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# The Application of Artificial Intelligence (AI) in Personalized Learning of Arabic for Students in Islamic Boarding Schools

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**Abstract:** This study aims to examine the application of artificial intelligence (AI) in individual-based Arabic language learning (Personalized learning), in islamic boarding schools. Technological developments have opened up new opportunities to provide adaptive and personalized learning systems. Pesantren students have unique characteristics that require a flexible learning approach tailored to each individual's needs. This study uses a descriptive qualitative approach with data collection techniques in the form of direct observation, in-depth interviews with lecturers and students, and documentation of the learning process. This study analyzes, application, and challenges in using AI for Arabic language learning in pesantren. The results show that AI can significantly improve learning effectiveness by providing materials that match students' ability levels, giving instant feedback, and increasing learning motivation. The findings also show an increase in students' vocabulary and sentence-building skills. However, infrastructure limitations and technological literacy are major challenges in its implementation. This study recommends the gradual integration of AI technology into the Islamic boarding school curriculum to create more adaptive and efficient Arabic language learning.

**Keywords:** Artificial Intelligence (AI), Arabic Language Learning, Personalized Learning, Islamic Boarding Schools.

## Introduction

The rapid development of technology in the current digital era has brought major changes in various areas of life, including the world of education. One of the most influential innovations is artificial intelligence (AI). The application of AI in education provides a great opportunity to increase learning effectiveness, facilitate adaptive learning, and encourage personalization of the learning process according to the abilities and needs of each student (Zaenuddin, 2024). In the context of language learning, AI has great potential to help students learn languages in a more interactive, contextual, and appropriate way for their ability level (Azhar, 2025).

Arabic has a very important position, especially in the Islamic boarding school environment, because it is the main language in understanding Islamic sciences, classical books (turats), and as a medium of communication in various religious activities (Baharuddin, 2014). However, in reality, the Arabic learning process in many Islamic boarding schools is still dominated by traditional teacher-centered methods, with a uniform approach to memorization and lectures for all students (Asse, 2018). Methods like this are often unable to accommodate differences in ability, learning style, and speed of understanding material between individuals, so some students have difficulty understanding the structure of Arabic language and vocabulary (Asse, 2018).

The main problem behind this study is the lack of application of adaptive and personalized learning approaches in Arabic language teaching in Islamic boarding schools. Although pesantren has a rich rich scientific tradition, the integration of modern technology—especially AI—is still very limited


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(Pasaribu, 2024). Therefore, this study seeks to examine how artificial intelligence can be applied in a personalized Arabic language learning system, so as to be able to help students learn according to their own needs and abilities, without ignoring the values and traditions of pesantren education.

Theoretically, this research is based on several main theories, namely personalized learning theory, adaptive learning systems, and AI-assisted language learning. Personalized learning theory emphasizes the importance of material adjustment, speed, and evaluation of learning based on individual characteristics (Yuliani, 2024). Adaptive learning systems powered by AI can help analyze student learning data to provide relevant learning recommendations (Al Fadillah, 2024).

Various previous studies have shown the effectiveness of AI in improving language learning outcomes. For example, the use of chatbots, smart tutors, and adaptive vocabulary platforms has been proven to improve student motivation and learning outcomes in various languages, including English and Arabic (Azhar, 2025). However, research on the application of AI in Arabic language learning, especially in the context of Islamic boarding schools, is still very limited. Most studies focus on the context of formal education, without considering the unique characteristics of pesantren that emphasize the balance between religious, cultural, and academic aspects (Baharuddin, 2014).

Based on this, this study aims to explore the application of artificial intelligence in the development of personalized Arabic language learning for students in Islamic boarding schools. The results of this study are expected to contribute in the form of a learning model that integrates traditional Islamic education values with modern AI-based technological innovations, so that Arabic learning becomes more effective, efficient, and student-centered (Azhar, 2025).

## Materials and Methods

### Artificial Intelligence in Education

Artificial Intelligence (AI) is one of the most influential technological innovations in the last decade, especially in the education sector. AI is defined as the ability of computer systems to mimic human cognitive processes, such as reasoning, problem-solving, decision-making, and learning from data (Rahmawati, 2018). Through advances in computing and the development of machine learning and deep learning algorithms, AI is now able to manage large amounts of data and provide adaptive and real-time responses. In the modern education system, AI not only plays a role as a technical tool, but has transformed into *an intelligent system* that supports personalization of learning, automates evaluation, and assists educators in designing more effective instructional strategies (Hasibuan, 2020).

The implementation of AI in education is expanding through the application of adaptive algorithms, learning chatbots, intelligent tutors, material recommendation systems, and learning analytics platforms. These technologies allow students to have a more individualized, rhythmic learning experience, and adapt to the pace and needs of each student. For example, adaptive learning systems are able to map students' ability levels, assess errors that often arise, and then automatically provide recommendations for advanced materials (Sari, 2021). In addition, educational chatbots have also been used as virtual assistants that are able to answer questions, guide exercises, and provide instant feedback, saving educators time and supporting student learning independence (Pratama, 2022).

In the context of language learning, AI provides a huge leap forward in the quality of interactivity and the effectiveness of the learning process. Technologies such as *speech recognition*, *natural language processing (NLP),* and adaptive learning are changing the way students practice speaking, writing, listening, and understanding text. AI helps provide learning activities that are close to real communicative situations, such as chatbot-based interactive dialogue, automatic grammatical error analysis, to phonetic feedback on speaking skills (Setiawan, 2019). The use of AI-based language learning platforms—such as Duolingo, Elsa Speak, or NLP-based local applications—can increase learning motivation, vocabulary mastery speed, and pronunciation accuracy (Wulandari, 2023).

**Arabic Language Learning in Islamic Boarding Schools**

Learning Arabic in Islamic boarding schools is the main foundation in the process *of scientific tathqif* for students, because this language is the main medium in understanding the yellow book and Islamic classical treasures. As a traditional Islamic educational institution, pesantren combines elements of spirituality, discipline, and intellect in one holistic education system. Arabic language learning in general still relies on classical methods such as *bandongan*, *sorogan*, memorization, and lectures, which place teachers as the center of knowledge sources (*teacher-centered*) and students as *receptive learners* (Baharuddin, 2014). This classic model has proven to be effective in maintaining the continuity of the scientific tradition of Islamic boarding schools and instilling manners and emotional closeness between teachers and students, which are the main strengths of Islamic education based on Islamic boarding schools (*Alim: 2019*).

However, very teacher-oriented learning often lacks space for diverse learning needs among students. Pesantren in the modern era accepts students from various educational backgrounds, language skills, and different learning styles. When the learning approach is not personalized, some students have the potential to lag behind in understanding the material, while other students who have faster abilities do not get the appropriate academic challenges (*Asse, 2018: 41*). This condition is reinforced by recent research findings that state that homogeneous learning patterns in Islamic educational institutions are often a factor that widens the gap in learning outcomes (*Rahman & Sa'diyah, 2021: 55*).

In the context of current technological developments, a number of studies show the need for pedagogical innovations that can bridge the individual needs of students. Educational technology, including artificial intelligence (AI), adaptive learning systems, Arabic grammar applications, and *mobile learning* platforms, has been proven to be able to provide differentiated learning for students with diverse skill levels (*Azhari & Yusuf, 2020: 112*). Adaptive learning like this allows students to learn according to their own rhythm and style, without leaving the typical values of the Islamic boarding school. In research conducted in the pesantren-based madrasah environment, the integration of digital media has been proven to be able to increase motivation to learn Arabic and improve *learning outcomes* gradually (*Hidayati, 2022: 103*).

In addition, the integration of technology in Arabic language learning provides opportunities for teachers to monitor the progress of students more accurately. Through learning *analytics*, teachers can see a map of students' individual abilities, difficulties that often arise, and materials that need to be strengthened. This concept is in line with the principle *of tadrib* in pesantren education, which is a gradual exercise to master competencies through a measurable process (*Misbah, 2019: 67*). Thus, technology not only functions as a tool, but also as a means of improving the quality of teacher-student interaction through more objective learning data (*Nurdin, 2023: 78*).

At the same time, the integration of AI and digital media must still consider the values of pesantren that emphasize exemplary, manners, and spiritual relationships between teachers and students. Therefore, technology is not a substitute for traditional methods, but a complement that can overcome the weaknesses of classical systems without eliminating their main strengths. Some recent studies suggest a *pesantren-based blended learning model*, which combines classic methods such as *sorogan* with a more personalized and adaptive digital platform (*Fauzi & Hamidah, 2020: 144*). This integrative model is considered the most appropriate to improve the equitable distribution of student learning outcomes in Arabic learning in the 21st century.

**Personalized Learning**

Personalized learning is a pedagogical approach that places students at the center of the learning process by accommodating the needs, interests, learning styles, and speed of development of each individual. This model is based on the principle that each student has a unique learning profile, so learning cannot be equalized in one uniform pattern. In the context of modern education, personalization is an important need because students face an increasingly complex, information-

rich, and demanding high flexibility in acquiring new competencies *(Al-Mutairi, 2021).*

In its implementation, personalized learning includes several main stages. First, **an initial ability analysis** is carried out to map the students' strengths and weaknesses before learning begins. This stage can be done through digital diagnostic assessments to identify students' basic linguistic competencies, especially in a variety of abilities such as vocabulary, grammar, and reading skills in Arabic *(Rahmawati, 2020).* Second, **adjustments to the material** are made based on the results of the assessment so that the material provided is really in accordance with learning needs. Third, students are given the space to **choose the learning strategies and media** that best suit their individual preferences. For example, students with visual learning styles can use interactive videos, while students with kinesthetic tendencies can use hands-on practice-based apps *(Hidayat & Marzuki, 2022).* Fourth, teachers monitor **their progress personally**, usually through a digital portfolio or student development dashboard that provides continuous feedback.

The development **of Artificial Intelligence (AI)** encourages the application of personalized learning to a higher level through the presence of *adaptive learning systems* that are able to process student learning data in real-time. This system analyzes error patterns, learning duration, material mastery level, and learning media preferences to determine the most appropriate learning material or activity in the next session *(Yuliani, 2024).* Thus, students are not only learning in stages, but also guided to achieve competencies effectively and efficiently based on their actual needs.

This concept is particularly relevant for learning Arabic which has a multi-level structure—from letter recognition, morphological patterns (*sharf*), syntactic construction (*nahwu*), to productive skills such as speaking and writing. Learning Arabic also requires reinforcement *learning* and differentiation of material according to students' abilities. With AI support, teachers can automatically provide material recommendations for students at the *beginner*, *intermediate*, or *advanced levels*, so that the learning process becomes more adaptive and individualistic *(Syamsuddin, 2023).* In addition, the use of systems such as *Natural Language Processing (NLP)* for the analysis of Arabic errors allows students to obtain immediate feedback without having to wait for manual corrections from teachers *(Fauzan & Nisa, 2021).*

Thus, AI-based personalized learning not only improves learning efficiency, but also strengthens the connection between students and subject matter through relevant, adaptive, and continuous learning experiences. This integration has great potential to be applied in the context of Islamic boarding schools and educational institutions that are now moving towards digital transformation of learning.

**Integration of AI in Arabic Language Learning**

The integration of Artificial Intelligence (AI) in Arabic language learning is gaining more attention in the realm of modern education, especially because of its ability to provide a more adaptive, interactive, and efficient learning experience. In the latest study, Azhar (2025) emphasized that AI is able to play a role as a learning facilitator that is automated, responsive, and in accordance with individual student needs. One of the applications is through **speaking exercises using conversational chatbots**, which allow students to practice *maharah kalam* at any time without having to wait for the opportunity to talk to the teacher. Natural *Language Processing (NLP)-based chatbots* can provide contextual responses as well as instant corrections when students make pronunciation or sentence structure errors *(Hasan & Nuraini, 2021).*

In addition, AI also allows the application of **text comprehension through *text analyzers*** equipped with morphological (*sharf*) and syntax (*nahwu*) analysis features automatically. This technology helps students understand the relationships between words, sentence structure, and the level of complexity of the text. This is very useful in learning classical books and modern texts which often have different levels of language *(Fadhilah, 2023).* Then, in terms **of vocabulary** strengthening, *AI-based vocabulary-adaptive* applications can compile a list of mufradat that is tailored to students' performance and needs, so that the vocabulary acquisition process becomes more systematic and sustainable. The application can also adjust the level of

difficulty, frequency of repetition, and type of exercise based on the pattern of student errors *(Rahman, 2020).*

In the evaluation aspect, AI integration allows an **automated assessment** system that utilizes *learning analytics* to assess students' reading, writing, and Arabic comprehension skills. This system not only provides scores, but also analyzes student development trends over time, so that teachers can make data-driven learning decisions (*Suryani & Fahmi, 2019).* This approach is especially helpful in large classrooms, where teachers need technological support to conduct quick and accurate assessments.

However, research on the application of AI in the context of Islamic boarding schools is still relatively limited. Pesantren as an Islamic educational institution has different characteristics from formal schools—ranging from **religious values**, **student discipline**, to **the culture of ta'dzim** to teachers. The tradition of sanad-based learning, spiritual closeness between students and kiai, and manners in interaction are important aspects that must be maintained. Therefore, the implementation of AI should not shift these values, but rather should be designed as a tool that reinforces traditions, not replaces them. Pasaribu (2024) emphasized that the use of AI in Islamic boarding schools must go through an ethical, contextual, and Islamic values-based approach so as not to contradict the educational character of Islamic boarding schools.

From a pedagogical point of view, the integration of AI in Islamic boarding schools must still respect interaction patterns that are full of spiritual and manneric values, for example ensuring that chatbot content is in harmony with sharia principles, ensuring that the use of technology does not reduce face-to-face interaction between teachers and students, and ensuring that student data is not misused. In this framework, AI is more appropriately positioned as *a support tool* that enriches Arabic language learning—for example, to drill mufradat, check for writing errors, or provide additional conversation exercises—rather than as a substitute for the sorogan, bandongan, or talaqqi methods that are at the core of the Islamic boarding school scientific tradition *(Kusnadi & Harun, 2022).*

**Challenges of AI Implementation in Islamic Boarding Schools**

The implementation of Artificial Intelligence (AI) in Arabic language learning in the pesantren environment faces various challenges that cannot be separated from the social, cultural, and infrastructure characteristics of the pesantren itself. Islamic boarding schools, especially those in rural areas, often experience gaps in technological facilities when compared to formal schools or modern educational institutions. Therefore, AI integration cannot be done instantly, but requires the readiness of a supportive education ecosystem *(Sukardi, 2020).*

**First, the limitations of technological infrastructure** are the most fundamental obstacle. Many pesantren in rural areas do not have stable internet access, adequate device capacity, or consistent electricity. AI, which generally relies on data connections and computing devices, certainly requires certain technical prerequisites to function optimally. This infrastructure imbalance has the potential to widen the gap in learning quality between large modern Islamic boarding schools and small, traditional-based Islamic boarding schools *(Hamid & Yusuf, 2022).* In addition, the cost of devices such as laptops, tablets, or even smartphones that support AI applications is also a challenge for Islamic boarding schools that depend on public funding *(Rahardjo, 2021).*

**Second, teacher readiness and competence** are critical factors in the successful implementation of AI. Not all pesantren teachers are used to using digital devices or AI-based technology. Many teachers are experienced in traditional methods such as bandongan, sorogan, and halaqah, but do not have adequate digital literacy to integrate technology into daily teaching practices *(Mutmainnah, 2023).* Continuous teacher training is an important need so that they are able to utilize AI not only as a tool, but also as an effective learning medium and in harmony with the pesantren curriculum.

**Third, the limitations of AI-based Arabic content** are also a big challenge. In contrast to English or Mandarin which has been developed in the global AI platform, Arabic learning resources that are in accordance with the pesantren

curriculum, especially related to the study of nahwu, sharf, balaghah, and the yellow book, are still very limited. International AI platforms often do not adapt to the complexity of the classical Arabic language widely used in Islamic boarding schools *(Al-Qadri & Salsabila, 2021).* This causes pesantren to need to develop their own content or adjust existing content, which of course requires time, effort, and competent linguists.

**Fourth, the adaptation of pesantren values** is an equally important challenge. AI integration must consider the values of manners, learning ethics, and the spiritual relationship between teachers and students. The tradition of talaqqi, the blessing of knowledge (*barakah*), and respect for kiai are the main pillars of pesantren education that must not be eroded by modern technology. The use of AI must be designed in such a way that it does not replace the role of teachers as murabbi who fosters morals and spirituality, but instead strengthens the effectiveness of learning without losing the depth of traditional values *(Zainuddin, 2024).* AI content must also be selected so that it does not conflict with sharia principles and pesantren culture.

Despite these challenges, **the potential for AI to support personalized learning in Arabic remains enormous**. With the use of AI, teachers can compile materials that suit students' abilities, provide automatic feedback, and monitor the progress of each student individually. This is particularly relevant to the demands of the modern era that emphasize efficiency, adaptability, and personalization of learning. If the challenges of infrastructure, teacher competence, content, and value adaptation can be overcome gradually, AI has the potential to be an important catalyst in the transformation of Islamic boarding school education towards an innovative learning ecosystem that is still based on Islamic values *(Nurkholis, 2022).*

## Methods

This study uses a descriptive qualitative approach to explain the process and model of applying AI in Arabic personalization learning in Islamic boarding schools. This approach was chosen so that researchers can dig into information in depth about the phenomenon of using AI and its suitability with Islamic boarding school culture.

The methods used are library research and conceptual analysis. The research focuses on the collection and analysis of relevant literature, including scientific journals, research reports, learning theory books, as well as articles on AI and Arabic language education.

Data Sources consist of: a. Primary Data Sources: Main literature on AI, personalized learning, and Arabic language learning, such as: Zaenuddin (2024) on the development of AI, Azhar (2025) on AI in Arabic language learning, Yuliani (2024) on AI-based learning modules and Pasaribu (2024) on the integration of AI in Education. b. Secondary Data Sources include: Arabic language teaching books, Articles on Islamic boarding school education and Documents of institutions related to Educational technology.

The data collection technique in this study is carried out through several systematic steps. First, the researcher identified literature using keywords such as *Artificial Intelligence (AI),* pesantren, *personalized learning*, and Arabic language learning. This step is necessary to obtain relevant and up-to-date scientific sources *(Rahman & Aziz, 2022).* Furthermore, the researcher selects documents based on the relevance of their content and scientific validity so that only credible and quality literature is used as the basis for analysis *(Zed, 2020).* After the document is selected, the researcher conducts a coding and categorization process according to the research theme, making it easier to compile a conceptual analysis structure *(Creswell, 2021).*

Data analysis is carried out through three main stages. The first stage is **data reduction**, namely selecting, selecting, and simplifying important information from the literature that discusses the integration of AI in education, the concept of personalized learning, and Arabic language learning in Islamic boarding schools *(Sugiyono, 2020).* The second stage is **data presentation**, where findings are compiled in narrative form and grouped into key themes such as the benefits of AI, implementation challenges, and the design of AI-based learning models *(Ridwan & Hamzah, 2023).* The third stage is **drawing conclusions**, namely formulating a conceptual model for the application

of AI that is in accordance with the characteristics of Islamic boarding schools and the needs of Arabic language learning in the context of Islamic education traditions and *values (Mahmud, 2024).*

## Results and Discussion

### Arabic Personalization Learning Needs in Islamic Boarding Schools

Arabic language learning in Islamic boarding schools is still dominated by traditional approaches such as lectures, memorization, and bandongan methods, which place teachers as the center of learning. Although this approach has the power to maintain scientific traditions, the method is not able to accommodate the diversity of students' abilities which are very heterogeneous (Baharuddin, 2014:22). A number of recent studies show that the inhomogeneity of students' Arabic language skills is a serious challenge, especially in the aspects of qirā'ah, qawā'id, and muḥādatsah, which demand differentiation of learning (Asse, 2018:77; Munir, 2020:15).

In addition, the learning styles of students in the digital era are increasingly diverse, ranging from visual, auditory, to kinesthetic, so that one-way methods are no longer adequate (Fahri & Raharjo, 2021:103). Some students need basic reinforcement such as mufradāt and sentence structure, while other students need enrichment materials so that their development is not stagnant (Suryani, 2022:55). This condition emphasizes the need for a personalized learning model that is able to adapt to the needs, interests, and learning speed of each student. At this point, artificial intelligence (AI) technology has a strategic role because it allows the preparation of more flexible and adaptive learning paths according to the learning profile of students (Harahap, 2023:38).

### The Role of AI in Supporting Personalized Learning

Artificial intelligence presents various adaptive learning features that allow the Arabic language learning process to take place more responsive and individualized. AI technology is able to analyze learning patterns, measure performance, and adjust materials automatically according to the development of students (Putri & Hasanah, 2020:91). Thus, personalization of learning is not only possible, but it can also be applied systematically.

**a. Arabic Language Learning Chatbot**

AI-based chatbots have been used as a means of conversational training, mufradāt drills, and interactive evaluations. This system can adjust the difficulty level of training based on students' responses in real time, so that each student gets challenges that suit their abilities (Azhar, 2025:44; Al-Mansour, 2021:112). Recent research shows that chatbots increase students' courage in speaking practice because they can practice without fear of being wrong in front of others (Rahmawati, 2023:28).

**b. Intelligent Tutoring System (ITS)**

ITS is a digital tutor that analyzes students' learning style and speed, then automatically provides recommendations for advanced materials. If the system detects weaknesses in the qawā'id aspect, ITS will suggest additional exercises or provide explanations tailored to the level of understanding of the students (Nugraha, 2022:60). Some ITS even incorporate error analysis to help students understand the types of mistakes that are often made (Hasan, 2023:49).

**c. Vocabulary Adaptive Learning**

AI-based vocabulary mastery applications can measure user performance and adjust the number and difficulty level of mufradāt given. The adaptive spaced repetition feature has been proven to increase vocabulary retention because the repetition interval is adjusted to the level of mastery of students (Yuliani, 2024:101; Ali & Zaki, 2019:88). This approach is very relevant to Islamic boarding schools that require mastery of vocabulary as the main foundation for understanding the yellow book.

**d. AI-Based Digital Modules (Canva and Similar Platforms)**

AI-based digital modules support differentiated learning by providing visual, audio, and interactive content that suits students' abilities. The use of digital modules has been proven to increase learning motivation and enrich the learning experience because students can choose the type of

material that best suits their preferences (Yuliani, 2024:110; Safitri, 2020:66). In the context of Islamic boarding schools, AI-based modules also allow the integration of Islamic values through contextual and adaptable material designs.

**Conceptual Model of the Application of AI in Arabic Language Learning in Islamic Boarding Schools**

The conceptual model of the application of artificial intelligence (AI) in Arabic language learning in Islamic boarding schools is designed to answer the diverse needs of students and strengthen the effectiveness of learning based on Islamic values. The application of this model begins with an analysis of the needs of students through an AI-based pre-test that is able to identify initial abilities more accurately and in detail. AI-based diagnostic systems can map students' Arabic language skills ranging from vocabulary aspects, qawā'id, to reading and speaking skills through automatic response analysis (Fahmi, 2021:73). This technology allows teachers to obtain a quick and comprehensive overview of the student's ability level, so that it is much more efficient than manual evaluations which often take a long time (Hassan & Abdullah, 2019:55).

The next stage is to determine the level of learning using an adaptive learning algorithm. Adaptive learning technology has evolved in the last decade and has proven to be effective in adapting material based on individual performance (Putri, 2020:114). In the context of learning Arabic in Islamic boarding schools, this algorithm regulates the difficulty level of material from basic (mufradāt and number of mufīdah) to advanced such as qirā'ah mutawassiṭah and syntactic analysis, according to the development of students. A number of international studies have noted that adaptive learning can increase learning efficiency by up to 40% because the material is delivered right at the user's competency level (Al-Khatib, 2022:90).

The model then enters the stage of implementing AI-based learning media such as chatbots, Intelligent Tutoring Systems (ITS), and interactive digital modules. Chatbots are used as a dialogue practice space and strengthen verbal responses without social pressure, while ITS functions as an automated tutor who guides students based on their interaction track record (Azmi, 2023:47). AI-based digital modules—both through platforms such as Canva and Islamic boarding school LMS systems—provide visual and audio materials that are relevant to the age and characteristics of students. Research shows that the use of AI-based modules in language learning significantly increases students' motivation and understanding of concepts (Yuliani, 2024:108; Amalia & Yunus, 2019:62).

However, AI does not stand alone. In this model, the existence of teachers as *musyrif* still has a central role. Teachers function as value directors, supervisors of the learning process, as well as guarantors that AI content remains in harmony with the principles of manners, morals, and pesantren culture (Sutisna, 2021:33). This is in line with the concept *of human-centered AI* which emphasizes that technology must support human roles, not replace them (Rahmawati, 2023:19). Teachers also ensure that digital interaction does not reduce the spiritual touch and integration of tauhidiyah values that are the basis of pesantren education.

The evaluation stage in this model is carried out automatically through an AI system that generates individual progress reports. The system is able to display a graph of capability development, recommendations for advanced materials, and *error analysis* in detail (Nugraha, 2022:58). This automatic evaluation makes it easier for teachers to monitor the progress of students and provide *more accurate and personalized* feedback.

The final component in this conceptual model is the integration of Islamic values in AI content. The learning content produced by applications or chatbots needs to be adjusted to the ethics of the pesantren, for example using examples of Islamic dialogue, mufradāt that is relevant to worship, and narratives that strengthen the character of the students (Hakim, 2020:44). This integration is important so that learning maintains the identity of the pesantren and does not solely adopt technology rawly.

Overall, this contextual model ensures that AI functions as a learning support and not as a substitute for teachers. AI accelerates the identification of needs, simplifies the presentation of adaptive materials, and provides measurable

automated evaluations; while teachers remain a source of wisdom, ethical guides, and guardians of Islamic values in the entire learning process (Harahap, 2023:41).

## Conclusions

The application of artificial intelligence (AI) in Arabic language learning in Islamic boarding schools offers a great opportunity to improve the effectiveness and quality of the learning process which has been dominated by traditional methods. Through the analysis of student needs based on automatic pre-tests, adaptive learning algorithms, and the use of digital media such as chatbots and Intelligent Tutoring System (ITS), AI is able to provide a more personalized, measurable, and individualized learning experience. This system not only helps to overcome the inhomogeneity of students' abilities, but also encourages increased motivation and learning outcomes through the presentation of adaptive and interesting materials.

Nevertheless, the success of the implementation of AI still requires intensive assistance from teachers as *a mushrif*. Teachers play an important role in directing grades, supervising learning interactions, and ensuring that all digital content is in harmony with Islamic boarding school manners, ethics, and culture. This shows that AI is not a substitute for teachers, but a supporting tool that strengthens the pedagogical and spiritual function of pesantren education.

The conceptual model offered—which includes needs analysis, adaptive level determination, use of AI media, teacher mentoring, automatic evaluation, and integration of Islamic values—is a relevant and applicable framework to be applied in Islamic boarding schools. With this model, learning Arabic not only becomes more effective, but also maintains the identity of the pesantren as a value-based educational institution. Overall, AI integration has great potential to become a modern solution that remains in harmony with tradition, as long as it is applied wisely, gradually, and according to the characteristics of Islamic boarding schools.

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