

EXPLORING STUDENTS' EXPERIENCES AND PERCEPTIONS OF AN AI APPLICATION IN QURAN MEMORIZATION LEARNING

Sugiyanto Sam¹

¹Akademi Komunitas Industri Manufaktur Bantaeng

Corresponding Author: Sugiyanto Sam¹ (sugiyanto@akom-bantaeng.ac.id)

Keywords:

AI Application,
Quran
Memorization,
Students'
Perceptions

ABSTRACT

The development of artificial intelligence technology has spurred innovations in education, including the use of an AI Application as a supporting medium for Quran memorization. This study aims to describe students' experiences and perceptions regarding the use of an AI application in the process of memorizing the Quran at Darussalam Bone Islamic Boarding School. A qualitative descriptive approach was employed, with data collected through online questionnaires distributed via Google Forms to 20 students. The research instrument was designed to explore students' experiences in using an AI application and their perceptions of its benefits and limitations. The results indicate that using an AI application provides benefits as a supportive medium for memorization, particularly in assisting murojaah (memorization revision), understanding the meaning of verses, and offering flexibility for independent learning. However, the application has limitations in improving recitation accuracy and supporting progress in memorization, mainly due to insufficient features for correcting recitations and limited personal interaction. Therefore, the AI application is considered a complementary tool that cannot replace the role of an ustadz (teacher) in Quran memorization learning. This study recommends further development of an AI Application to make it more accurate, interactive, and aligned with the needs of tahfidz learning in Islamic boarding schools.

Article History:

Received:
April 8, 2026

Accepted:
May 7, 2026

Published:
June 16, 2026

How to cite:

Sam, S. (2026). Exploring students' experiences and perceptions of an AI application in Quran memorization learning. *Atta'dib Jurnal Pendidikan Agama Islam*, 7(1). DOI: <https://doi.org/10.30863/attadib.v7i1.11364>

INTRODUCTION

The advancement of science and technology has brought significant changes that affect human life, particularly in the field of education. The rapid development of information technology has had a major impact on various sectors, including education. One form of technological innovation that has

begun to be utilized in education is the implementation of artificial intelligence (AI) in learning activities. (Auwaliah et al., 2025). Therefore, innovation is needed to develop approaches to address and solve these challenges. One of the latest and widely recognized technological innovations is the application of artificial intelligence to facilitate various human tasks. Artificial Intelligence (AI) is a computer-based system designed to perform tasks that typically require human intelligence. (Maufidhoh & Maghfirah, 2023).

In this modern era, science and technology play a very important role in the development of society and the progress of a nation. Education is the primary foundation for acquiring the knowledge and skills needed to advance science and technology. Islam encourages the continuous pursuit of knowledge, whether in the fields of religion, social sciences, or natural sciences, as long as it brings benefits and does not contradict the principles of Islamic law (*sharia*). (Alkadafi et al., 2024).

Islamic Religious Education (PAI) plays an important role in shaping the character and morals of students (*santri*) (Jibu et al., n.d.). However, the learning process of PAI often faces various challenges, such as limited teaching time, difficulties in delivering learning materials effectively, and limited interaction between teachers and students outside classroom hours. In this context, the use of technology, including AI-based applications, can help address some of these challenges. (Juanta et al., 2024).

As Muslims, we are encouraged to seek various forms of knowledge beneficial to human life, including learning the Qur'an. One way to study the Qur'an is to memorize it. By memorizing the Qur'an, we not only deepen our understanding of its contents but also help preserve its authenticity and continuity, as practiced by the Prophet Muhammad, his companions, the *Tabi'in*, the *Tabi' al-Tabi'in*, and earlier scholars. In Islamic teachings, memorizing the Qur'an is considered a noble act of worship with great rewards when performed with a sincere intention to seek the pleasure of Allah. The process of Qur'an memorization not only enhances spiritual understanding but also strengthens one's relationship with Allah. (Romdhoni, 2015).

AI applications can provide direct assistance in the learning process by responding to questions, offering explanations, and supplying supporting learning materials. In addition, this technology contributes to improved learning

effectiveness, enriched students' learning experiences, and optimized overall learning outcomes. (Suryanto, 2024). The presence of an AI Application is expected to provide students with easier access to Islamic Religious Education materials and enhance their motivation to learn, particularly outside formal classroom settings.

Although AI applications offer considerable potential in support of Islamic Religious Education (PAI) learning, research on the effectiveness and impact of this technology in Islamic education, particularly in Indonesia, remains limited. Therefore, this study aims to analyze how the use of an AI Application can improve the quality of PAI learning in the digital era and strengthen students' (*santri*) engagement in the learning process.

Based on the researcher's review of previous studies, several relevant studies have been identified as similar to the research problem under investigation. However, these studies differ in their focus and the aspects examined in this research. Some of the related studies include the study conducted by Fauzan in 2025, entitled "Implementation of Artificial Intelligence in Tahfidz Al-Qur'an Learning at Madrasah Tsanawiyah: A Study on the Effectiveness of Machine Learning-Based Application," which employed a qualitative, descriptive approach. Data collection techniques included observation, interviews, and documentation. Data analysis was conducted through data reduction, data presentation, and conclusion drawing. The results showed that implementing machine learning-based AI in tahfidz learning could assist students in the muroja'ah process, improve Qur'anic recitation through speech recognition, and enhance the effectiveness of Qur'an memorization. (Fauzan, 2025).

However, this study focuses on the implementation of machine learning-based Artificial Intelligence technology in Qur'an memorization (tahfidz) learning in general, particularly on the use of speech recognition features and automated evaluation systems to support students' memorization. Meanwhile, the present study focuses more specifically on the use of an AI Application. It explores students' experiences, perceptions, benefits, and challenges in utilizing this technology during the Qur'an memorization process. In addition, this study was conducted specifically among students at Darussalam Islamic Boarding School in Bone, which uses the Ma'ani method for tahfidz learning.

The study conducted by Afiyati, Magfirah, and Bashith in 2025, entitled “*Optimalisasi Chatbot Berbasis Artificial Intelegence Dalam Pembelajaran Pendidikan Islam Di Era Digital*,” employed a qualitative approach using a literature review (library research) method. Data collection was conducted by analyzing various journals, scientific articles, and other relevant documents related to the research topic. The results showed that AI-based Applications have great potential to improve learning motivation, learning flexibility, and student interaction in Islamic Education. In addition, AI applications were considered capable of helping students obtain information quickly and interactively. (Afiyati et al., 2025). However, the study conducted by Afiyati, Magfirah, and Bashith focused only on the utilization of AI-based Applications in Islamic education in general, using a literature review (*library research*) approach. Their study emphasized the potential of an AI Application in improving students’ learning flexibility and motivation. Meanwhile, the present study was conducted through field research by examining students’ experiences in using an AI Application for Qur’an memorization (*tahfidz*) learning. This study is also more specifically focused on the pesantren environment and the Qur’an memorization process, rather than Islamic Education learning in general.

The study conducted by Anggraeni in 2025, entitled “*Integrasi Artificial Intelligence Dalam Pembelajaran Pendidikan Agama Islam: Studi Eksploratif Pada Model Chatbot Islami Di Era Society 5.0*,” employed a descriptive qualitative research method. Data collection was carried out through observation, documentation, and literature studies. The data were analyzed descriptively by examining various phenomena related to the use of Islamic applications in learning. The results showed that Islamic applications can improve students’ access to Islamic Religious Education materials and support more personalized and adaptive learning (Anggraeni, 2025). Anggraeni’s study focused on integrating Islamic applications in Islamic Religious Education in the Society 5.0 era, with greater emphasis on learning material accessibility and digitally based personalized learning. Meanwhile, the present study focuses on the use of an AI Application to support Qur’an memorization. It provides an in-depth examination of students’ (*santri*) experiences as users of this technology. In addition, this study is more specific because it was conducted in a pesantren environment and focused on *tahfidz* learning.

Through this study, it is expected to gain a deeper understanding of the potential, challenges, and benefits of using AI applications in Islamic Religious Education (PAI) learning. Furthermore, the findings of this study may inform the development of more effective educational technologies, particularly in improving the quality of Islamic Religious Education learning in the rapidly evolving digital era.

METHOD

This study was conducted from May to August 2025 at Darussalam Islamic Boarding School, Bone Regency. This research employed a qualitative approach. According to Denzin and Lincoln, this approach involves collecting data in a natural setting to understand and interpret phenomena using various relevant methods. (Kaharuddin, 2021). The approach used in this study is descriptive qualitative. A descriptive qualitative approach is a research method that aims to describe and explain social phenomena in depth based on data collected from various sources. This approach is used to understand an event by interpreting data obtained through interviews, observations, and document analysis. (Waruwu, 2023).

Data analysis in this study was conducted in several stages: data reduction, data presentation, data interpretation, and conclusion drawing. In the data reduction stage, the researcher selected and focused on questionnaire and documentation data related to the use of an AI Application Application in the Qur'an memorization process. Furthermore, the data were presented descriptively, organized by themes that emerged during the research, such as the benefits of using AI applications, ease of access to information, challenges in using the application, and its impact on students' (*santri*) memorization process.

The next stage involved data interpretation to understand students' experiences and perceptions regarding the use of an AI Application Application as supporting media in Qur'an memorization (*tahfidz*) learning. Afterward, the researcher concluded the overall analysis of the data. In this study, the AI application was not developed by the researcher; it was an existing application used as a supporting learning medium. Therefore, this study does not focus on application system development but rather on analyzing students' experiences

and responses in using the AI Application during the Qur'an memorization process.

To ensure data credibility throughout the research process, the researcher employed data validation strategies commonly used in qualitative research, namely triangulation and member checking. Triangulation is a strategy that uses multiple methods and sources during data collection and analysis to obtain more comprehensive, accurate, and trustworthy findings. (Nurfajriani et al., 2024). Meanwhile, member checking is a validation process in which the researcher provides the collected, organized, and interpreted data to the participants for review and confirmation of its accuracy. This process helps ensure the credibility and trustworthiness of the research findings. (Ash-Shiddiqi et al., 2025).

This approach emphasizes exploring meaning, understanding participants' perspectives, and using an inductive data analysis process. Descriptive qualitative research is also characterized by a naturalistic approach, in which data are collected in natural settings without significant researcher intervention. The findings are not presented in numerical forms but rather in narrative descriptions that provide a comprehensive explanation of the phenomenon under investigation.

RESULTS AND DISCUSSION

Background of Darussalam Bone Islamic Boarding School

Darussalam Bone Islamic Boarding School is an Islamic boarding school that focuses on teaching kitab gundul, or kitab kuning (classical Islamic texts), in addition to Islamic theology (Aqidah), Islamic jurisprudence (Fiqh al-Ibadah), Arabic, and other general subjects. The Darussalam Bone Islamic Boarding School's focus on teaching kitab gundul, or kitab kuning, makes it one of the unique Islamic boarding schools in Bone Regency. Kitab kuning is a classical Islamic literature that contains various disciplines of Islamic knowledge, such as Qur'anic exegesis (*Tafsir*), Prophetic traditions (*Hadith*), Islamic jurisprudence (*Fiqh*), and theology (*Aqidah*) (Mustofa, 2019). Mastery of *kitab kuning* is considered highly important because it contains the scholarly heritage of earlier Islamic scholars, serving as a strong foundation for understanding religious teachings in depth and in a comprehensive way. In addition, *kitab kuning* also

trains students (*santri*) to understand advanced Arabic language skills, which are necessary for accessing various original references in Islamic studies.

Therefore, the *ustadz* who teaches students (*santri*) often uses the *sorogan* method, also known as “*mengaji tudang*,” in the process of teaching *kitab kuning*. This method involves students sitting with the *ustadz* to read and understand the texts directly, under the teacher's guidance and explanation. This method allows students to ask questions directly about parts they do not understand and receive detailed explanations, making the learning process more interactive. (R. P. Putri, 2024). Through this method, the *pesantren* not only emphasizes memorization but also promotes a deep understanding of the texts, while developing students' (*santri*) critical thinking skills regarding the teachings they study. The combination of classical approaches and the teaching of other basic Islamic sciences gives Darussalam Bone Islamic Boarding School its own distinctive characteristics. It is expected to produce students with broad knowledge who are capable of becoming successors of the authentic Islamic scholarly tradition.

Based on information provided by Ustadz Baskar Muhammad Jafar, Lc., the leader of this *pesantren*, one of the challenges faced by Darussalam Bone Islamic Boarding School since its establishment is the lack of students' interest in learning *kitab gundul* or *kitab kuning*, as well as the limited knowledge among parents regarding the importance of studying classical Islamic texts written by scholars. Most parents of students do not yet fully understand what *kitab kuning* is, its benefits, its distinctive value, and the achievements that can be attained through learning these classical Islamic texts.



Figure 1. Interview Documentation with Ustadz Baskar Muhammad Jafar, Lc.

The limited interest in learning *kitab kuning* has become a significant challenge in achieving the main objective of the pesantren, which is to produce students (*santri*) who not only understand the Qur'an but also study and comprehend the works of previous Islamic scholars. *Kitab kuning* is an important source of Islamic knowledge, covering fields such as Islamic jurisprudence (fiqh), theology (aqidah), and Arabic language studies, all of which are essential for understanding Islam in depth. (Mustofa, 2019). However, the lack of public understanding, particularly among students' parents, of the benefits and importance of *kitab kuning* has led in suboptimal support for this educational program.

This is different from the *Tahfidz* program, which is widely recognized by the community as a form of Qur'an learning with religious value. Parents generally perceive their children's achievements in *Tahfidz* as a source of pride, while the benefits of learning *kitab kuning* remain less understood and appreciated (Anwar et al., 2024). Therefore, greater efforts are needed to promote the importance of *kitab kuning* as a foundation of Islamic knowledge for students (*santri*), so that they not only focus on Qur'an memorization but also understand and apply Islamic teachings in daily life, grounded in a strong knowledge foundation. Based on this consideration, the pesantren management implemented the *Ma'ani* method in *Tahfidz* learning to guide students to study *kitab kuning*. The *Ma'ani* method is an approach to Qur'an memorization that emphasizes understanding the meanings of Qur'anic verses, including mastery of *mufradat* (vocabulary) and understanding of *Nahwu* and *Sharaf*, which are essentially part of the scholarly disciplines involved in *kitab kuning* learning (Sam & Hikmah, 2025).

Nevertheless, Ustadz Baskar explained that in its implementation, the *Ma'ani* method still presents certain challenges for some students (*santri*). These challenges arise because students are required not only to memorize the pronunciation of Qur'anic verses but also to understand their meanings and relationships to specific contexts, making the memorization process more demanding and time-consuming. Given this condition, the researcher sought to introduce an innovation by integrating the *Ma'ani* method with artificial intelligence technology, particularly through an AI Application. The presence of an AI Application is expected to provide interactive assistance that facilitates

students in reviewing their memorization while also helping them understand the meanings of verses more systematically. Thus, the memorization process through the *Ma'ani* method can become more effective, adaptive, and better aligned with students' needs.

The Use of an AI Application in the Qur'an Memorization Process

An AI Application is an artificial intelligence-based program that can automatically simulate conversations with users. In the field of education, AI applications can serve as virtual tutors, providing information, answering questions, and guiding students (*santri*) in the learning process. (Suryanto, 2024). An AI Application is an artificial intelligence (AI)-based program designed to interact and communicate with users like humans through various platforms, such as messaging applications, websites, mobile devices, and other applications. (L. A. Putri et al., 2023).

An AI Application is a software system designed to simulate human conversations using artificial intelligence (AI) (Caldarini et al., 2022). AI applications can interact with users via text or voice and are commonly used in customer service, virtual assistants, and automated information systems. The technologies underlying AI applications generally utilize Natural Language Processing (NLP) to understand human language and Machine Learning to improve conversational interactions. By employing Named Entity Recognition (NER) models based on artificial neural networks, the Application can identify important entities in text, such as the names of people, places, or organizations (Ali, 2020).

The main purpose of an AI Application is to facilitate communication and provide users with solutions or information without requiring direct human interaction. Applications equipped with Natural Language Understanding (NLU) capabilities can replace certain customer service functions by interacting in a more natural, human-like manner and answering frequently asked questions. (Chaidrata et al., 2021). Empathy in AI Application interactions also plays an important role, as demonstrating empathetic responses can significantly influence user satisfaction in its utilization. (Panjaitan et al., 2023).

The AI Application used in this study was developed by ZonaSoftware, a technology company based in Makassar, South Sulawesi. The development

process took approximately 14 days, from May 14 to May 28, 2025. The creation of this AI Application was carried out at the researcher's request, with a design tailored to the needs of the research in the field of Qur'an memorization (*tahfidz*) learning.

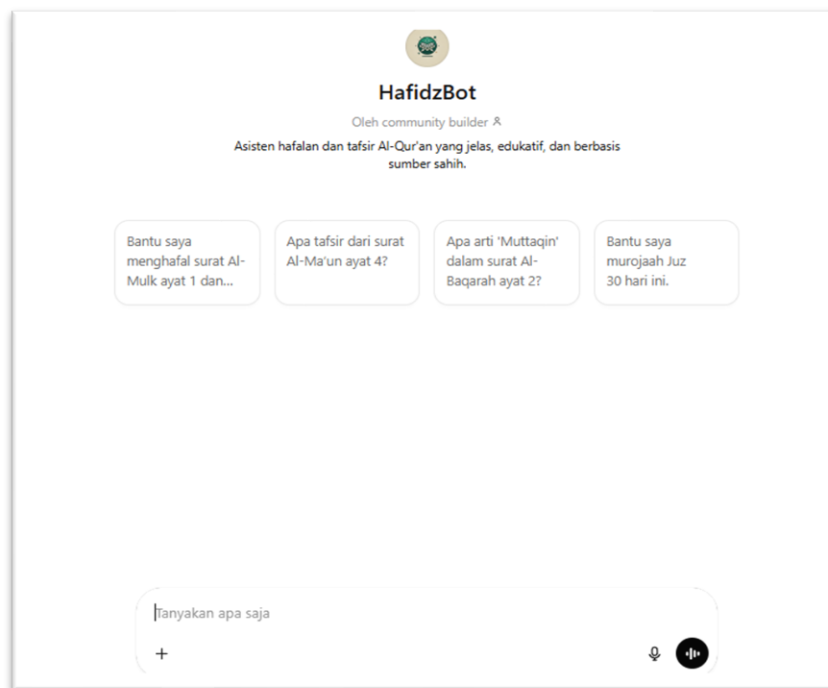


Figure 2. The Interface of an AI Application

The main features requested include five important aspects, namely:

1. Assistance in memorizing Qur'anic verses, enabling students (*santri*) to add new memorization more easily and gradually.
2. Explanation of meanings and interpretation (*tafsir*), to deepen students' understanding of the content and messages of the verses.
3. Memorization checking and correction, to help maintain students' recitation according to proper *tajwid* rules.
4. Murojaah (memorization review) guidance, to maintain previously memorized verses so that they remain strong and consistent.
5. Motivation and verse reflection, providing inspirational messages that encourage students' spiritual motivation in memorizing the Qur'an.

With these specifications, this AI Application is designed not only as a technical tool but also as an educational, interactive, and motivational learning medium tailored to students' needs. This research process was conducted over four months, from May to August 2025. The study used a descriptive qualitative

approach, chosen because it was deemed capable of providing a deeper understanding of the students' experiences using an AI Application for Quran memorization. This approach not only describes the phenomena that occur but also attempts to interpret the meaning behind the students' experiences.

In this study, 20 Islamic students were selected as subjects. They were active in the tahfiz program and had used an AI Application to support memorization. The students' diverse backgrounds and memorization abilities were important aspects that enriched the research findings.

Table 1. List of Respondents (20 Students)

Name of Student/Respondent	Age (years old)	Gender	Class/Level
Abid Muflichin	14	male	3 MTs
Ahiruddin Putra Farma	14	male	3 MTs
Ahmad Faizan	14	male	3 MTs
Ahmad Multazam	13	male	3 MTs
Ahmad Reyhan	14	male	3 MTs
Ayman Muwaffaq Jamil	14	male	3 MTs
Azzam Izzatul Ahmad	14	male	3 MTs
Azzukni Aditia	14	male	3 MTs
Fatir	13	male	3 MTs
Iksan Maulana	14	male	3 MTs
Muh Hafidz Fatur	14	male	3 MTs
Muh ilham	14	male	3 MTs
Muh Rachmat Setiawan	14	male	3 MTs
Muh.assyudais Syamsir	14	male	3 MTs
Muh.Faizul Rayyan	15	male	3 MTs
Muhammad Ayyub al Anshori	14	male	3 MTs
Muhammad Rizky Abadi	14	male	3 MTs
Mushab Arham	14	male	3 MTs
Riski	14	male	3 MTs
Saldi Saputra	14	male	3 MTs

In order to collect relevant data, the author distributed questionnaires to 20 students at the Darussalam Bone Islamic Boarding School who were directly involved in Al-Qur'an memorization activities. The questionnaire was systematically compiled to explore the experiences, perceptions, and perceived usefulness of the AI Application as a supporting medium for Al-Qur'an

memorization. The data collection process was conducted online via Google Forms, allowing respondents to complete the questionnaire more flexibly and efficiently. The collected data were then analyzed to provide a comprehensive picture of the role of the AI Application in helping students face challenges and improve the quality of their experience in memorizing the Al-Qur'an in the digital era.



Figure 3. The Process of Memorizing the Quran Using an AI Application by 20 Students/Respondents

Students' Experiences and Perceptions of Using AI Application in the Process of Memorizing the Qur'an

The data presented in this section were obtained from a questionnaire distributed to students via Google Forms. The questionnaire was designed to explore students' experiences in utilizing AI applications during their memorization activities, while also capturing their perceptions regarding the advantages and disadvantages of using artificial intelligence technology as a supporting medium for Quran memorization. Based on the collected data, the researchers organized the research findings into two main points: students' experiences in using the AI Application and respondents' perceptions of the application's advantages and limitations. The research findings are presented via Google Forms, as follows.

1. Students' experiences in using the AI Application in the process of memorizing the Al-Quran

a. Ease of use of an AI application feature in Tahfidz learning.

In their Tahfidz (Quran memorization) lessons, the majority of students found the AI Application quite helpful and easy to use. The available features were considered practical, facilitating their Quran memorization

process. This level of usability is evident in the data shown in the following diagram.

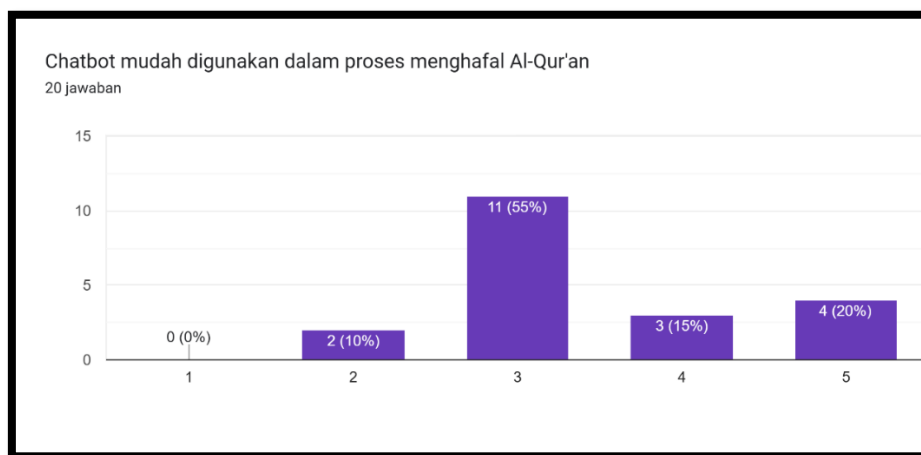


Figure 4. Level of Ease of Use of an AI Application According to Respondents

Based on the diagram, it is known that the majority of students considered the Application quite easy to use in the process of memorizing the Quran. As many as 55% of respondents (11 people) gave a score of 3, which indicates a moderate level of ease. Meanwhile, 20% of respondents (4 people) rated it very easy (score 5), and 15% of respondents (3 people) rated it quite easy (score 4). Meanwhile, those who gave a low rating, namely a score of 2, were only 10% of respondents (2 people), and none of the respondents considered the Application very difficult to use (score 1). These results illustrate that the majority of students feel the Application can help the memorization process with a relatively good level of ease. However, a small number still experienced difficulties in using it.

b. Ease of understanding the contents of the verse

In addition to facilitating memorization, this study assessed the extent to which the AI Application helped students understand the meaning or translation of the verses they were memorizing. Understanding the meaning of verses is a crucial aspect of Tahfidz learning, as it encourages students to internalize the Quran's contents. Respondents' responses to this are shown in the following diagram.

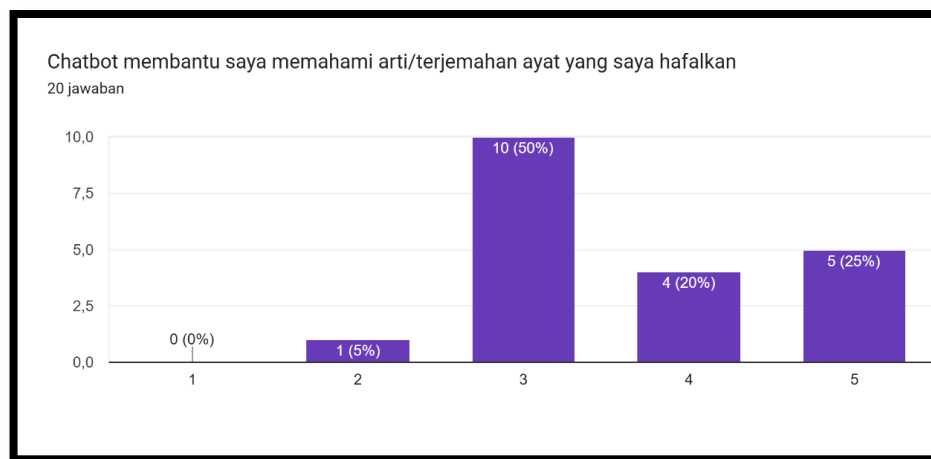


Figure 5. The Level of Usefulness of an AI Application in Helping Students Understand the Meaning of Quranic Verses

Based on the data in the diagram, the majority of respondents stated that the AI Application was quite helpful in understanding the meaning and translation of memorized Quranic verses. Fifty percent of respondents gave a rating of 3, while 25% gave a rating of 5, and 20% gave a rating of 4. This indicates that most students found the use of the AI Application beneficial in deepening their understanding of the meaning of the verses. However, the level of usefulness varied among respondents.

c. Quality of memorization correction features on the AI Application

The AI Application also has a feature that provides corrections to students' recitations. Accurate and relevant corrections are crucial for improving Quran memorization, so its usefulness needs to be understood from the user's perspective. Students' responses to this are shown in the following diagram.



Figure 6. Students' Responses to the Quality of an AI Application Corrections in Tahfidz Learning

Based on the data in the diagram, most respondents considered the corrections provided by the AI Application for Quran memorization inaccurate. 45% of respondents rated the corrections a 3, indicating they were in the moderate category. Furthermore, 20% of respondents rated the corrections 2, and 10% 1, indicating that some students felt the corrections provided were not yet appropriate for their needs. Only a small proportion of respondents rated the corrections highly, namely 20% on a scale of 4 and 5% on a scale of 5. These findings indicate that the correction function in the AI Application still needs improvement to achieve greater accuracy and benefit the Quran memorization process.

d. The influence of an AI Application in increasing the speed of students in memorizing the Al-Quran

This study also assessed the extent to which the use of an AI Application impacted the speed at which students memorized the Quran. Their responses to this are shown in the following diagram.

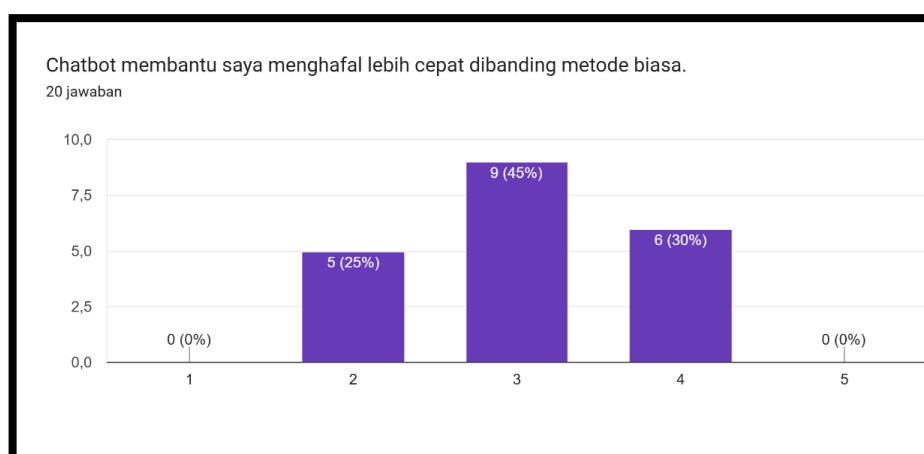


Figure 7. The Role of an AI Application in Accelerating the Tahfidz Learning Process

Based on the diagram, most respondents assessed that using an AI Application had little impact on their speed in memorizing the Quran. 45% of respondents rated it a 3, followed by 30% a 4 and 25% a 2. This indicates that while AI applications can be helpful, their impact on accelerating students' memorization remains relatively limited and does not differ significantly from previously used methods.

2. Respondents' Perceptions of the Advantages and Disadvantages of Using AI Application

User perception is a crucial aspect in assessing the acceptance and effectiveness of a technology. In this research, the perceptions of Islamic boarding school students (santri) as respondents provide a concrete picture of their experiences using an AI Application to support Quran memorization. These perceptions encompass both their perceived advantages, such as ease of access and learning flexibility, and the perceived disadvantages of their use. Understanding respondents' perceptions provides a more objective picture of the extent to which AI applications contribute positively to and pose challenges for the Quran memorization process. Therefore, the following section will present data on respondents' perceptions of the advantages and disadvantages of using AI Applications.

a. Advantages of using an AI Application

To identify the advantages of using an AI Application for memorizing the Quran, students were given several answer options regarding the advantages of using an AI Application. Respondents were then allowed to select multiple options based on their experiences, resulting in a more diverse and comprehensive set of responses. The options provided included:

- 1) Easy to use and understand;
- 2) Helps you focus better when memorizing.
- 3) Provides quick and accurate correction;
- 4) Helps you memorize more consistently every day;
- 5) Can be used anytime and anywhere (flexible);
- 6) Increases enthusiasm or motivation for memorizing;
- 7) More engaging and enjoyable than memorization methods without an AI Application.

Additionally, a "other" column is provided to allow respondents to write their own responses if they have a different opinion from the options provided. This allows the data obtained to reveal different perceptions among respondents. The results of the respondents' responses are shown in the following diagram.

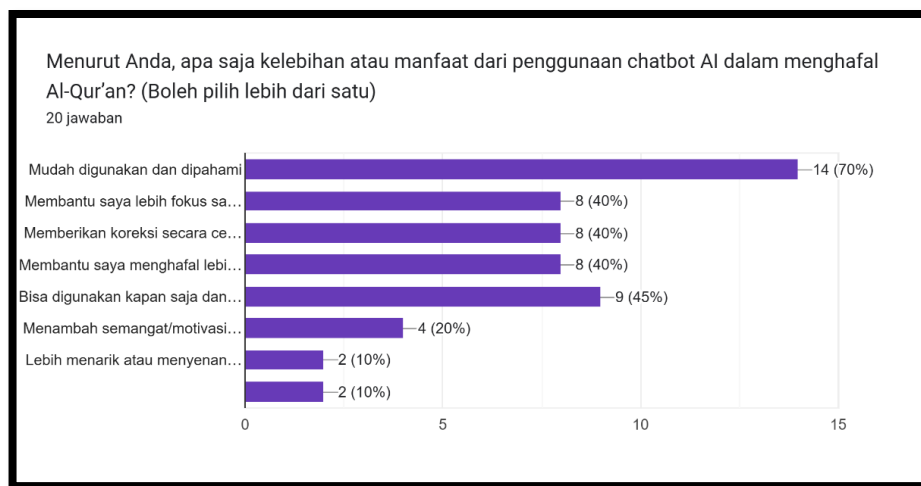


Figure 8. Students' Responses Regarding the Advantages of an AI Application

Based on a questionnaire with 20 respondents, the majority of students (70%) considered the AI Application easy to use and understand. Nine students (45%) mentioned the advantage of flexibility, noting that it can be used anytime, anywhere. Meanwhile, 8 students (40%) each felt that the AI Application helped them focus better, provided quick corrections, and made their daily memorization more consistent. In addition, four students (20%) felt that the AI Application increased their enthusiasm for memorizing, and two students (10%) considered its use more interesting than the memorization method without the AI Application.

This indicates that the ease of use of the AI Application is the primary advantage most students perceive. This is understandable, as most students are already accustomed to using digital devices, so the simple and easy-to-understand AI Application ensures they experience no significant difficulties in operating it. Furthermore, the flexibility of use is an added value highly appreciated by students. The AI Application can be accessed anytime, anywhere, so students do not have to wait for a specific time to interact with teachers or tutors. This flexibility allows students to review what they have memorized in their spare time, both inside and outside the Islamic boarding school.

b. Disadvantages of using an AI Application

Similar to identifying the advantages of an AI Application, students were given a questionnaire with multiple answer options to identify the disadvantages of using an AI Application. Respondents were allowed to

select more than one option based on their experience. The options provided included:

- 1) The AI Application's responses are sometimes inappropriate or inaccurate;
- 2) It cannot listen to or evaluate reading material well;
- 3) It is less interactive than learning directly with a teacher;
- 4) It requires a stable internet connection.
- 5) The AI Application's application interface is too simple.
- 6) It can make you overly dependent on your mobile phone.
- 7) It disrupts concentration due to using a mobile phone/gadget.

Additionally, there is an "other" option, allowing students to write their own responses if they have a different opinion than the options provided. This way, the collected data can provide a more comprehensive picture of the challenges students experience in using the AI Application. The results of the respondents' responses are shown in the following diagram.

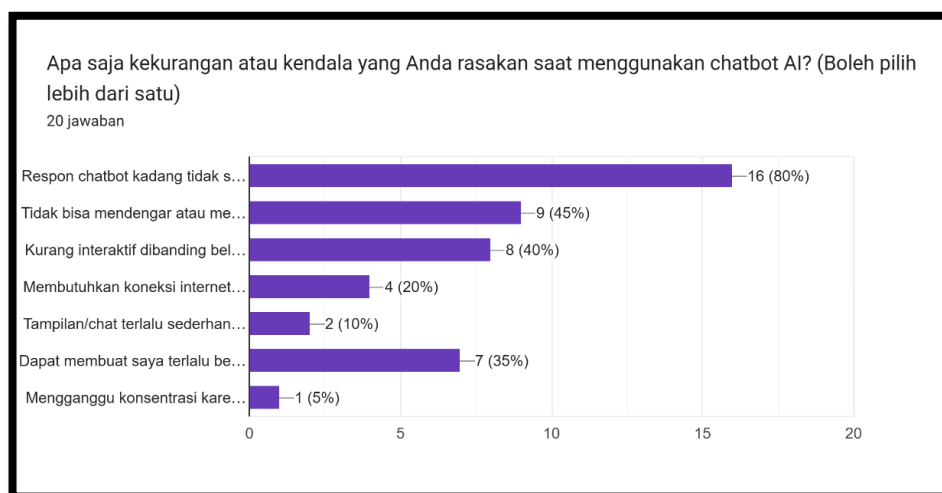


Figure 9. Students' Responses Regarding the Shortcomings of an AI Application

Based on the diagram above, various obstacles students experience when using the AI Application in the process of memorizing the Quran are evident. The majority of respondents (80% or 16 students) stated that the AI Application's responses were sometimes inappropriate or inaccurate, so they felt the reading corrections were inaccurate. Furthermore, 45% of respondents (9 students) felt the Application could not hear or properly assess the reading, indicating limitations in the voice recognition feature.

Another significant obstacle was the lack of interaction compared to learning directly with a teacher, as expressed by 40% of respondents (8 students). This indicates that AI applications are still unable to replace teachers' roles in providing personal guidance, motivation, and emotional closeness. From a technical perspective, 20% of respondents (4 students) cited the need for a stable internet connection as a barrier, and 10% of respondents (2 students) considered the application's interface too simple and therefore unattractive.

In addition, 35% of respondents (7 students) felt that using an AI Application could make them too dependent on their mobile phones, and 5% of respondents (1 student) admitted that using a gadget had disturbed their concentration. These findings indicate that although AI Applications bring convenience, their use still faces various technical and psychological limitations, requiring further development to support optimal memorization.

Analysis of the Use of an AI Application in the Tahfidz Learning Process of Students

The results of this study indicate that the use of an AI Application has both positive and challenging effects on students' memorization. Regarding the ease of use of an AI Application, the majority of respondents stated that the application is practical and easy to understand. 70% of respondents considered the AI Application simple to operate, enabling them to use it immediately with minimal difficulty. This is in line with the students' familiarity with digital devices, making the use of an AI Application technology relatively smooth.

This finding can be explained through the Technology Acceptance Model (TAM) developed by Davis, which states that a person's acceptance of technology is influenced by perceived ease of use and perceived usefulness. In the context of learning to memorize the Quran, the AI Application's ease of use encourages students to accept the technology as a supportive medium in the memorization process. (Hayati, 2025).

In terms of learning flexibility, the AI Application allows students to review material for memorization at any time, anywhere. Forty-five percent of respondents emphasized this flexibility as a key advantage, allowing them to practice memorization and understand the meanings of verses independently

outside of teacher-directed learning hours. This flexibility helps students maintain their *murajaah* routine even outside of Islamic boarding school hours. These findings demonstrate that flexible access is a key characteristic of AI-based learning, enabling students to engage in independent and continuous learning.

The ability of students to access an AI Application at any time demonstrates that user-friendly technology can support student motivation and comfort in independent learning. This also demonstrates that the use of an AI Application serves not only as a medium for information retrieval but also as a means of supporting *muroja'ah* (religious study), helping maintain the consistency of students' memorization. This is in line with the concept of self-regulated learning, which emphasizes students' ability to independently organize, control, and evaluate their learning. With flexible access to an AI Application, students can organize their *muroja'ah* time according to their individual needs and abilities without being entirely dependent on formal learning schedules. (Guan et al., 2025).

The findings of this study align with those of Afiyati, Magfirah, and Bashith (2025), who stated that AI-based Applications can increase learning flexibility and facilitate fast, interactive access to information for students. Furthermore, Fauzan (2025) also explained that the application of AI in *tahfidz* learning can help students engage in independent learning through more adaptive use of digital technology.

From the perspective of digital learning theory, ease of access and interactivity of technology can increase user engagement in the learning process. Easy-to-use technology tends to increase students' motivation and comfort in independent learning. In line with these findings, Fauzan (2025) also suggested that the application of AI in *tahfidz* learning can assist the *muroja'ah* process and increase the effectiveness of Qur'an memorization learning. However, this study makes a distinct contribution because it not only examines the effectiveness of AI technology in general but also examines the experiences of Islamic boarding school students in using AI Applications in *tahfidz* learning based on the *Ma'ani* method. These findings indicate that AI technology can serve as a supportive medium for *tahfidz* learning, although it cannot yet fully replace the role of the *ustadz*.

The contribution of the AI Application is also evident in students' understanding of the verses' meanings. Data shows that 50% of respondents considered the AI Application to be quite helpful in understanding the meaning of memorized verses, with others giving higher ratings. This confirms that, although in this study the AI Application is positioned as a companion in the process of memorizing the Quran, its presence also supports the *ma'ani* (understanding the meaning) method used in *tahfidz* learning in Islamic boarding schools. This shows that the interaction between students and the AI Application is not only instrumental in searching for information but also fosters a more interactive learning experience. From the perspective of human-technology interaction, the quality of responses and ease of communication with digital systems can increase user engagement in the learning process. (Belda-Medina & Kokošková, 2023).

The contribution of an AI Application to the quality of memorization correction remains limited. Eighty percent of respondents acknowledged that AI Application responses were sometimes inappropriate, and 45% stated that AI Applications were not yet capable of providing optimal reading assessments. These shortcomings stem from the system's limitations in recognizing aspects of *tajweed*, *makhraj*, and the quality of verse pronunciation. Therefore, students still need teacher guidance to maintain accurate reading.

In terms of motivation and consistency in memorizing the Quran, the majority of respondents considered the AI Application to be quite helpful in increasing their memorization enthusiasm. In fact, 40% stated that the AI Application helped them be more consistent in maintaining their memorization routine. However, its impact on the speed of Quran memorization remained relatively low. It did not differ significantly from memorizing without the AI Application, as most respondents rated the improvement as only moderate.

In general, this study shows that AI applications play a supporting role in the memorization learning process, particularly in terms of ease, flexibility, and motivation. Findings on the limitations of reading correction indicate that the use of AI in learning is better understood as a supporting technology (a learning assistant) rather than a replacement for educators' roles. AI can help provide access to independent learning and practice, but areas that require reading assessment, character development, and spiritual guidance still require teacher

involvement. (Belda-Medina & Kokošková, 2023). However, for crucial aspects such as reading correction, emotional interaction, and spiritual supervision, the role of the tahfidz teacher remains indispensable and cannot yet be fully replaced by AI. Therefore, AI applications are better positioned as supplementary tools in tahfidz learning and need to be continuously developed to meet students' needs in the Qur'an memorization process.

CONCLUSION

Based on the results of research on the experiences and perceptions of students regarding the use of an AI Application in learning to memorize the Al-Qur'an at the Darussalam Bone Islamic Boarding School, it can be concluded that the use of artificial intelligence technology provides a positive contribution as a supporting medium in the process of memorizing the Al-Qur'an. The AI Application is considered quite easy to use by students because its features are practical and can assist memorization activities, especially in accessing information, understanding the meaning of verses, and supporting more flexible murojaah activities.

The use of an AI Application also makes it easier for students to learn independently. Flexible access is an advantage, as students can use the AI Application anytime, anywhere to review and maintain consistency in their recitation. Furthermore, the AI Application helps some students understand the content or meaning of memorized verses, ensuring that the memorization process is not solely focused on memorization but also on understanding the Quran.

However, this study also shows that the use of an AI Application still has limitations, particularly in correcting Quran recitations. Respondents assessed that the AI Application's ability to recognize and evaluate recitations was not fully accurate, particularly regarding aspects of tajwid, makhraj, and pronunciation quality. This indicates that AI technology cannot replace the role of tahfidz teachers, who can guide, correct, and provide direct instruction to students.

Thus, AI applications are better positioned as learning assistants in Quran memorization rather than as substitutes for educators. The integration of AI technology can be an innovation that supports memorization learning, making

it more adaptable to digital developments, as long as it is combined with the teacher's role as the primary guide in maintaining the quality of students' reading, comprehension, and spiritual development.

BIBLIOGRAPHY

- Afiyati, F., Maghfirah, I., & Bashith, A. (2025). Optimalisasi chatbot berbasis artificial intelligence dalam pembelajaran pendidikan Islam di era digital. *Jurnal Ilmiah Pendidikan Citra Bakti*, 12(3), 836–850. <https://doi.org/10.38048/jipcb.v12i3.5574>
- Ali, N. (2020). Chatbot: A conversational agent employed with a named entity recognition model using an artificial neural network. *ArXiv Preprint ArXiv:2007.04248*. <https://doi.org/10.48550/arXiv.2007.04248>
- Alkadafi, M. A., Rifqi, M. A. F., Maulidia, T. A., Prayogi, A., Riyadi, R., Pujiono, I. P., & Nasrullah, R. (2024). *ISLAM DAN KONTRIBUSINYA TERHADAP PERKEMBANGAN ILMU PENGETAHUAN: SUATU TELAAH ISLAM AND ITS CONTRIBUTION TO THE DEVELOPMENT OF SCIENCE: A STUDY*. November, 6325–6334.
- Anggraeni, T. B. (2025). Integrasi artificial intelligence dalam pembelajaran Pendidikan Agama Islam: Studi eksploratif pada model chatbot islami di era Society 5.0. *Journal of Educational Research and Community Service*, 1, 125–131.
- Anwar, K., Fahmi, K., & Hidayat, A. (2024). Implementasi Sistem Pembelajaran Kitab Kuning di Madrasah Aliyah Muallimin UNIVA Medan. *Tarbawiyah: Jurnal Ilmiah Pendidikan*, 8(1), 98–112. <https://doi.org/10.32332/f171r604>
- Ash-Shiddiqi, H., Sinaga, R. W., & Audina, N. C. (2025). Kajian Teoritis: Analisis Data Kualitatif. *Edukatif*, 3(2), 333–343.
- Auwaliyah, R., Syarif, M., & Rohmad, M. A. (2025). Dinamika penggunaan Artificial Intelligence (AI) dalam pembelajaran Pendidikan Agama Islam di SMA. *Atta'dib Jurnal Pendidikan Agama Islam*, 6(2), 148–165. <https://doi.org/10.30863/attadib.v6i2.10339>
- Belda-Medina, J., & Kokošková, V. (2023). Integrating chatbots in education: insights from the Chatbot-Human Interaction Satisfaction Model (CHISM). *International Journal of Educational Technology in Higher Education*, 20(1), 62. <https://doi.org/10.1186/s41239-023-00432-3>

- Caldarini, G., Jaf, S., & McGarry, K. (2022). A literature survey of recent advances in chatbots. *Information*, 13(1), 41. <https://doi.org/10.3390/info13010041>
- Chaidrata, A., Shafeeu, M. I., Chew, S. K., Chen, Z., Cham, J. S., Yong, Z. L., Yap, U. H., Binti, D. I., & Bahrin, K. (2021). An intent-matching customer service chatbot with natural language understanding. *2021 5th International Conference on Communication and Information Systems (ICCIS)*, 129–133. [10.1109/ICCIS53528.2021.9646029](https://doi.org/10.1109/ICCIS53528.2021.9646029)
- Fauzan, T. S. (2025). Implementation of Artificial Intelligence in Tahfidz Al-Qur'an Learning at Madrasah Tsanawiyah: A Study on the Effectiveness of Machine Learning-Based Applications. *Aslim: Journal of Education and Islamic Studies*, 2(3), 209–215. <https://doi.org/10.63738/aslim.v2i3.42>
- Guan, R., Raković, M., Chen, G., & Gašević, D. (2025). How do educational chatbots support self-regulated learning? A systematic review of the literature. *Education and Information Technologies*, 30(4), 4493–4518. <https://doi.org/10.1007/s10639-024-12881-y>
- Hayati, S. S. N. (2025). ANALISIS PENERIMAAN CHATGPT SEBAGAI ALAT BANTU PEMBELAJARAN MENGGUNAKAN MODEL PENERIMAAN TEKNOLOGI. *Jurnal Informatika Dan Teknik Elektro Terapan*, 13(3). <https://doi.org/10.23960/jitet.v13i3.6918>
- Jibu, A. W., Abdullah, N., Dunggio, N., & Darman, R. Y. (n.d.). *IMPLEMENTASI PERAN GURU PENDIDIKAN AGAMA ISLAM DALAM PEMBENTUKAN KARAKTER SISWA*.
- Juanta, P., Fa, F., Alexa, H., Andrian, D., & Nababan, V. S. (2024). Analisis Pengaruh Penggunaan Chatbot sebagai Asisten Pembelajaran AI terhadap Motivasi Belajar Siswa. *Jurnal Inovasi Pendidikan Sains dan Terapan (INTERN)*, 3(1), 38–44. <https://doi.org/10.58466/intern.v3i1.1557>
- Maufidhoh, I., & Maghfirah, I. (2023). Implementasi pembelajaran berbasis artificial intelligence melalui media puzzle maker pada siswa sekolah dasar. *Abuya: Jurnal Pendidikan Dasar*, 1(1), 30–43. <https://doi.org/10.52185/abuyaVolliss1Y2023284>
- Mustofa, M. (2019). Kitab kuning sebagai literatur keislaman dalam konteks perpustakaan pesantren. *Tibanndaru: Jurnal Ilmu Perpustakaan Dan Informasi*, 2(2), 1–14. <https://doi.org/10.30742/tb.v2i2.549>

- Nurfajriani, W. V., Ilhami, M. W., Mahendra, A., Afgani, M. W., & Sirodj, R. A. (2024). Triangulasi data dalam analisis data kualitatif. *Jurnal Ilmiah Wahana Pendidikan*, 10(17), 826–833. <https://doi.org/10.5281/zenodo.13929272>
- Panjaitan, H. Y., Masnita, Y., & Kurniawati, K. (2023). Penambahan Variabel Tingkat Kecerdasan Chatbot untuk Mempengaruhi Kepercayaan Pengguna dalam Aplikasi Telekonsultasi Kesehatan. *JSINBIS (Jurnal Sistem Informasi Bisnis)*, 13(1), 78–87. <https://doi.org/10.21456/vol13iss1pp78-87>
- Putri, L. A., Wardani, A. P., Firdausiyah, W., Anggraeni, D., & Nurhayati, C. (2023). EFEKTIVITAS CHATBOT SEBAGAI MEDIA KOMUNIKASI E-BISNIS PRODUK SKINCARE DENGAN SISTEM CRM PADA MARKETPLACE SHOPEE. *Referensi: Jurnal Ilmu Manajemen Dan Akuntansi*, 11(2), 147–154. <https://doi.org/10.33366/ref.v11i2.4721>
- Putri, R. P. (2024). Implementasi Metode Sorogan dalam Meningkatkan Kemampuan Membaca Santri di Pondok Pesantren Al-Maqbul Rejang Lebong, Bengkulu. *Al-Muktamar As-Sanawi Li Al-Lughah Al-'Arabiyyah (MUSLA)*, 2(1), 36–44.
- Romdhoni, A. (2015). Tradisi Hafalan Al-Qur'an di Masyarakat Muslim Indonesia. *Journal Of Qur'an And Hadith Studies*, 4(1), 1–18.
- Sam, S., & Hikmah, N. (2025). Implementasi Pembelajaran Tahfidzul Qur'an dengan Metode Ma'ani di Pesantren Darussalam Bone. *Taujih: Jurnal Pendidikan Islam*, Vol. 7(No. 2), 40–58. <https://doi.org/10.53649/taujih.v7i02.1253>
- Waruwu, M. (2023). Pendekatan penelitian pendidikan: metode penelitian kualitatif, metode penelitian kuantitatif dan metode penelitian kombinasi (Mixed Method). *Jurnal Pendidikan Tambusai*, 7(1), 2896–2910.