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Utilization of Learning Management System-Based Moodle and Google Classroom for Arabic Language Learning

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Abstract

This study investigates the integration of Learning Management Systems (LMS), particularly Moodle and Google Classroom, in Arabic language education through a systematic literature review. The article search was conducted between 2019 and 2025 across Google Scholar databases using keywords related to Arabic language learning, Moodle, Google Classroom, and digital pedagogy. The initial search yielded 143 publications, of which 123 met the inclusion criteria through title and abstract screening, and 20 studies that fulfilled eligibility criteria were analyzed in full. The synthesis of the selected articles shows that LMS significantly improves accessibility, interactivity, and student engagement through flexible, structured, and multimedia-based learning environments. However, several constraints persist, including reduced learner motivation, insufficient digital competence among teachers, unequal access to technology, and limited opportunities for authentic muhādatsah practice. The findings highlight that the effectiveness of LMS depends heavily on teachers' digital readiness, the availability of contextualized digital learning materials, and institutional support to sustain technological innovation. Overall, blended learning and LMS-supported instruction have strong potential to enhance communicative competence and independent learning skills, provided that pedagogical reform and capacity building are ensured.

Keywords: arabic language learning; learning management system; digital pedagogy

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Introduction

Arabic language learning, as one of the major world languages and the liturgical language of Islam, has long been associated with traditional instructional models that are often viewed as rigid and less adaptive to technological developments. In the contemporary digital era, however, the teaching of Arabic is confronted with both challenges and unprecedented opportunities for innovation. Learners today face issues of motivation, limited access to quality materials, minimal opportunities for *muhādatsah* practice, and reduced face-to-face interaction, all of which influence the effectiveness of Arabic language acquisition (Kerras & Essayahi, 2022; Sari et al., 2025; Syarif, 2021). At the same time, digitalization opens the door to interactive and student-centered learning through technological integration, particularly via Learning Management Systems (LMS) such as Moodle and Google Classroom, which offer structured, multimodal, and flexible learning environments.

The shift from conventional teaching methods to technology-based Arabic instruction has become a necessary response to the evolving learning needs of modern students. Traditional teacher-centered pedagogies, which rely heavily on memorization and textbook-based instruction, often result in low engagement and suboptimal learning outcomes (Islamy et al., 2024; Mulyani & Sholeh, 2023). This transition, however, is not without challenges: many Arabic teachers still lack sufficient digital competence due to limited training and inadequate

exposure to educational technologies (Islamy et al., 2024; Nuryadin et al., 2024). As a result, there is a growing need for continuous professional development, including training in the effective use of digital tools such as Canva, Kahoot!, Smart TV media, and interactive applications, which have been shown to significantly enhance students' motivation and learning performance (Hidayah et al., 2023; Iskamto et al., 2024; Safitri et al., 2023).

In addition to pedagogical shifts, disparities in digital access and infrastructure remain critical barriers to effective Arabic learning. Although digital media can theoretically expand students' access to learning materials (Fadlilah, 2022; Gharba, 2024), uneven technological readiness across schools leads to unequal learning opportunities (Alakrash & Razak, 2022; Kasim & Nugraha, 2021). Many institutions face limitations in producing or providing high-quality digital content, which hinders students' engagement and comprehension (Hinnawi et al., 2023; Sharipova, 2025). Furthermore, online learning environments often reduce opportunities for spontaneous speech interactions, which are essential for developing oral proficiency and cultural competence (Hermanto & Srimulyani, 2021; Ta'amneh, 2021). Limited instructor feedback and reduced real-time communication contribute to feelings of isolation and decreased learning satisfaction (Abdellatif et al., 2023; Qamariyah et al., 2022).

Against this backdrop, Learning Management Systems have emerged as strategic solutions to modernize Arabic language instruction. Platforms such as Moodle and Google Classroom provide diverse functionalities—including learning material repositories, interactive quizzes, discussion forums, integrated assessments, and multimedia support—that allow for more engaging, personalized, and pedagogically sound learning experiences. Prior studies highlight the successful development of Arabic learning programs via Moodle, incorporating interactive elements designed to improve comprehension, communication, and overall proficiency (Ismail et al., 2023). Moreover, LMS-based learning supports flipped classroom models in which students engage in self-paced preparation before participating in deeper in-class discussions, thereby fostering autonomy and communicative competence (Makinde et al., 2024).

The usability and acceptance of LMS platforms also contribute significantly to their instructional effectiveness. Learners often favor platforms that offer flexibility, ease of navigation, and reliable access to materials—core strengths of both Moodle and Google Classroom (Alkhateeb & Abdalla, 2021; Rogers et al., 2025). Beyond functioning as digital repositories, LMS enable innovative instructional designs aligned with contemporary pedagogical frameworks and the expectations of 21st-century learning (Fatmawati & Sulisworo, 2021). Their relevance became even more pronounced during the COVID-19 pandemic, when educational continuity relied heavily on online learning environments. Studies show that LMS facilitate interactive communication, collaborative learning, and sustained student engagement, which are indispensable for Arabic language learning in remote or blended contexts (Oyarinde & Komolafe, 2020; Zuniga-Tonio, 2021).

Research on Arabic language education in the digital age consistently emphasizes the need to integrate technological tools to address persistent challenges related to motivation, fluency, and access to quality instructional materials (Amadi & Sholikha, 2023; Ghofur & Riski, 2024; Jagat et al., 2022). LMS platforms support the use of multimedia, audio-visual content, adaptive materials, and AI-driven tools to enhance learners' listening, speaking, reading, and writing skills (Oke et al., 2023). Empirical evidence from systems such as "arabi.id" demonstrates the significant role of LMS in boosting student motivation, curiosity, and linguistic performance, validating earlier studies on the positive impact of Moodle in developing Arabic language skills (Ismail et al., 2023). These findings underscore the potential of LMS to foster innovative practices rooted in pedagogical effectiveness and digital adaptability.

Despite this promising landscape, the integration of LMS in Arabic language education has not reached its full potential, particularly within formal institutional contexts such as madrasah and Islamic schools, where LMS is often used only as supplemental support rather than as a core instructional medium. This gap highlights the urgent need for systematic research that examines effective implementation models, addresses digital competency issues among teachers and students, and evaluates the suitability of LMS-based assessment tools. The evolving digital environment calls for an evidence-based framework capable of guiding educators and institutions in optimizing LMS for comprehensive Arabic language learning. Therefore, this study seeks to explore the strategic use of LMS platforms in enhancing the effectiveness of Arabic language instruction, focusing on challenges, opportunities, and best practices relevant to the contemporary educational context.

Method

This study employs a descriptive qualitative research design supported by a literature-based approach to examine how Learning Management Systems (LMS), particularly Moodle and Google Classroom, are utilized in Arabic language instruction. The purpose of this method is not to apply the structured protocol of a Systematic Literature Review (SLR), but to describe, synthesize and interpret the patterns, opportunities and challenges reported in previous research regarding technology-enhanced Arabic learning.

Research data were collected from scholarly publications accessed through Google Scholar by using keywords such as Arabic language learning, learning management system, Moodle, Google Classroom and digital pedagogy. The search identified 143 articles, after which titles and abstracts were examined to determine their relevance to LMS-based Arabic learning. Following this screening, 123 articles were excluded because they did not explicitly discuss the application of LMS in Arabic instruction or were outside the scope of this study. Ultimately, 20 articles were considered highly relevant and were analyzed in depth to support the research focus.

The selected articles were analyzed using qualitative thematic analysis, consisting of data reduction, categorization, comparison and interpretation. This analytical process enabled the identification of recurring themes related to accessibility, interactivity, student engagement, digital readiness, teacher competence, technological infrastructure and pedagogical implications. To ensure analytical rigor, each article was examined based on the clarity of its research focus, methodological soundness and relevance to the discourse on Arabic language learning in the digital era. Consistent with qualitative descriptive research characteristics, the emphasis of the analysis lies in meaning construction rather than quantification.

Results and Discussion

Enhancing Accessibility and Interactivity through Learning Management Systems

The use of Learning Management Systems (LMS) such as Moodle and Google Classroom significantly enhances accessibility in Arabic language learning. These platforms allow students to access learning materials, assignments, and multimedia resources at any time, providing flexibility that traditional classroom settings often lack. Studies by Saputri et al (2024) demonstrate that LMS support asynchronous learning, enabling learners to study at their own pace and revisit content as needed—an essential benefit for students with limited face-to-face learning opportunities or inconsistent classroom schedules.

In addition to improving accessibility, LMS platforms strengthen interactivity through features such as discussion forums, automated quizzes, and integrated assessments. Ismail et al (2023) highlight that the LMS arabi.id offers interactive web-based tools that actively involve learners in language tasks, thereby enhancing listening, reading, and writing skills.

These interactive elements help shift learning from passive reception to active engagement, which is critical in developing communicative competence in Arabic.

Despite these advantages, full implementation of LMS platforms remains challenging due to limited digital competence among teachers and inconsistent technological infrastructure. Haq (2023) notes that without proper training, many educators struggle to utilize LMS features effectively, resulting in under-optimized digital learning environments. Thus, while LMS provide substantial benefits, their success largely depends on technological readiness and the pedagogical capacity of the educators involved.

The Relevance of Developing Contextual Digital Learning Materials for Indonesian Students

The literature emphasizes that developing contextual and culturally relevant digital learning materials greatly enhances the effectiveness of Arabic language instruction in Indonesia. Learners respond better to materials that relate to their linguistic, social, and cultural environment. Latifah et al (2025) argue that curriculum transformation in Arabic education must be aligned with multimedia-based innovations that make learning more meaningful for students. This aligns with the needs of digital-native learners who rely heavily on visual and interactive content.

Digital learning materials also enable more varied content delivery, such as video dialogues, simulated interactions, and interactive exercises that help students grasp complex linguistic structures. Research by Hamilaturroyya & Adibah (2025) indicates that such materials enhance learners' retention and deepen their understanding of Arabic grammar and vocabulary. The integration of multimodal content creates immersive learning experiences that reduce boredom and increase cognitive engagement.

Furthermore, using relevant and engaging digital materials fosters emotional connection and motivation among learners. When students encounter content that resonates with their personal experiences and interests, they become more active participants in the learning process. This shows that content design is a critical determinant of successful digital Arabic instruction, making curriculum innovation and meaningful learning material development essential for long-term educational improvement.

The Role of School Leadership in Supporting Digital Transformation

Findings indicate that the role of school leadership is central to the successful implementation of LMS platforms in Arabic language education. Studies by Alfiyanto et al (2024), Huang & Teo (2020), and Lu & Wang (2023) show that policy support, strategic planning, and a strong institutional vision significantly influence teachers' willingness to adopt digital tools. When school leaders actively encourage the use of Google Classroom, Moodle, or similar platforms, they create a culture of innovation that positively impacts teaching and learning processes.

Leadership support also ensures adequate professional development for teachers. Many educators require ongoing training to effectively use digital platforms and integrate them into their pedagogical practices. Institutions that invest in workshops, mentoring, and collaborative training sessions demonstrate higher levels of digital literacy among teachers. This leads to more structured, effective, and interactive learning activities that utilize the full potential of LMS features.

Additionally, school leaders facilitate coordination between teachers, technical support staff, and administrative teams, ensuring smooth implementation of digital learning initiatives. When collaboration is strong, technical challenges—such as internet disruptions or platform misconfigurations—can be resolved efficiently. This shows that effective leadership is not only about policy direction but also about ensuring operational stability and sustained digital transformation.

Infrastructure Barriers and Interaction Gaps in Digital Learning

A major barrier highlighted in the literature is the inconsistency of digital infrastructure, particularly internet connectivity and access to devices. In many regions, students struggle with unstable networks, limited data plans, or outdated devices, all of which hinder Arabic learning activities that rely heavily on multimedia content. Haq (2023) emphasizes that these technical constraints significantly disrupt online classes, especially sessions requiring real-time interaction or streaming.

Beyond technical limitations, the digital environment also introduces challenges in pedagogical interaction. Arabic language learning requires frequent, spontaneous communication—especially for improving speaking and listening skills. Tolinggi (2021) notes that online classrooms often lack the immediacy of face-to-face interactions, resulting in insufficient feedback and reduced opportunities for corrective guidance. This affects learners' confidence and slows their linguistic progress.

Psychologically, reduced interaction may cause feelings of isolation, disengagement, and decreased motivation among learners. Digital learning environments often struggle to replicate the emotional connection facilitated by traditional classroom settings. The literature suggests that addressing these gaps requires strategic pedagogical adaptations, such as real-time video conferencing, collaborative group projects, and interactive discussion sessions that foster meaningful engagement.

The Potential of Blended Learning as an Adaptive Solution in the Society 5.0 Era

Blended learning emerges as one of the most effective models for addressing the limitations of fully online learning. This approach combines the strengths of face-to-face instruction and digital platforms, offering a balanced learning experience. Tiarawati et al (2023) confirm that blended learning significantly enhances learners' motivation, participation, and comprehension in Arabic language education. Students benefit from both guided instruction and opportunities to practice independently through digital tools.

This model aligns well with the principles of Society 5.0, which emphasize human-centered integration of technology. Blended learning supports this by enabling personalized learning pathways while maintaining essential human interaction. Through multimedia content, online exercises, and in-class discussions, students develop a deeper and more comprehensive understanding of Arabic linguistic structures, cultural nuances, and communication patterns.

Moreover, blended learning helps mitigate the impact of infrastructural limitations, as not all learning activities depend entirely on internet access. Students can engage in offline classroom sessions while still benefiting from digital enhancements. Teachers also gain more flexibility in providing feedback, monitoring progress, and ensuring student engagement across different learning modalities.

Adapting Instruction to the Characteristics of Generation Z and Alpha

The findings highlight that Generation Z and Alpha possess unique learning characteristics that strongly influence their engagement with Arabic language instruction. These generations prefer digital, interactive, and visually rich learning environments that support autonomy and exploration. Keshav et al (2022) show that they thrive in problem-based, discussion-oriented, and project-centered learning settings—making digital tools an ideal fit for their learning needs. Their familiarity with social media platforms and digital communication tools further reinforces the need for technology-integrated instruction.

Platforms such as Google Classroom, WhatsApp, Instagram, and YouTube are not only accessible but also align with students' daily digital habits. Wahyudi & Syafi'i (2025) found that the integration of AI tools like ChatGPT into Arabic language modules increases student engagement by providing personalized, instant, and interactive learning experiences.

Given these characteristics, instructional strategies for Arabic language learning must incorporate active learning experiences, multimedia content, and collaborative digital activities. By leveraging students' technological fluency, educators can design more engaging and effective learning environments that foster creativity, communication, and deep linguistic understanding.

Integration of Digital Tools to Enhance Arabic Language Skills

The integration of digital tools has a measurable impact on students' linguistic development, particularly in listening and speaking skills. Platforms such as YouTube provide authentic listening materials from native speakers, helping learners improve pronunciation, intonation, and comprehension. Ismail et al (2023) highlight that audio-based exercises in arabi.id significantly contribute to learners' mastery of Arabic phonetics and oral expression.

Tools such as WhatsApp, Google Meet, and Zoom enhance communication between teachers and students, allowing real-time feedback and continuous language practice. Nurjanah et al (2025) demonstrate that digitalized instructional materials, including voice notes and video interactions, encourage students to participate more actively in conversation-based activities. These tools create a supportive environment for practicing spoken Arabic, even outside formal class sessions.

Beyond linguistic improvement, digital tools also promote independent and lifelong learning skills. Students can revisit materials, explore additional online resources, and practice language skills at their convenience. This flexibility supports personalized learning trajectories and fosters intrinsic motivation, making digital integration an essential component of modern Arabic language instruction.

The findings of this study reinforce that Arabic language learning in the digital era is shaped by a complex interplay of motivational, pedagogical, and technological factors. Consistent with Kerras & Essayahi (2022), Sari et al (2025), and Syarif (2021) the results show that reduced face-to-face interaction in online settings often leads to diminished motivation and emotional connection with the language. This aligns with earlier observations that Arabic, with its unique phonetic, morphological, and cultural characteristics, requires sustained interpersonal interaction that is difficult to replicate in digital environments. At the same time, the reliance on memorization-based practices—still dominant in many Arabic classrooms—further limits students' engagement in online learning contexts, exacerbating disengagement and anxiety (Fauzi et al., 2024). These findings suggest that transitioning into digital Arabic instruction requires more than technological adoption; it demands a paradigm shift toward motivational and communicative learning design.

The literature also indicates that inequitable access to learning materials and infrastructure remains a major obstacle to effective digital Arabic instruction. As discussed by Fadlilah (2022) and Gharba (2024), digital content can theoretically increase accessibility, but disparities in digital resources persist. The study's findings mirror those of Hinnawi et al (2023) and Sharipova (2025), who note that many institutions are not fully equipped to produce high-quality digital learning materials, leading to inconsistent learning experiences across regions. Furthermore, the effectiveness of e-learning initiatives often depends on the availability of technical support and sustained teacher training (Kamal, 2025), both of which are uneven in many Arabic-learning contexts. These challenges affirm the need for more comprehensive institutional readiness if digital transformation is to address—not reproduce—existing educational inequalities.

Another important finding concerns the difficulty of facilitating muhādatsah (spoken Arabic) in digital learning environments. This supports the claims of Hermanto & Srimulyani (2021) and Ta'amneh (2021), who highlight that virtual platforms limit spontaneous interaction, a key component of oral proficiency. The structural nature of online classes—often rigid and highly scheduled—reduces opportunities for natural conversational exchange, which is essential for building communicative fluency and cultural literacy. Reduced immediacy of feedback, as emphasized by Alakrash & Razak (2022), further restricts students' ability to refine pronunciation and rhetorical expression. These findings point to the need for innovative digital pedagogies such as real-time breakout discussions, voice-messaging activities, and conversational AI to compensate for the interactional gaps inherent in online instruction.

Despite these challenges, the transition from traditional to technology-enhanced Arabic learning presents significant opportunities. The literature strongly supports that innovative digital tools—such as Canva, Kahoot!, Smart TV media, and interactive platforms—can greatly enhance student motivation and learning outcomes (Burhanuddin, 2024; Failasuf et al., 2022; Hidayah et al., 2023). This corresponds with the findings of the present study, which show that digital media help bridge the gap between classical pedagogical methods and the learning preferences of digitally oriented students. The need for professional development among teachers, as emphasized by Islamy et al (2024) and Nuryadin et al (2024), aligns with the observation that the success of digital Arabic learning depends heavily on teachers' readiness and digital pedagogical competence. Institutional support through infrastructure investment and capacity-building programs becomes essential to sustain this transition (Priantiwi & Abdurrahman, 2023).

Finally, the role of Learning Management Systems (LMS) such as Moodle and Google Classroom is reaffirmed as central to enhancing the effectiveness of Arabic language learning. Supporting the studies by Ismail et al (2023) and Makinde et al (2024), the findings indicate that LMS provide structured and flexible learning environments that foster self-regulated learning and meaningful engagement. Their ease of use, strong multimedia support, and features for collaboration improve the quality of instruction and encourage active participation (Alkhateeb & Abdalla, 2021; Rogers et al., 2025). Moreover, LMS have proven indispensable for maintaining educational continuity and resilience during periods of disruption, such as the COVID-19 pandemic (Richards & Thompson, 2023). When integrated with innovative digital pedagogy—such as interactive listening tools, virtual speaking activities, and flipped learning models—LMS platforms become powerful agents of pedagogical transformation. Therefore, while challenges persist, the convergence of digital tools, teacher capacity development, and LMS adoption provides a viable pathway toward more adaptive, engaging, and effective Arabic language education.

Conclusion

The findings of this study demonstrate that the integration of digital technologies and Learning Management Systems (LMS) in Arabic language education offers significant opportunities to enhance accessibility, interactivity, and learner engagement, yet these benefits are accompanied by substantial challenges. Issues related to student motivation, unequal access to digital infrastructure, limited opportunities for authentic muhādatsah practice, and reduced face-to-face interaction continue to hinder the full potential of online and blended learning environments. Moreover, the persistence of traditional, memorization-based instructional approaches highlights the need for a pedagogical shift toward more communicative, student-centered, and culturally responsive learning designs. The transition from conventional to technology-enhanced Arabic instruction requires not only the adoption of digital tools but also

strategic institutional support, comprehensive teacher training, and the development of high-quality digital materials tailored to the needs of contemporary learners.

At the same time, the effective use of LMS platforms such as Moodle and Google Classroom has proven instrumental in fostering flexible, structured, and interactive learning experiences. These systems enable multimedia integration, self-regulated learning, collaborative activities, and continuity of instruction during disruptions, making them essential components of modern Arabic pedagogy. When combined with innovative digital resources, professional capacity-building initiatives, and the implementation of blended learning models, LMS can significantly improve students' linguistic proficiency and overall learning outcomes. Therefore, advancing Arabic language education in the digital era requires a holistic approach that aligns technological innovation with pedagogical reform, institutional readiness, and sustained support for teachers and learners.

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