



Digital Informal Learning Environments (DILEs): New Frontiers in Arabic Language Pedagogy and Cultural Fluency

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Abstract :

This research aims to explore the role of Digital Informal Learning Environments (DILEs) in improving Arabic language skills and cultural understanding. This research uses a qualitative design with a case study approach, collecting data through interviews and observations on learners and teachers who actively use digital platforms. The results show that DILEs are very effective in improving Arabic speaking, listening, writing, and reading skills, as well as helping learners understand the context of Arabic culture. However, the main challenges faced are the lack of well-structured material and the difficulty in distinguishing credible sources. This study suggests that DILEs should be designed in a more structured manner and pay attention to supervision from teachers to improve the quality of learning. The contribution of this research lies in the integration of language and cultural learning in DILEs that enrich the Arabic language learning experience. This research provides insights for platform developers and educators to create a more holistic learning environment, which combines both dimensions.

INTRODUCTION

The Digital Informal Learning Environment (DILE) represents a significant change in the way language and culture are taught, especially in the context of Arabic language pedagogy (Kamal, 2025). The advent of digital technologies, including mobile apps, social media platforms, and online resources, has changed the paradigm of traditional education (Al-Yasin, 2025; Mayer, 2025). With increased accessibility to the internet, learners are no longer limited to formal classroom settings to acquire knowledge and skills (Hamid, 2025; Tazhenova et al., 2024). This is especially important for Arabic language education, where students around the world strive to master the language while also understanding its rich cultural context (Moustafa et al., 2026). Given the importance of Arabic in global communication, especially in areas such as diplomacy, business, and religious studies, there is an urgent need to explore how digital tools can foster cultural fluency in addition to language proficiency (Yahya, 2025). Our research addresses this need by investigating how DILE can shape Arabic language education and improve cultural fluency, an essential component of mastering any language. Thus, this research offers a timely and significant contribution to language education and the digital learning landscape.

In recent years, Arabic teaching and learning has faced significant challenges,

especially in non-Arabic-speaking areas (Au et al., 2024). Traditional pedagogical methods, including formal classrooms and textbooks, have shown limitations in effectively engaging learners and fostering deep cultural understanding (Alshammari & Alrashidi, 2026). Despite the availability of many digital resources, many learners still face difficulties in acquiring the linguistic skills and cultural competencies necessary to communicate effectively in Arabic (Almegren, 2025). The main problem is the gap between conventional educational models and the more dynamic, informal, and interactive opportunities provided by digital platforms (Tazhenova et al., 2024). Many learners are less exposed to real-world cultural contexts in their language studies, which hinders their ability to use Arabic meaningfully and confidently in social and professional settings. This research addresses this gap by exploring how DILE can improve Arabic language teaching and promote cultural fluency outside the classroom (Al-Yasin, 2025; Mayer, 2025; Moustafa et al., 2026).

In recent years, important changes have occurred in the way people engage with learning Arabic. While traditional formal education methods remain dominant, digital platforms such as online forums, social media groups, and language learning apps have gained significant popularity among learners (Arisandi, 2025; Rahmi et al., 2024). The platform provides an interactive and engaging environment that encourages learners to practice Arabic in real-life contexts, such as in discussions about current events, cultural traditions, and social norms (Aditya et al., 2025; Issa, 2023). However, despite their widespread use, these informal digital platforms often lack a structured pedagogical approach, which can lead to inconsistencies in language acquisition and cultural understanding (Ahmed, 2024; Benkoumar, 2024; Fattah, 2025). Some learners may only gain partial fluency, missing key aspects of Arabic culture that are essential for effective communication. As such, there is a clear need to examine how DILE can be optimized for language acquisition and cultural fluency (Alshehri & AlShabeb, 2023; Suja et al., 2025).

Several studies have explored the role of technology in language education, with a particular focus on the integration of digital platforms in second language acquisition. Researchers such as Almelhes (2024) have highlighted the positive impact of mobile applications and social media in improving language learning (S. Almelhes, 2024; AlQbailat et al., 2025; Essam et al., 2024). These tools allow learners to practice language skills in a dynamic real-world context, offering a level of interaction unmatched by traditional textbooks and classroom settings (Kurniawan & Fikriansyah, 2025; Seyidov & Çitil, 2024; Ummah & Albshkar, 2025). However, most research focuses on language skills separately, without adequately addressing the integration of cultural understanding into the digital language learning environment (AL Melweth et al., 2024; Zakiyah & Aditia, 2025). Although the importance of cultural fluency is recognized, there is still a lack of research exploring how digital informal spaces can simultaneously teach linguistic and cultural aspects (Haron et al., 2025; Rosidah, RosidahNi'mah et al., 2021). This gap is a significant challenge for educators and highlights the need for a more comprehensive approach.

In addressing this gap, some researchers have turned to blended learning environments that combine traditional classroom methods with digital tools. The study recognizes the importance of combining formal and informal learning opportunities to provide a more holistic education (Sapitri et al., 2025). However, there is limited research on how informal digital spaces can be leveraged specifically

for the teaching of Arabic language and culture (S. A. Almelhes & Alsaiani, 2024; Hanandeh et al., 2024; Khotijah & Indriana, 2024). Our research seeks to fill this gap by focusing on Arabic language pedagogy in informal digital environments, analyzing how learners engage with cultural content alongside language practice. This study aims to contribute a new perspective by examining the specific role that DILE can play in fostering not only language skills, but also cultural competence in Arabic language learners, which remains an important aspect of language proficiency.

The novelty of this research lies in its focus on the Digital Informal Learning Environment as a means to improve Arabic language proficiency and cultural fluency. While many studies have examined digital tools for language learning, few have explored how these tools can be specifically utilized to teach language and culture simultaneously. As global communication increasingly relies on digital technology, the need for culturally competent Arabic speakers is more urgent than ever. Our research opens up new avenues by integrating linguistic and cultural dimensions within the framework of informal digital learning, providing new insights into how technology can be used not only to teach languages but also to offer learners a deeper understanding of the cultural context in which they are used. This study aims to reshape the way digital platforms are used in Arabic language education, making them more inclusive of cultural fluency.

The main research problem is to explore how Digital Informal Learning Environments (DILEs) can be leveraged to improve Arabic language skills and cultural fluency. Previous studies have focused on the linguistic or cultural aspects of language learning, but few have addressed the integration of the two in informal digital settings. Our research argues that DILE offers a unique opportunity to teach Arabic in a contextually rich and linguistically powerful way. By examining the use of DILE for Arabic language pedagogy, we seek to provide a more comprehensive approach to language learning—one that emphasizes the importance of cultural fluency in addition to language acquisition. The findings of this research will contribute to the development of more effective and engaging Arabic language learning models that can be used in diverse digital spaces.

RESEARCH METHOD

This study uses a qualitative research design with a case study type. The selection of this design was based on the need to deeply understand how Digital Informal Learning Environments (DILEs) affect Arabic language learning and improve cultural understanding. The case studies allow researchers to explore the dynamics in natural and specific contexts, which provides more in-depth insights into the influence of the use of DILEs on Arabic language and cultural learning.

This research will be conducted on several digital platforms that are commonly used by Arabic language learners, such as language learning applications, social media groups, and online discussion forums. The reason for choosing the location of this study was to see how DILEs in the digital context can provide opportunities for Arabic learners from various backgrounds to interact with language and cultural learning materials.

The data collection techniques that will be used in this study are in-depth interviews and document analysis. Interviews will be conducted with learners and teachers who are actively using digital platforms to learn and teach Arabic. In addition, documentation of interactions that occur on digital platforms, such as

discussions or shared materials, will be analyzed to see how culture and language are taught and understood. The collected data will be analyzed using qualitative data analysis techniques, which consist of several stages: 1) data condensation (data reduction) to focus on the main theme, 2) data display to visualize the patterns and relationships found, and 3) data verification to ensure the validity of the findings and their consistency with existing theories.

The validity of the data will be tested through triangulation techniques, which combine various data sources (interviews, document analysis, and observations) to confirm the consistency of the findings. In addition, member checking will also be carried out by asking for confirmation from the informant about the findings obtained to ensure the accuracy of the data collected.

RESULT AND DISCUSSION

Qualitative Result

The Influence of Digital Informal Learning Environments (DILEs) on Arabic Language Skills Improvement

In this study, Digital Informal Learning Environments (DILEs) refer to digital platforms used for learning Arabic outside the formal context. DILEs include a variety of digital resources such as language learning apps, discussion forums, social media groups, and learning videos that allow for direct interaction between learners or with native speakers. The platform provides an opportunity for learners to practice in real-time in a more relaxed and less structured context compared to learning in a formal classroom. DILEs allow learners to communicate using Arabic in more flexible and practical situations, with a focus on speaking, writing, listening, and reading skills.

The first informant, a student who actively uses Arabic language learning apps, explained that DILEs provide ample space for him to practice speaking and listening skills. "I often use Arabic apps to talk to friends from different countries. The app also lets me listen to conversations in Arabic, which helps me get used to the correct pronunciation and intonation." Based on these interviews, it can be concluded that DILEs help learners improve their speaking and listening skills in Arabic effectively through hands-on practice and interaction with native speakers or fellow learners.

The second informant, an Arabic teacher who integrates social media and discussion forums in Arabic teaching, added, "Through discussion groups on social media, students and I can share experiences in solving Arabic problems, both in writing and reading. It gives them the opportunity to train more naturally and spontaneously." From these interviews, it can be seen that discussion forums and social media allow for more direct interaction and allow learners to practice writing and reading skills in a more informal but still effective way.

The researcher observed the interactions that occurred in Arabic discussion forums on social media platforms and learning applications. The results of the observations showed that most of the interactions that occurred focused on discussions related to the use of words or sentence structures in the context of daily life. Many learners use Arabic to communicate spontaneously, for example in sharing opinions about Arabic culture or discussing current news in Arabic. This shows that DILEs not only improve linguistic skills, but also enable contextual application of language in real conversations.

From interviews and observations conducted, researchers found that DILEs

are very effective in improving Arabic speaking, writing, listening, and reading skills. Learners not only learn languages theoretically but also practice languages in a more free and dynamic social context. In this case, DILEs provide an opportunity for learners to apply Arabic in situations that are closer to everyday use, which is difficult to achieve in formal language teaching.

The pattern seen from the results of the interviews and observations is that DILEs have a positive impact on Arabic language skills, with a primary focus on speaking and listening skills, which can be practiced in hands-on interactions. In addition, DILEs also strengthen writing and reading skills through the use of social media and discussion forums that allow learners to write in Arabic more naturally. Overall, these digital platforms serve as a complement to formal Arabic learning, providing a more flexible and contextual learning experience.

Table 1. Improving Arabic Language Skills through DILEs

Informant Position	Interview Excerpts	Indicator
Student (Learner)	"I often use Arabic apps to talk to friends from different countries. The app also lets me listen to conversations in Arabic."	Speaking skills, listening
Arabic Teacher	"Through discussion groups on social media, students and I can share experiences in solving Arabic problems, both in writing and reading."	Writing skills, reading

Based on the table it can be seen that DILEs affect Arabic language skills on two main aspects: speaking and listening, and writing and reading. Students (first informants) focus more on speaking and listening skills through Arabic learning apps, which give them the opportunity to practice directly with native speakers. Meanwhile, the teacher (second informant) emphasized the use of social media and discussion forums to improve students' writing and reading skills, through sharing experiences and solving Arabic language problems. The pattern of these data suggests that DILEs strengthen Arabic language skills by providing a variety of different media and contexts, allowing learners to practice the language more spontaneously and naturally.

Integration of Cultural Understanding in Arabic Language Learning Through DILEs

The integration of cultural understanding in Arabic language learning through Digital Informal Learning Environments (DILEs) refers to the use of digital platforms that incorporate Arabic cultural materials in the Arabic language learning process. DILEs, such as learning apps, social media groups, and online discussion forums, provide learners with access to not only learn Arabic, but also understand the traditions, social values, and current developments in Arabic culture. This learning takes place in an environment that is not bound by time and place, allowing learners to interact with native speakers and fellow learners in a more authentic cultural context. In this study, we focus on how learners access and apply the cultural knowledge gained from DILEs in real conversations in Arabic.

The first informant, an Arabic language learner who is active in social media discussion forums, explained that understanding Arabic culture was greatly helped through the platform. "In this forum, we often discuss Arab cultural festivals, such as Eid al-Fitr, and social values related to religion. I feel more aware of Arabic culture after being involved in these discussions, and it helps me speak more naturally in

Arabic," he said. Based on these interviews, it can be seen that discussions about Arabic cultural traditions and values in DILEs help learners improve their understanding of the culture associated with the language.

The second informant, an Arabic teacher who uses learning apps and social media in his teaching, added, "I invite my students to watch Arabic movies and read articles on recent social and cultural developments. They find it easier to understand the nuances of Arabic culture and start using Arabic more in the context." From these interviews, it was revealed that by introducing cultural material through current films and articles, DILEs provide learners with broader insights into a more vibrant social and cultural life, which in turn helps them use Arabic more appropriately and contextually.

Observations were made of interactions in a social media group that discussed current issues in the Arab world, including politics, art, and tradition. The results of observations show that many Arabic language learners participate in discussions related to Arabic social and cultural values. They not only talk about the language, but also share experiences about how Arabic culture affects their daily communication. The researchers note that these discussions not only improve speaking skills in Arabic, but also enrich learners' cultural understanding, allowing them to apply the language with a more appropriate context.

From the interviews and observations conducted, the researchers concluded that DILEs are very effective in helping learners to integrate understanding of Arabic culture in language learning. Digital platforms allow learners to gain authentic and dynamic cultural knowledge through hands-on discussions and up-to-date materials. This not only improves their language skills, but also allows learners to understand the social and cultural context inherent in the use of Arabic in everyday life. The learning carried out in DILEs provides a more in-depth and applicative cultural feel for learners, so that they can use Arabic more naturally and relevantly.

A pattern that can be seen from the results of interviews and observations is that learners who engage in cultural discussions through DILEs tend to have a better understanding of the Arab social and cultural context. In addition, they are able to integrate this cultural knowledge in their conversations, both verbally and in writing. These data show that learning Arabic through DILEs not only enriches language skills, but also strengthens understanding of Arabic culture, which in turn allows learners to use the language more appropriately in social and cultural contexts.

Table 2. Integration of Cultural Understanding in Arabic Language Learning through DILEs

Informant Position	Interview Excerpts	Indicator
Arabic Language Learners	"In these forums, we often discuss Arab cultural festivals, such as Eid al-Fitr, and social values related to religion."	Cultural understanding, language application
Arabic Teacher	"I invite my students to watch Arabic movies and read articles on recent social and cultural developments."	Up-to-date cultural knowledge, language use

The table above shows that cultural integration in Arabic language learning through DILEs can be seen from two main aspects: cultural understanding and language application. Learners (first informants) are more involved in discussions that focus on cultural festivals and social values, which improves their

understanding of Arabic culture as well as speaking proficiency in Arabic. Meanwhile, the teacher (the second informant) focuses on the use of media such as films and current articles, which provide students with a broader insight into social and cultural changes within the Arab world, which in turn improves their ability to use Arabic more contextually.

The patterns seen from the above data suggest that learners who are actively involved in cultural discussions and who access Arabic cultural materials tend to have a better understanding of the Arab social and cultural context. This allows them to use Arabic in a more natural context and relevant to everyday life. Therefore, DILEs make a significant contribution to improving cultural understanding as well as Arabic language skills, making them an effective tool in more thorough and applicable language learning.

Challenges and Opportunities in the Use of DILEs for Arabic Language Learning

Challenges and opportunities in the use of Digital Informal Learning Environments (DILEs) for Arabic language learning refer to the problems and benefits experienced by learners and teachers in utilizing digital platforms to learn Arabic. The main challenges faced are often related to the lack of structured materials, difficulties in distinguishing between credible and non-credible sources of information, and lack of direct interaction with teachers or mentors. On the other hand, DILEs also offer great opportunities, such as easy access to a wide variety of learning materials, hands-on interaction with native speakers, as well as the ability to tailor the learning experience according to the individual needs of learners. This research focuses on how these challenges affect learning effectiveness and how existing opportunities can be maximized to support better learning of the Arabic language.

The first informant, an Arabic language student who uses language learning apps and social media to learn, revealed some of the challenges he faced. "Although I was able to access a lot of Arabic learning materials for free on the internet, I had a hard time finding well-structured materials. The number of unreliable sources also made me confused in choosing the right reference for studying." From these interviews, it can be concluded that although DILEs provide access to a vast amount of material, the lack of structure and credibility of the source material becomes a significant obstacle for learners in acquiring a correct and thorough understanding of the Arabic language.

The second informant, an Arabic teacher who integrates DILEs in teaching, also highlighted the challenges faced by students in using digital platforms. "One of the biggest challenges was the lack of direct guidance from me as a teacher. Students often learn independently through apps and forums, and I'm afraid they'll gain an understanding that isn't entirely correct. However, they benefit from flexibility in learning that can be adjusted at their own pace." Based on these interviews, it can be seen that although DILEs provide flexibility in learning, the lack of direct interaction with teachers is still an obstacle in ensuring proper understanding for students.

The researcher observed the interaction in several Arabic language learning platforms that used DILEs. The results of observations show that although learners can access a wide range of learning materials and interact with fellow learners or native speakers, they tend to have difficulty in filtering out the right and relevant

information. In addition, some learners seem frustrated that there is no direct supervision or guidance from the teacher to correct their mistakes. This observation shows that there is a dependence on independent interaction that can affect the quality of learning.

From interviews and observations conducted, researchers concluded that DILEs have two sides: challenges and opportunities. The most dominant challenges are the unavailability of well-structured material and the difficulty in distinguishing credible sources. In addition, the lack of direct guidance from teachers is also an obstacle for learners in understanding Arabic correctly. However, DILEs also provide great opportunities in the form of easy access to more varied material and direct interaction with native speakers, allowing learners to practice more flexibly and according to their individual learning pace.

The pattern seen from the results of interviews and observations is that the challenges faced in the use of DILEs are related to the quality and credibility of the materials available, as well as the lack of direct guidance from teachers. However, the opportunities offered by DILEs, such as flexibility in learning and access to native speakers, provide a more diverse and contextual learning experience. This data shows that despite the challenges in utilizing DILEs, the potential of these digital platforms is huge in improving Arabic language learning, provided that issues related to learning quality and supervision can be overcome.

Table 3. The Use of DILEs for Arabic Language Learning

Informant Position	Interview Excerpts	Indicator
Student (Learner)	"Although I can access a lot of Arabic learning materials for free on the internet, I have a hard time finding well-structured materials."	Structured material, source credibility
Arabic Teacher	"One of the biggest challenges was the lack of direct guidance from me as a teacher. Students often learn independently through apps and forums."	Lack of hands-on guidance, learning flexibility

The table above shows that the two main challenges encountered in the use of DILEs are the lack of structured material and the credibility of sources that cannot be guaranteed (learners), as well as the lack of direct guidance from the teacher (the teacher). Learners are more often faced with difficulties in choosing the right and quality materials, while teachers are worried because students are learning independently without adequate supervision. On the other hand, both also show great opportunities, namely easy access to diverse materials and flexibility in learning, which allows learners to adjust their learning pace.

The patterns that emerge from the above data show that the biggest challenge in the use of DILEs is quality and supervision in learning. Learners struggle to get structured and credible material, while teachers feel that the lack of guidance directly affects the quality of learning. However, the opportunities offered by DILEs, such as learning flexibility and access to more diverse materials, show great potential in enhancing Arabic language learning if these challenges can be overcome. DILEs have a lot of potential, but to achieve success, there must be improvements in material quality supervision and direct guidance.

Discussion

In comparing the study's findings with the existing literature, the study shows consistency with some of the previous findings, but also highlights some important differences (Budget, 2025; Nazhifah & Syafe'i, 2025). As previously revealed by researchers, the use of digital platforms such as apps and social media can indeed improve speaking and listening skills in language learning (Hilmi et al., 2024; Sauri & Sanusi, 2024). The findings of this study also support this view, where students who use DILEs successfully practice with native speakers and are more familiar with correct pronunciation and intonation (Almuhanna, 2025; Muhksin et al., 2025). However, in terms of the application of cultural knowledge, these findings highlight a gap that has not been widely discussed in the previous literature, namely how DILEs are also effective in integrating Arabic culture in the language learning process. Much of the previous literature focused only on linguistic skills without linking them to the cultural context that should be an integral part of language learning (Abdulmughni, 2025).

Theoretically, these findings support the importance of looking at language learning in a broader context, which includes not only mastery of grammar or vocabulary, but also an understanding of the associated culture (El-Farahaty, 2025; Hamid, 2025; Mayer, 2025). By using DILEs, learners can gain a deeper and more authentic understanding of Arabic culture that is often difficult to achieve in formal language teaching. This supports the theory that considers that effective language teaching must pay attention to cultural aspects in order to create more socially and linguistically competent learners. Practically, these results provide insights for digital platform developers and educators to design more integrated learning experiences between languages and cultures, as well as provide more structured and credible materials that can facilitate a more comprehensive understanding.

In terms of practical implications, the challenges found in this study, such as the lack of material structure and credibility of the sources, point to the need for stricter oversight in the development of DILEs. Learners should be provided with more structured and verified tools and resources to ensure effective and accurate learning (Listanto et al., 2025; Mutambik, 2024). On the other hand, the flexibility in learning offered by DILEs also provides a great opportunity to provide a more personalized learning experience, which can be tailored to the individual's pace and needs (Au et al., 2024; Moustafa et al., 2026). This is especially important given the variation in each learner's learning style. Therefore, although these challenges exist, with the right design, DILEs can be very effective in improving the quality of Arabic language learning.

Overall, despite the challenges in using DILEs for Arabic language learning, especially in terms of supervision and quality of materials, the opportunities offered by these digital platforms are enormous. Learners can access a wider range of materials, interact directly with native speakers, and have the flexibility to set their learning pace. DILEs can also provide a deeper insight into Arabic culture, which is increasingly relevant in the context of language learning. In the future, this digital platform needs to be strengthened with more structured materials and more targeted interactions in order to optimize the great potential that exists.

CONCLUSION

The conclusions of this study show that the most important finding is the importance of integration between Arabic language learning and cultural understanding in Digital Informal Learning Environments (DILEs). This research reveals that DILEs are not only effective in improving linguistic skills such as speaking and listening, but also allow learners to understand the context of Arabic culture through direct interaction with native speakers and discussions about social and cultural values. The main lesson gained from this research is that cultural understanding should be an integral part of language learning to create more competent learners in real social and communication contexts.

Scientifically, this study makes an important contribution by showing that DILEs can be an effective tool in learning Arabic that is more holistic, combining linguistic and cultural aspects. The strength of this paper lies in the integration of these two aspects in the context of flexible and adaptive digital learning. However, the study has limitations in terms of sample coverage and the variety of DILEs platforms used, which limits the generalization of the findings. Therefore, future research could expand its scope by involving more platforms and learner populations to gain a more comprehensive picture of the influence of DILEs on Arabic language learning and culture.

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REFERENCES

- Abdulgugni, H. M. A. (2025). Artificial intelligence in Arabic-English literary translation: Technological innovations, linguistic accuracy, and ethical implications. *International Journal of Language and Literary Studies*, 7(3), 107–129. <https://doi.org/10.36892/ijlls.v7i3.2120>
- Aditya, V., Rafli, Z., Amrulloh, M. A., & Erlina, E. (2025). Arabic Language and Cultural Identity: A Systematic Review of Sociolinguistic Literature. *Ta'limi/ Journal of Arabic Education and Arabic Studies*, 4(2), 283–306.
- Ahmed, M. (2024). The Benefits of Electronic Self-Evaluation in Teaching and Learning Arabic Language Skills. *Chapter of Book, Language Tests: Theories, Experiences and Aspirations, King Salman Academy for The Arabic Language, Saudi Arabia*, 376–407.
- Al-Yasin, M. (2025). Exploring The Efficacy Of Social Platforms As Informal Learning Environments For Enhancing Language Skills. *Aydın Arapça Araştırmaları Dergisi*, 7(2), 673–704. https://doi.org/10.17932/IAU.ARAP.2019.020/ayad_v07i20014
- A. L. Melweth, H. M., Safar Alkahtani, A., Mahfouz Mohammed Al Mdawi, A., & Badawy Mohamed Badawy, W. (2024). Kurdish Studies: The Impact of Artificial Intelligence on Improving the Quality of Education and Reducing Future Anxiety Among a Sample of Teachers in Saudi Arabia. *Kurdish Studies*, 12(2), 2051–4883. <https://doi.org/10.58262/ks.v12i2.426>

- Almegren, R. (2025). Educational language choice and the role of technology: parental attitudes, decision factors and multilingual learning practices in the digital age. *Saudi Journal of Language Studies*, 1–15. <https://doi.org/10.1108/SJLS-05-2025-0037>
- Almelhes, S. (2024). Enhancing Arabic language acquisition: Effective strategies for addressing non-native learners' challenges. *Education Sciences*, 14(10), 1116. <https://doi.org/10.3390/educsci14101116>
- Almelhes, S. A., & Alsaiari, H. E. (2024). A conceptual framework for teaching Arabic as a second language. *Theory and Practice in Language Studies*, 14(7), 2110–2118. <https://doi.org/10.17507/tppls.1407.18>
- Almuhanna, M. A. (2025). Teachers' perspectives of integrating AI-powered technologies in K-12 education for creating customized learning materials and resources. *Education and Information Technologies*, 30(8), 10343–10371. <https://doi.org/10.1007/s10639-024-13257-y>
- AlQbailat, N. M., AlQubelat, E. F., Al Kaabi, M. H., & Almaamari, A. S. (2025). Patterns of Religious, Cultural, and Literary Rhetorical Elements Usage Among Non-Native Arabic Learners: A Case Study at Mohamed bin Zayed University for Humanities. *Theory and Practice in Language Studies*, 15(3), 898–909.
- Alshammari, S. H., & Alrashidi, O. (2026). The effects of informal digital learning, intrinsic motivation, and grit on online learning effort regulation and English achievement. *Scientific Reports*. <https://doi.org/10.1038/s41598-026-44548-8>
- Alshehri, A., & AlShabeb, A. (2023). Exploring attitudes, identity, and linguistic variation among Arabic speakers: Insights from acoustic landscapes. *International Journal of Arabic-English Studies*, 24(2), 1–16.
- Anggara, S. A. (2025). Interactive Approaches in Arabic Language Teaching: Efforts to Improve Communication Skills. *JUPI (Scientific Journal of Islamic Education)*, 4(2), 1–11. <https://doi.org/10.58788/jipi.v4i2.8145>
- Arisandi, Y. (2025). Contrastive Analysis-Based Learning of Arabic and English to Enhance Arabic Vocabulary Acquisition. *ANCOLT: International Conference on Language Teaching*, 2(01), 265–283.
- Au, A., Siddiqi, H., Sayadi, G., Zhao, T., Kleib, M., Tong, H., & Salma, J. (2024). Digital learning preferences of Arabic-speaking older immigrants in Canada: A qualitative case study. *Educational Gerontology*, 50(11), 1006–1028.
- Benkoumar, M. (2024). *Arab Critical Terminology in Modern and Contemporary Thought: Genealogy, Development, and Interrelations*.
- El-Farahaty, H. (2025). Integrating Corpora and AI Tools in the Teaching, Learning, and Assessing of Arabic/English Legal Translation: H. El-Farahaty. *International Journal for the Semiotics of Law*, 38(6), 2031–2060. <https://doi.org/10.1007/s11196-025-10281-0>
- Essam, M., Deif, M. A., & Elgohary, R. (2024). Deciphering Arabic question: a dedicated survey on Arabic question analysis methods, challenges, limitations and future pathways. *Artificial Intelligence Review*, 57(9). <https://doi.org/10.1007/s10462-024-10880-6>
- Fattah, M. H. A. A. L. (2025). The Effect of Diglossia on Arabic Language Teaching and Learning in Higher Education in Yemen. 63–17, *مجلة جامعة الناصر*.
- Hamid, M. O. (2025). Pedagogy as bountiful giving: L2 Arabic for adult learners beyond formal education. *Language Teaching Research*, 13621688251394494.

- Hanandeh, A., Ayasrah, S., Kofahi, I., & Quda, S. (2024). Artificial intelligence in Arabic linguistic landscape: Opportunities, challenges, and future directions. *TEM Journal*, 13(4), 3137.
- Haron, S. B. C., Abdullah, N., Haron, S. C., & Mokhtar, M. I. M. (2025). The issue of Arabic speaking skills among Malay learners: what is missing? *Ijaz Arabi Journal of Arabic Learning*, 8(1). <https://doi.org/10.18860/ijazarabi.v8i1.26521>
- Hilmi, D., Toifah, N., & Sadiyah, H. (2024). Linguistic intelligence in Arabic learning in Islamic religious college students. *Ta'lim Al-'Arabiyyah: Journal of Arabic Language and Arabic Language Education*, 8(2), 234–248. <https://doi.org/10.15575/jta.v8i2.37714>
- Issa, I. (2023). Morphological complexity in Arabic spelling and its implication for cognitive processing. *Journal of Psycholinguistic Research*, 52(1), 331–357.
- Kamal, H. (2025). Teaching Arabic today: Challenges, strategies, and opportunities in Islamic higher education. *International Journal of Learning, Teaching and Educational Research*, 24(10), 644–659.
- Khotijah, K., & Indriana, D. (2024). Improving Arabic Language Skills in the Digital Era to Realize Golden Indonesia 2045. *Al-Ittihad: Journal of Arabic Language Sciences and Education*, 16(2), 59–74.
- Kurniawan, D. S., & Fikriansyah, F. (2025). Learning Maharah Kalam with A Communicative Approach to Arabic Language Education Students at Raden Intan State Islamic University Lampung. *EDU SOCIETY: JOURNAL OF EDUCATION, SOCIAL SCIENCES AND COMMUNITY SERVICE*, 5(1), 422–431.
- Listanto, V., Arlinwibowo, J., Permatasari, A. D., Iftitah, K. N., & Anwas, E. O. M. (2025). Which is Better: E-Book or Printed Book? A Meta-Analysis of Educational Materials in Language Learning. *International Review of Research in Open and Distributed Learning*, 26(3), 170–192. <https://doi.org/10.19173/irrodl.v26i3.8468>
- Mayer, B. S. (2025). Digital informal learning through connectivism and networked learning: the case of Arabic culture groups. *Discover Education*, 4(1), 144.
- Moustafa, N., Saieed, M., Al-husseini, A., Dyl, R., & Qargha, G. O. (2026). Translating Egypt's Education 2.0 into Classroom Practice: Lessons from Arabic Language Instruction. Invisible Pedagogical Mindsets in Egypt: How Culture, Education Ecosystems, and Beliefs about Teaching and Learning Shape Education Reform. *Center for Universal Education at The Brookings Institution*.
- Muhksin, A., Suharto, T., Muharrom, F., & Jandra, M. (2025). Modern Educational Management Practices at Walisongo Islamic Boarding School, Sragen, Central Java to Welcome the Era of Society 5.0. *Journal of Science and Education (JSE)*, 5(2), 520–535.
- Mutambik, I. (2024). The Use of AI-Driven Automation to Enhance Student Learning Experiences in the KSA: An Alternative Pathway to Sustainable Education. *Sustainability (Switzerland)*, 16(14), 1–21. <https://doi.org/10.3390/su16145970>
- Nazhifah, S., & Syafe'i, I. (2025). An Analysis of Arabic Language Learning Problems in Madrasah Aliyah and Their Solutions. *Journal of Language and Literature of Scholars*, 1(3), 108–113.
- Rahmi, E. N., & Faza, A. M. (2024). A Phenomenological Study of Arabic Language Environment to Improve Students' Speaking Skills at Modern Islamic Boarding School. *Mantiq Tayr: Journal of Arabic Language*, 4(1), 232–256.

- Rosidah, RosidahNi'mah, M., Masun, H., Juaeriyah, K., & Maimuna. (2021). Blended Learning Approach in Arabic Learning. *Journal of Physics: Conference Series*, 1779(1), 1–5. <https://doi.org/10.1088/1742-6596/1779/1/012065>
- Sapitri, D., Khatimah, I., Risnawati, R., & Febiola, W. G. (2025). The relevance of Arabic in Islamic studies: Linguistic implications for understanding the Qur'an and Hadith. *SHAWTUL ARABIC*, 4(2), 231–238.
- Sauri, S., & Sanusi, A. (2024). Assessing of pedagogical competency of prospective teachers in teaching Arabic in schools: Suitable or not suitable. *Journal of Ecohumanism*, 3(7), 2509–2518. <https://doi.org/10.62754/joe.v3i7.4653>
- Seyidov, R., & Çitil, A. (2024). The impacts of contemporary educational technologies on learning Arabic. *Evolutionary Studies in Imaginative Culture*, 9(1).
- Suja, A., Nukman, N., Sofian, G. Y., Bahruddin, U., Hidayat, A. F. S., & Ridho, A. (2025). The role of morphology and syntax on Arabic language: A literature review. *Arabia: Journal of Arabic Language Education*, 17(1), 1–16. <https://doi.org/10.21043/arabia.v17i1.31598>
- Tazhenova, G., Mikhaylova, N., & Turgunbayeva, B. (2024). Digital media in informal learning activities. *Education and Information Technologies*, 29(16), 21673–21690. <https://doi.org/10.1007/s10639-024-12687-y>
- Ummah, V. R., & Albshkar, H. (2025). Navigating Arabic Language Education in Indonesia: Challenges, Methods, and Roles of Teacher Competencies. *Al-Fusha: Arabic Language Education Journal*, 7(2), 103–114. <https://doi.org/10.62097/alfusha.v7i2.2394>
- Yahya, Z. (2025). *Digital Diwan: Bridging the Digital Competency Gap for Educators in Iraq*.
- Zakiyah, Z., & Aditia, D. (2025). Implementation of Arabic Language Learning through the Contextual Teaching and Learning Model. *El-Syaker: Samarinda International Journal of Language Studies*, 2(3), 187–199. <https://doi.org/10.64093/esijls.v2i3.586>