 1.

**Table 1.** Aspects and indicators of interview questions

Aspect	Indicator
Technology-based Teaching materials	Types of teaching materials Utilization of technology in teaching materials
Teaching materials integrated with al-Qur'an verses	Teaching materials integrated with al-Qur'an verses Application of teaching materials integrated with the al-Qur'an verses The importance of teaching materials integrated with the al-Qur'an verses
Flipbook in science learning	Knowledge of flipbook Application of flipbook in learning science The potential for integrated flipbooks of the al-Qur'an verses in science learning

Data analysis in qualitative descriptive research (Miles et al., 2014), includes reducing data obtained from interviews, presenting data in descriptive form from the results of data reduction regarding analysis of the conditions and needs of Al-Quran integrated science flipbooks for MTs teachers and students throughout Temanggung Regency, and conclusions were drawn after reviewing the interview data.

## Result and Discussion

### Technology-based Teaching Materials

Interviews were conducted with six teachers and nine students to find out the books or teaching materials used in the learning process. The other three teachers also explained similar things as explained by the three teachers above. The teaching materials currently used in schools include textbooks from the science forum teachers and used technology in new teaching materials. A few have taken advantage of the use of PowerPoint or searched for various sources on the internet. We confirm the results of interviews with the teacher with the answers of students regarding the teaching materials used during learning.

The answers of the two students were similar to the answers of the other seven students who explained that the teaching materials used at school were textbooks and other supporting materials obtained from browsing the internet. Based on teacher and student interviews, it can be concluded that the teaching materials used in schools have started to use technology use PowerPoint, and look for learning resources from the internet. It can be used as an opportunity for teachers to optimize the use of technology-based teaching materials. Teachers have an essential role in modeling digital competencies to plan

and implement them in learning (Falloon, 2020). The use of technology for teaching is important, including during emergencies, for example, extreme violence (Ramadan, 2017); natural disasters (Joshi et al., 2018), and pandemic conditions (Hodges et al., 2020; Trust & Whalen, 2020).

**Table 1.** Teacher Explanation about Technology-based Teaching Materials

Teacher	Explanation
1	<i>"The teaching materials that I use when studying science are diktats made by science forum teachers."</i>
2	<i>"Some teachers have used the internet to find references that support learning."</i>
3	<i>"When teaching, I usually refer to science textbooks and use powerpoint."</i>

**Table 2.** Student Explanation about Technology-based Teaching Materials

Student	Explanation
1	<i>"Usually, we use the textbooks borrowed from the school library."</i>
2	<i>"We are allowed to look for other sources of browsing the internet"</i>

### Teaching materials integrated the al-Qur'an verses

The integration of al-Qur'an verses in new schools is used on certain basic competencies that already exist in the science forum teachers. It is due to the teacher's lack of understanding in making diktat which includes al-Qur'an verses related to material on basic competencies, including in science subjects. According to teachers' and students' answers, the integration of the al-Qur'an verses is very important to make meaningful scientific knowledge and can also increase our faith in God.

The answers of the other four teachers were similar to those of the two teachers above. The teaching materials used in *madrrasah* are already integrated with the al-Qur'an verses in the book, but not all basic competencies or chapters have integration of the al-Qur'an verses. Science teaching materials that are integrated with new Al-Qur'an verses relate the material to the propositions in the Al-Quran in preliminary perceptions in the learning process. In addition, the reason teachers have not implemented teaching materials that are integrated with the Qur'an is that teachers feel less thorough and are afraid to link the al-Qur'an verses with the subject matter. We confirmed the results of the interview with the teacher to the students and obtained on Table 3 and 4.



**Table 3.** Teacher Explanation about Teaching materials integrated the al-Qur'an verses

Teacher	Explanation
1	<i>"I have not applied the integrated Al-Qur'an teaching materials for fear of misinterpreting it, but there are already some who relate it as in the initial perception of learning."</i>
2	<i>"I have not used it because I was not careful when looking for al-Qur'an verses related to the subject matter."</i>

**Table 4.** Student Explanation about Teaching materials integrated the al-Qur'an verses

Students	Explanation
1	<i>"If the al-Qur'an verses in the textbook already exist, but not all the material is related."</i>

The answer of student 1 represents the answers of eight other students. They explained that the use of al-Qur'an verses in textbooks had been applied but only a small part and not yet comprehensively on all subject matter. Several studies have investigated the use of materials that are integrated with the al-Qur'an in science learning such as the use of science modules in the material of water as a source of life (Latifah, 2015), solar system (Latifah & Ratnasari, 2016), digestive system (Rahmayani et al., 2022). One of the objectives of using integrated Al-Qur'an teaching materials is to instill religious values and capital so that students have meaningful knowledge (Sholihah & Kartika, 2018).

*Flipbook in Science Learning*

Most teachers and students do not understand the existence of flipbooks. A few of them understand that flipbooks are digital books. The answers of the two teachers regarding the use of flipbooks in science lessons were similar to the answers of the other four teachers. Teachers are still unfamiliar with the use of flipbooks for learning. Students were also asked about their knowledge of flipbooks. They all said they had never used flipbooks in science lessons. When teachers and students were shown flipbooks, they were very interested and happy when the flipbook was used in the learning process. Students look interested when reading and learning using flipbooks on their Android. Based on these results, the science flip book has the potential to be used in science learning.

Gustiani et al. (2021) showed students are more active and enthusiastic in learning after using flipbooks. The use of flipbooks can affect the activity of students in participating in science learning (Febriyanti & Mayarni, 2022). Previous research has developed an electronic module using a flipbook which is used as an

independent teaching material in learning science (Munzil et al., 2022). Flipbooks can also be used as teaching materials that can increase students' motivation to learn science (Lafifa et al., 2022; Setianingrum et al., 2022) and facilitate students' science learning process (Roemintoyo & Budiarto, 2021).

**Table 5.** Teacher Explanation about Flipbook in Science Learning

Teacher	Explanation
4	<i>"I have heard of flipbooks, but I have not used them in learning."</i>
5	<i>"In my opinion, flipbooks are digital books, so they can be accessed via Android or connected to the internet."</i>

*Science Flipbook integrated al-Qur'an*

Based on the interviews with teachers and students, they explained that flip books have the potential to be integrated with the al-Qur'an verses. Teachers want teaching materials that are simple but interesting by using science flip books that are integrated with the al-Qur'an verses. Previous research has developed mobile learning using e-book that integrates the al-Qur'an verses and hadiths in science learning on human circulation system material for junior high school/MTs students (Rifa'i & Hasanah, 2022). Nurain et al. (2022) also developed science learning media to improve spiritual attitudes and higher-order thinking skills for a pre service physics teacher. From previous research, teaching materials have the potential to be integrated with verses of the Qur'an in science learning, one of which is with flipbooks.

The integration of Islamic literacy into flipbooks serves as a pedagogical approach, aligning with Diani and Hartati's (2018) perspective on the incorporation of cultural and religious elements in educational materials. This not only enriches the learning medium but also resonates with the theory of culturally responsive teaching, emphasizing the importance of reflecting students' backgrounds in instructional materials.

Drawing from Hapiz et al. (2019), the inclusion of Islamic literacy in flipbooks goes beyond mere content enrichment; it becomes a potent tool for engaging students. According to motivational theory, such as Self-Determination Theory (SDT), meeting students' psychological needs for autonomy, competence, and relatedness enhances their intrinsic motivation. By attracting students' interest and tapping into their spiritual attitudes, the flipbooks become a conduit for meaningful learning experiences.

Supriadi's (2017) assertion that the al-Qur'an serves as a motivation, stimulus, and foundation for

constructing science and technology underscores the interconnectedness of religious principles with scientific knowledge. This resonates with the theory of integrative learning, which posits that combining diverse areas of knowledge enhances the depth of understanding. Thus, the al-Qur'an not only serves as a spiritual guide but also as an inspirational source for scientific exploration.

In the context of teaching materials acting as intermediaries, the theory of constructivism comes into play. According to this theory, developed by Piaget and Vygotsky, learning is an active process where individuals construct knowledge based on their experiences. Teaching materials, in this case, act as tools facilitating this construction. Anwar and Elfiah's (2019) emphasis on referring to monotheism aligns with the idea that the integration of religious values into scientific knowledge contributes to a holistic understanding, merging faith and reason.

In summary, the integration of Islamic literacy in flipbooks, guided by these theories, not only enhances the educational experience by aligning with cultural and religious diversity but also engages students, motivates them intrinsically, and fosters a nuanced understanding of the intricate relationship between science, technology, and religious principles.

Damayanti & Yohandri (2022), the results of research and development of E-Books based on the Problem Based Learning model accompanied by giving quizzes on effective class X physics learning. Effectiveness is based on learning completeness and N-Gain value in the high category.

## Conclusion

Teaching materials used in *the madrasah* are dictated from the science teacher forum in MTs Temanggung and student package books from the Ministry of Education and Culture. There are not many teaching materials that integrate learning with technology and al-Qur'an verses. Most teachers and students do not know about and use teaching materials using flipbooks, students are more interested in using flipbooks, and teachers want science flipbooks integrated with the al-Qur'an verses. Future research can develop teaching materials using science flipbooks integrated with the al-Quran Verses which are equipped with student worksheets, evaluation questions, and video and audio learning in *madrasah* so that students have interest and motivation in understanding material that impacts learning outcomes and spiritual attitude in science subjects.

## Acknowledgments

The authors would also like to thank all the respondents that participated in this research.

## Author Contributions

Conceptualization, methodology, investigation, data collection: Muhammad Aris; directing, reviewing references: A.; data analysis, validation, editing: A. W.; discussing, customizing templates: A. Z. I. All authors have read and approved published version of the manuscript

## Conflicts of Interest

The authors declare no conflict of interests

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