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AI Chatbots, Learner Perception, and Linguistic Reliability in Arabic Language Learning

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Abstract

Learning Arabic in Indonesia remains difficult: students regard the language as rigid and memorisation-based, independent speaking practice is scarce, and classroom instruction offers little individual feedback. The Society 5.0 agenda positions intelligent technology as a partner to learning rather than a replacement for it, raising the question of what role conversational artificial intelligence can appropriately play in Arabic education. This study characterises AI chatbots as learning media for Arabic in the Society 5.0 era and identifies the obstacles and possible solutions associated with their use. A qualitative descriptive design was adopted in the Arabic Language Education programme at the State Islamic Institute of Curup, Indonesia, between February and May 2026, with two lecturers and thirteen sixth-semester students, using interviews, classroom observations, and an open-ended questionnaire analysed thematically. The study suggests that AI chatbots may serve as pedagogically bounded partners, most plausibly in expanding independent practice and supplying immediate feedback on form, vocabulary, and pronunciation, but such benefits are unlikely without teacher mediation and explicit attention to verification, digital literacy, and academic integrity. These implications are offered tentatively, given the single-site design, and point to a need for research measuring proficiency outcomes and how reliably models handle Arabic morphology.

Abstrak

Pembelajaran bahasa Arab di Indonesia masih menghadapi kesulitan: peserta didik memandang bahasa Arab sebagai mata pelajaran yang kaku dan bertumpu pada hafalan, kesempatan berlatih berbicara secara mandiri terbatas, dan pembelajaran kelas kurang memberi umpan balik individual. Agenda Society 5.0 menempatkan teknologi cerdas sebagai mitra pembelajaran, bukan penggantinya, sehingga muncul pertanyaan tentang peran yang tepat bagi kecerdasan artifisial percakapan dalam pendidikan bahasa Arab. Penelitian ini mendeskripsikan karakteristik chatbot AI sebagai media pembelajaran bahasa Arab di era Society 5.0 serta mengidentifikasi hambatan dan kemungkinan solusinya. Penelitian menggunakan desain deskriptif kualitatif pada program studi Pendidikan Bahasa Arab, Institut Agama Islam Negeri Curup, Indonesia, antara Februari hingga Mei 2026, dengan dua dosen dan tiga belas mahasiswa semester enam, melalui wawancara, observasi kelas, dan kuesioner terbuka yang dianalisis secara tematik. Kajian ini menunjukkan bahwa chatbot AI berpotensi menjadi mitra belajar yang terbatas secara pedagogis, terutama dalam memperluas latihan mandiri dan memberi umpan balik langsung atas bentuk, kosakata, dan pelafalan, tetapi manfaat itu kecil kemungkinannya terwujud tanpa mediasi dosen serta perhatian eksplisit pada verifikasi, literasi digital, dan integritas akademik. Implikasi ini disampaikan secara berhati-hati mengingat desain berlokasi tunggal, dan mengarah pada kebutuhan penelitian yang mengukur capaian kemampuan dan sejauh mana model bahasa menangani morfologi bahasa Arab.

الملخص

لا يزال تعلم اللغة العربية فى إندونيسيا يواجه صعوبات: إذ يرى الطلاب أن اللغة العربية مادة جامدة تعتمد على الحفظ، وفرص التدرب المستقل على المحادثة محدودة، ولا يوفر التعليم الصفى تغذية راجعة فردية كافية. ويضع برنامج المجتمع ٥,٠ التقنية الذكية شريكا للتعلم لا بديلا عنه، وهو ما يطرح سؤالا حول الدور المناسب للذكاء الاصطناعى الحوارى فى تعليم اللغة العربية. وتصف هذه الدراسة خصائص روبوتات الدردشة الذكية كوسيلة تعليمية للغة العربية فى عصر المجتمع ٥,٠، وتحدد العقبات والحلول الممكنة فى استخدامها. واستخدم التصميم الوصفى النوعى فى برنامج تعليم اللغة العربية بالمعهد الإسلامى الحكومى فى كروب، إندونيسيا، خلال فبراير إلى مايو ٢٠٢٦، بمشاركة محاضران وثلاثة عشر طالبا من الفصل السادس، عبر المقابلات والملاحظات الصفية والاستبانة

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المفتوحة التى حللت تحليلا موضوعيا. وتشير الدراسة إلى أن روبوتات الدردشة الذكية قد تعمل كشركاء تعلم محدودين تربويا، ولا سيما فى توسيع التدريب المستقل وتقديم تغذية راجعة فورية على الصيغة والمفردات والنطق، غير أن هذه الفوائد يستبعد تحققها دون وساطة المحاضر واهتمام صريح بالتحقق والثقافة الرقمية والنزاهة الأكاديمية. وتقدم هذه الآثار بحذر نظرا لتصميم الدراسة المحدود بموقع واحد، وهى توجه إلى الحاجة لبحوث تقيس مخرجات الكفاءة ومدى تعامل النماذج اللغوية مع الصرف والتشكيل فى العربية.

Keywords: AI chatbots; Arabic language learning; generative AI; learner autonomy; teacher mediation

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Introduction

In this study, the chatbot is referred to as a learning partner; this is not to suggest that it will substitute for the teacher or that it possesses human-like agency. Partnership here refers to the chatbot's capacity to enable learner-initiated discussion, to tailor explanations and practice exercises to immediate needs, and to provide iterative feedback on Arabic vocabulary, morphology (ṣarf), syntax (naḥw), vocalisation, and communicative practice. This perspective is particularly relevant in Arabic studies, where effective feedback must address not only generic language production but also Arabic-specific grammatical complexity, register, cultural context, and the relationship between form and meaning. The study therefore treats AI chatbots as pedagogically constrained partners: they may widen opportunities for individual practice, but teachers remain responsible for ethics, contextualisation, validation, and the development of critical language awareness.

Learning Arabic in Indonesia nevertheless continues to face persistent obstacles. Many students perceive Arabic as a difficult and rigid subject requiring extensive memorisation, which contributes to comparatively low interest in the language. The principal reported difficulties are the complexity of naḥw and ṣarf, limited access to interactive media, and the scarcity of an Arabic-speaking environment. Rather than quantifying this problem, the present study takes these conditions as its point of departure: it asks what forms of practice the digital generation might plausibly access when classroom time is insufficient for individualised feedback. These conditions suggest that conventional approaches alone are unlikely to meet the needs of learners whose daily environment is heavily mediated by digital technology. Comparative analysis of Arabic instruction in Indonesian pesantren and madrasah indicates that conventional methods remain dominant even where contemporary approaches are advocated (Mahbubi, 2024), which makes the question of supplementary media a practical rather than a theoretical one.

Members of Generation Z and Alpha inhabit educational settings shaped by continuous digital engagement, and they tend to prefer learning that is fast, flexible, interactive, and personalised (Alfurochmatin & Jusoh, 2024). Learning media capable of addressing two needs simultaneously are therefore required: they must help overcome linguistic difficulty and offer an experience congruent with learners' digital habits (Ritonga et al., 2024). It is within this context that AI-based chatbots have attracted attention as a potentially more immediate and relevant form of support. The Society 5.0 agenda, as formulated by the Japanese government, gives this expectation a policy frame: it envisages a human-centred society in which cyber and physical space are integrated and technology is oriented towards human needs rather than efficiency alone (Cabinet Office, 2016).

An AI chatbot is a program designed to interact in a human-like manner through conversation-based text or voice, drawing on natural language processing (Adamopoulou & Moussiades, 2020). The technology has become increasingly prominent in education because it is understood to increase involvement, deliver rapid feedback, and support personalised learning (Gu & Yu, 2025).

AI chatbots are particularly relevant to Arabic learning. Their capacity to generate text, supply vocalisation, simulate dialogue, correct grammatical form, and explain grammatical rules directly makes sustained speaking practice possible without the constraints of place and time. Their use may therefore be understood not only as technological innovation but also as a pedagogical strategy for fostering engagement with the language.

This situation raises an important question: to what extent can AI chatbots function as interactive learning media that strengthen students' interest in and motivation for learning Arabic in the Society 5.0 era? AI chatbots offer real-time interaction and feedback and can support personalised learning in ways that resemble some functions of a private tutor. Evidence from other language-learning contexts suggests that AI-supported environments may provide personalised interaction and may contribute to reducing foreign language anxiety (Wang et al., 2026; Zheng et al., 2025), although whether such effects extend to Arabic remains an open question.

Several conversational systems are frequently cited as examples for language learning, including ChatGPT (OpenAI), Google Gemini, and specialised Arabic tools such as Al-Maktabah Arabiah and Ask Qur'an AI. It should be noted that some tools commonly grouped with these are not conversational agents: Mishkal, for instance, is a diacritisation utility rather than a chatbot, and platforms such as Duolingo and Memrise are structured learning applications whose interaction model differs from open-ended conversational systems. Systematic evidence on the effectiveness of such tools is only beginning to accumulate (Barrot, 2024; Gu & Yu, 2025; Lee et al., 2025). Purpose-built conversational agents for language practice predate the recent expansion of large language models: EnglishBot, for instance, was designed to sustain second-language conversation with learners rather than to answer isolated queries (Ruan et al., 2021).

Not all educators and students are able to optimise the potential of AI chatbots as learning media. Recurring challenges include inconsistent linguistic accuracy, over-reliance on technology, uneven digital literacy among educators and learners, and questions of data privacy (Ding et al., 2024; Vallejo Blanxart & Nicolas Sans, 2025). These challenges warrant systematic empirical attention rather than anecdotal reporting. In Indonesia, the migration to online learning has itself exposed infrastructural constraints — uneven connectivity, data quotas, and unequal capacity for self-directed study — that condition how far any digital medium can be used (Riwanda et al., 2024).

Research on AI chatbots in language education has expanded rapidly, but the evidence base remains uneven in two respects. First, much of it concerns English and other widely taught languages; Arabic is comparatively under-represented despite posing distinctive computational and pedagogical challenges, including rich morphology, optional vocalisation, and the coexistence of Modern Standard Arabic with regional varieties (Alayba, 2025; Habash, 2010; Minaei-Bidgoli et al., 2026). Second, studies conducted in Indonesian Arabic-language programmes tend to examine technology adoption or media development rather than the learning interactions that chatbots actually make possible (Azka et al., 2024; Hanandeh et al., 2024; Idhan et al., 2026; Kamal, 2025).

In light of these gaps, this study addresses two questions. First, what characteristics do AI chatbots exhibit as learning media in Arabic language education, as experienced by lecturers and students in an Indonesian higher education setting? Second, what obstacles arise in their use, and what forms of support or solution do participants consider necessary?

Method

This study employed a qualitative descriptive design to examine lecturers' and students' experiences of using AI chatbots in Arabic language learning. The research was conducted in the Arabic Language Education programme at the State Islamic Institute of Curup between February and May 2026. Participants were selected through purposive sampling because they had experience using AI chatbots in the classroom learning process.

The sample comprised two lecturers and thirteen students from the sixth semester, with Arabic proficiency described as intermediate level.

Data were generated through semi-structured interviews, classroom or learning observations, an open-ended questionnaire, a documentation review, and relevant learning artefacts. The questionnaire was administered to participating students to obtain additional information about their patterns of AI chatbot use, perceived benefits, learning difficulties, and implementation challenges. Its open-ended responses were treated as qualitative textual data and analysed together with the interview and observation data through coding, categorisation, and thematic analysis. Each interview lasted approximately 30 minutes and was documented through detailed notes. The interview guide used open-ended questions about patterns of chatbot use, perceived benefits, difficulties, changes in learning practice, verification of responses, and expectations regarding teacher support.

The unit of analysis was each meaning-bearing segment in the interview transcripts, observation notes, questionnaire responses, and learning documents. Analysis proceeded in four stages: (1) repeated reading and open coding; (2) comparison and grouping of related codes into categories; (3) examination of relationships among categories and refinement into themes; and (4) review of themes against the full data set and the study questions. Categories were primarily inductive, while the research aims provided concepts for chatbot characteristics, challenges, and solutions.

Several procedures were employed to strengthen the credibility of the findings. Triangulation was conducted through two approaches: source triangulation, by comparing interview data across participants, and method triangulation, by comparing interview data with observation notes and learning documents. Member checking was carried out by returning interview transcripts and interpretation summaries to participants for verification; no substantial corrections were reported. Transferability was further supported through a detailed description of the institutional setting, the participants, and the conditions under which chatbot use occurred. Researcher reflexivity was treated as a central concern: the researchers maintained a reflective journal throughout data collection, and engaged in peer debriefing to interrogate the consistency of interpretation. The aim was to ensure that the findings represented participants' perspectives rather than the researchers' own assumptions.

Ethical procedures included informed consent, voluntary participation, anonymisation of data, and secure storage of transcripts. Because the researchers were affiliated with the same programme as the participating students, particular care was required: participation was explicitly optional and unconnected to assessment, students were invited to withdraw at any point without explanation, and consent was documented separately from course records. A related consideration concerns data privacy: where participants reported submitting course material to external chatbot services, the research team advised against sharing identifying or unpublished institutional content.

Results

Students' Use of AI Chatbots and Perceived Benefits

AI chatbots are capable of providing personalised learning and of adapting their responses to individual needs (Gu & Yu, 2025). Participants reported feeling more at ease practising speaking when they did not expect to be evaluated, and several described the chatbot as a learning companion that supported sustained practice.

The interview data indicated that chatbots, particularly ChatGPT, featured regularly in the students' Arabic learning activities. According to participants, chatbots were used principally for text translation, grammar learning, vocabulary development, and conversation practice.

A sixth-semester student described the interaction in these terms: "AI chatbot supports interactive Arabic learning, which allows students to ask, practice conversation, vocabulary, and grammar in a direct way

as well as get responses fast". A classmate drew attention to a different aspect of the same medium: "There is a voice note feature that makes it easier to communicate".

For the students who described them, AI chatbots functioned as an interactive learning medium capable of sustaining involvement. The technology made it possible for students to practise repeatedly without the embarrassment or fear of error that classroom conditions can produce, and the combination of conversational features with immediate responses allowed feedback to be obtained quickly.

Beyond serving as a means of requesting and receiving explanation, the questionnaire responses indicated that students used AI chatbots across a range of Arabic learning activities: translating Arabic texts into Indonesian, seeking mufradāt (vocabulary), practising conversation (muḥādathah), constructing sentences, understanding grammatical rules, and checking the ḥarakāt in Arabic texts.

This diversity of use suggests that AI chatbots served not merely as information-retrieval tools but as media capable of accommodating varied learner needs. In the Arabic context specifically, the capacity to generate immediate responses allowed students to obtain assistance with the problem in front of them rather than waiting for the next class session.

These accounts indicate that AI chatbots offered flexibility in supporting the development of language skills. Students were able to use the technology to improve their reading (qirāʾah), writing (kitābah), and speaking (kalām), and to enrich their general command of Arabic independently.

From the perspective of contemporary learning, AI chatbots support student-centred learning because students can study according to their individual needs and at their own pace. This is consistent with the characteristics of learning in the Society 5.0 era, which emphasises the integration of digital technology with human needs.

Interview data further indicated that several students considered AI chatbots more beneficial than conventional learning. The benefits described included support for independent study outside class, rapid and immediate feedback, easier comprehension of Arabic material, flexibility of use, a faster learning process, and assistance with conversation and translation.

Comparing chatbot use with conventional instruction, one student emphasised immediacy: "The benefits compared to the conventional is give feedback instant, can accessible when just make study more interesting and helpful student study in accordance with each student's abilities". Another placed the advantage in flexibility of access: "AI chatbots have many benefits compared to method study normal, which is more flexible because can used anywhere and anytime".

These accounts suggest that, for the students concerned, AI chatbots made Arabic learning more immediately accessible. The technology provided convenient access to learning materials in a fast and flexible manner, and students no longer depended entirely on face-to-face instruction because they could obtain assistance independently.

Independent Learning and Adaptive Practice

In addition, students described a form of adaptive practice: questions could be repeated as often as necessary without the social pressure that conventional classrooms sometimes generate. Questionnaire responses indicated that a number of students found chatbot use helpful for more independent study. The availability of immediate explanation allowed them to proceed without always depending on the lecturer or on classmates, which in turn gave them greater scope to manage their own learning in line with individual needs.

Independent learning is among the more prominent concerns in twenty-first-century education and in the Society 5.0 era. Through AI chatbots, students were able to choose the material they wished to study,

arrange their own study time, and repeat explanations as often as required, so that the learning process became more flexible and more learner-centred.

These accounts suggest that AI chatbots may encourage the formation of a more independent study culture among Arabic Language Education students: the greater the students' capacity to use the technology productively, the greater the opportunity to create effective and sustainable learning.

Students' Perceptions of the Relevance of AI Chatbots in the Era of Society 5.0

Beyond the academic benefits described above, questionnaire responses indicated that students regarded AI chatbots as a technology relevant to learning needs in the Society 5.0 era. They judged chatbot use capable of providing a more modern, flexible, and appropriate learning experience, consistent with the development of digital technology in their everyday lives.

Several questionnaire respondents reported that the presence of AI chatbots made the Arabic learning process feel more interesting than methods relying solely on lectures and textbook reading. The capacity to respond quickly, together with convenient access through digital devices, allowed students to experience learning that felt more dynamic and interactive.

The questionnaire responses indicate that respondents generally held positive perceptions of the integration of AI into Arabic learning, and such perceptions constitute an important foundation for the successful implementation of technology-based learning. To the extent that students use technology more extensively, the greater the opportunity to create a learning process that is effective, adaptive, and suited to the demands of the Society 5.0 era. It remains an open question, however, whether this potential extends to increased motivation and confidence in learning Arabic, since the present study did not measure either. The questionnaire findings are summarised in Table 1, which presents respondents' perceptions of AI chatbot utilisation in Arabic language learning and highlights the main benefits and considerations associated with its integration.

Table 1 Summary of findings on the utilisation of AI chatbots in Arabic language learning

Theme	Description	Illustrative Evidence
Use of AI chatbots	All respondents reported using AI chatbots, particularly ChatGPT, in Arabic language learning	Used for translating text, seeking vocabulary, practising conversation, understanding grammatical rules, and checking ḥarakāt
Interactive learning	AI chatbots enabled two-way interaction in a fast and sustained manner	Students could ask questions, request explanations, and obtain feedback immediately
Flexibility of study	AI chatbots could be used anywhere and at any time	Supported study outside class hours
Adaptive learning	Materials and explanations could be adjusted to student needs	Students could repeat questions according to their level of understanding
Independent study	AI chatbots encouraged students to study independently	Reduced dependence on lecturers and peers
Motivation and self-confidence	Chatbot use made the learning process more interesting and less anxiety-inducing	Students became more willing to attempt Arabic
Linguistic barriers	Errors remained in pronunciation, transliteration, and grammatical analysis	Some AI-generated answers were inconsistent in quality
Technical constraints	Chatbot use depended on internet quality and the ability to compose prompts	Inaccurate responses when instructions were unclear

Note. Source: Questionnaire responses of PBA students, IAIN Curup (2026).

Based on Table 1, the questionnaire responses associated the use of AI chatbots in Arabic language learning with benefits spanning academic, pedagogical, and psychological dimensions. They point to chatbots functioning not only as sources of information but also as interactive media supporting flexibility,

personalisation, and learner independence. At the same time, the study identified several obstacles requiring attention, particularly those concerning linguistic accuracy, the ability to formulate prompts, and the potential for technological dependence. The use of AI chatbots therefore needs to be integrated proportionally and accompanied by lecturer mentoring if its benefits are to be realised.

Although AI chatbots offer numerous benefits, the interview data revealed several constraints on their use, including errors in Arabic grammatical rules, inaccurate translations, limited contextual understanding, and dependence on internet access. The interviewees also expressed concerns about students' potential dependence on AI and emphasised the need for appropriate prompt formulation to obtain responses suited to learners' needs.

Students who had used chatbots over a longer period were more specific about their limitations. One described inconsistency in grammatical output: "*According to me, sometimes AI chatbots are lacking consistency, and still there is an error in rule-based speaking*". Another reported difficulty in judging the reliability of individual responses: "*The problem is sometimes nonsense: 'translation, pronunciation, and explanation'*".

Beyond technical and linguistic obstacles, questionnaire responses revealed a challenge relating to students' capacity to compose prompts or instructions when interacting with AI chatbots. Some respondents reported that the quality of a chatbot's answers depended heavily on the clarity of the question asked, and that insufficiently specific instructions produced answers poorly matched to learning needs.

This suggests that the use of AI chatbots is not solely a matter of technological ability but also requires adequate digital literacy. Students need to understand how to formulate questions effectively if they are to obtain accurate and relevant information. The ability to construct prompts should therefore be introduced within learning as part of digital literacy in the Society 5.0 era.

Some students also expressed concern about the potential for dependence on AI chatbots. The ease of obtaining answers instantaneously might lead some students to become less active in seeking sources independently and in analysing the material under study. The use of AI chatbots should therefore be directed toward supporting learning rather than becoming the sole source of study.

Although AI chatbots offer considerable advantages, their implementation continues to face challenges that must be addressed if they are to be effective in Arabic language education. The accuracy of chatbots is not yet fully stable, particularly in relation to grammatical rules and classical Arabic texts. Chatbots may produce inadequate examples or explanations, and therefore still require teacher mentoring as academic validation. Their use must accordingly be combined with teacher verification, positioning the technology as an aid rather than an authority.

Discussion

Chatbot as a partner for learner-initiated practice: what the data support and what they do not

The first theme concerns the use participants made of chatbots and the sense of a low-pressure practice space that several of them described. Students reported using these systems for translation, vocabulary work, grammar explanation, sentence construction, and conversation practice, and one participant characterised the interaction as one in which questions could be asked and answers obtained immediately. A second participant drew attention to the voice-note facility, which made spoken interaction more accessible.

This pattern is consistent with an emerging body of work in other language-learning contexts. Studies of AI chatbots in Korean and English learning report that conversational agents can be associated with greater willingness to communicate, plausibly because the absence of a human interlocutor reduces the fear of negative evaluation (Kim & Su, 2024; Zhang et al., 2024). Within Arabic teaching, reviews of listening instruction

identify foreign language anxiety as a principal barrier and propose affective strategies to address it (Ridha et al., 2025), while survey evidence from EFL settings records broadly favourable teacher and student perceptions of ChatGPT as a learning assistant (Slamet, 2024). Related work on large language models used as dialogue partners similarly reports associations with reduced foreign language anxiety and improved oral performance (Zheng et al., 2025). Read as a whole, this literature offers a coherent explanation for why participants in the present study might experience chatbot interaction as a comparatively unthreatening arena for experimentation.

Two qualifications are, however, necessary. The first concerns the evidentiary status of the present data. What the study documents is participant perception of a low-pressure environment, not a measured reduction in anxiety; no anxiety instrument was administered, and no pre- or post-measure was taken. The literature cited above rests on designs that do quantify such change, and the present findings cannot be transferred into that evidential space without further study. The second qualification concerns the possibility of novelty effects. Favourable responses to a newly available technology may reflect its unfamiliarity and convenience rather than durable improvement in competence, and the present design cannot distinguish between the two.

It would therefore be premature to conclude that chatbots cause increased confidence or reduce anxiety in Arabic learning. A more defensible reading is that they appear to lower the practical and social cost of initiating practice, and that this lower cost is a plausible, though as yet unverified, precondition for broader affective benefits.

Mediation, learner autonomy, and the question of over-reliance

The second theme concerns the balance participants struck between independent use and dependence. Several students described their learning as more self-directed, noting that explanations could be obtained without waiting for the lecturer or classmates, and that material could be revisited as often as required. At the same time, some participants expressed concern that immediate access to answers might reduce the incentive to consult sources independently or to analyse material for themselves.

This tension is well documented beyond the Arabic context. Research framed by self-determination theory indicates that the relationship between generative AI chatbots and student engagement is mediated by whether the interaction satisfies needs for competence and relatedness, and that teacher support remains a significant predictor even when chatbots are available (Li & Chiu, 2025). Studies of chatbot-mediated feedback reach a comparable conclusion from a different direction, finding that systems which supply answers readily may inhibit rather than facilitate the thinking that sustained language learning requires (Guo, 2025). In this light, the participants' apprehension is not idiosyncratic but reflects a pattern observed elsewhere.

There are two plausible readings of the present data, and the study cannot decide between them. On one reading, chatbot use genuinely redistributes classroom time away from routine explanation toward higher-order work, allowing lecturers to focus on verification and cultural interpretation; this is the interpretation closest to the "learning partner" framing set out at the outset. On the other reading, the autonomy students report is procedural rather than substantive: they may control when and where they study while the intellectual work of evaluating Arabic output continues to depend on the teacher. The evidence available here — self-report, without observation of how students actually adjudicated chatbot output — does not permit a confident choice, and it would be overstating the case to claim that the data demonstrate a transformation of the learner's role.

A further consideration concerns academic integrity. Although participants did not raise plagiarism directly, the broader literature suggests that the ease of generating text in a target language complicates the boundary between assistance and substitution, and that institutions have been slow to develop adequate responses (Phornprasert et al., 2026). In the present study this issue remains latent rather than reported, and its treatment here therefore rests on inference from the wider literature rather than on participant testimony.

Linguistic reliability in Arabic: morphology, vocalisation, and register

The third theme, and the one on which this study may contribute most distinctively, concerns the reliability of chatbot output in Arabic. Participants reported errors in grammatical analysis, inconsistent quality in translation, and difficulty obtaining correct vocalisation. The questionnaire responses further indicated that some students had begun to check chatbot output against other sources precisely because they did not trust it consistently.

These reports are consistent with what is known about Arabic natural language processing. Arabic presents difficulties that are more acute than those of many widely resourced languages: its morphology is rich and non-concatenative, vocalisation is frequently omitted in ordinary text, and Modern Standard Arabic coexists with regional varieties that differ substantially in vocabulary and syntax (Alayba, 2025; Habash, 2010). Purpose-built systems have begun to address this variation directly: a multimodal chatbot developed for Moroccan Arabic, for instance, targets a variety that differs markedly from the standard (El Alaoui & Cavalli-Sforza, 2025). The problem is not merely one of scale. Recent multi-corpus evaluation of mainstream Arabic morphological analysers has shown that their performance varies markedly across domains, with accuracy in classical religious and jurisprudential texts differing from that in modern prose (Minaei-Bidgoli et al., 2026). This finding is directly relevant to the present study: the texts that Arabic students most often encounter — Qur'anic passages, ḥadīth, and classical scholarly prose — are precisely those in which automated morphological analysis is least reliable.

The introduction of vocalisation is a related but distinct difficulty. An automatic diacritisation tool developed for Arabic sentence learning has been shown to hold genuine pedagogical potential while remaining vulnerable to error in ambiguous contexts (Rizki et al., 2025). A chatbot that supplies incorrect vocalisation is not simply unhelpful: for learners who lack the competence to detect the error, it may inculcate an incorrect form.

The counter-argument deserves statement. Conversational systems are improving rapidly, and their capacity to handle Arabic has increased considerably in a short period; the errors reported by participants may therefore reflect the particular models and versions available to them rather than a durable limitation of the technology. Systematic reviews of generative AI in language classrooms similarly note that reported limitations often lag behind current capability (Lee et al., 2025). The present study cannot adjudicate this question because it did not record which model versions were used.

What can be said with reasonable confidence is that the specific linguistic vulnerability identified here — morphology, vocalisation, and register in Arabic — is well grounded independently of the participants' reports. This suggests that the contribution of Arabic-language education research lies less in restating general findings about chatbot effectiveness than in documenting where AI output fails in Arabic, and in preparing learners to recognise such failures.

Verification, digital literacy, and the conditions under which benefits are realised

The fourth theme concerns the conditions participants considered necessary for chatbots to be useful rather than harmful. Students observed that the quality of a chatbot's response depended heavily on the precision of the question asked, and that vague instructions produced answers poorly matched to their learning needs. Several accordingly identified the ability to formulate effective prompts as a skill they needed to acquire. Lecturers, in the framing established earlier, were seen as responsible for validation and for ensuring that reliance on the technology did not displace critical engagement.

This aligns with analyses of teacher professional development, which indicate that integrating AI tools effectively depends less on access to the technology than on opportunities to examine concrete cases of its use and misuse (Ding et al., 2024). It also aligns with conceptual work on generative AI in higher education that identifies privacy and ethics as practical rather than theoretical concerns for students, particularly where

institutional guidance is absent (Vallejo Blanxart & Nicolas Sans, 2025). In the Indonesian Arabic-language context specifically, evidence indicates that the benefits of learning technology are realised unevenly and depend on teacher preparedness and institutional support (Idhan et al., 2026; Kamal, 2025; Ritonga et al., 2024). Survey work applying the extended UTAUT2 model to AI-driven Arabic learning likewise treats adoption as a behavioural outcome shaped by expectancy, social influence, and facilitating conditions rather than by the availability of the tool alone (Al-Jamali & Suliman Abdalla, 2025).

A contrary position deserves consideration, however. If participants attributed the difficulty to their own prompting, that attribution may itself be misplaced. Independent evaluation of large language models on Arabic grammatical analysis has found that their competence in iʿrāb — the assignment of case and mood — remains limited even when prompts are carefully constructed (AlKhaluqi & Al-Ghamdi, 2026). Work on Arabic grammatical error correction likewise shows that systematic error persists across categories rather than being confined to ambiguous cases (Alrehili & Alhothali, 2025), and comparative assessment of Arabic–English translation has documented recurring inaccuracies that do not disappear with prompt refinement (Mohammed, 2025). On this reading, the burden of verification would be better understood as a consequence of immature technology than as a deficit in learner competence. Placing the remedy entirely with students risks shifting responsibility away from the institutions and developers who determine what these systems can do (Dabis & Csáki, 2024).

The two readings are not mutually exclusive, and the present data cannot adjudicate between them. Prompt literacy may genuinely improve outcomes while still leaving a residue of error that no prompting strategy can eliminate. What the study can state with confidence is that participants themselves framed the constraint as personal — a framing that further research should examine rather than assume.

Taken across the four themes, the evidence assembled here points to a conditional conclusion. AI chatbots appear to widen access to practice and to make immediate feedback more readily available, but the pedagogical value of those affordances depends on whether verification is taught, whether linguistic limits are understood, and whether institutional protections are in place. On the present data, the appropriate characterisation is not that chatbots replace or rival teachers, but that they introduce a new set of tasks — verification, source criticism, and prompt formulation — for which learners require explicit preparation.

Conclusion

This study suggests that the contribution of AI chatbots to Arabic language learning is conditional rather than intrinsic. Where conversational systems lower the cost of beginning to practise, the long-standing scarcity of speaking practice in Arabic teaching shifts from a problem of contact hours to a problem of judgement: deciding which output to trust and equipping learners to make that decision themselves. The teacher's authority is thereby relocated rather than reduced, moving from supplying corrections to certifying what counts as correct.

Arabic is an exacting test of that relocation. Its grammatical system, optional vocalisation, and the distance between classical and contemporary registers make the boundary between reliable and unreliable machine output unusually difficult for a learner to locate unaided. The evidence presented here is nonetheless limited: it rests on a single programme, a purposefully selected sample of fifteen participants, self-reported experience, and illustrative rather than representative quotations. No measure of proficiency, motivation, or anxiety was taken, and the chatbot versions used were not recorded. The lecturers' accounts remain under-represented, and the treatment of academic integrity rests on inference from the literature rather than on participant testimony.

Three directions follow. Research should measure competence directly across the four skills and across the registers Arabic teaching actually employs, rather than relying on reported experience. A systematic catalogue of authentic chatbot errors in Arabic morphology, vocalisation, and register would give teachers

concrete material for teaching verification. In practice, institutions should treat prompt literacy and source criticism as curricular content rather than incidental skills, and should settle questions of data privacy and of the boundary between assistance and substitution before they arise in assessment.

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Conflict of Interest

The authors declare that there is no conflict of interest regarding the publication of this article.

Declaration of AI Use

During the preparation of this manuscript, the authors used ChatGPT, Deepseek and consensus AI to assist with purpose for language editing, grammar checking, or idea organization. The authors carefully reviewed and edited the content generated with the assistance of AI and take full responsibility for the final content of this manuscript. All AI- assisted outputs were carefully reviewed, edited, and verified by the author. The author takes full responsibility for the accuracy, integrity, originality, and final content of the manuscript.

References

Adamopoulou, E., & Moussiades, L. (2020). An overview of chatbot technology. In *IFIP advances in information and communication technology* (pp. 373–383). Springer. https://doi.org/10.1007/978-3-030-49186-4_31

Alayba, A. M. (2025). Arabic natural language processing (NLP): A comprehensive review of challenges, techniques, and emerging trends. *Computers, 14*(11), 497. https://doi.org/10.3390/computers14110497

Alfurochmatin, A., & Jusoh, A. M. B. M. (2024). Tren pengembangan media pembelajaran bahasa Arab di Indonesia era 5.0 [Trends in the development of Arabic learning media in Indonesia in the 5.0 era]. *Alsina: Journal of Arabic Studies, 6*(1), 1–26. https://doi.org/10.21580/alsina.6.1.21278

Al-Jamali, S., & Suliman Abdalla, S. Z. (2025). Behavioral determinants of AI-driven Arabic language learning: Insights from the extended UTAUT2 model. *Educational Process: International Journal, 16*(1). https://doi.org/10.22521/edupij.2025.16.282

AlKhaluqi, R., & Al-Ghamdi, S. (2026). IraabMCQs: Evaluating Arabic Iraab competence in large language models. In *2026 IEEE 5th International Conference on Computing and Machine Intelligence (ICMI)* (pp. 1–6). IEEE. https://doi.org/10.1109/ICMI68585.2026.11539792

Alrehili, A., & Alhothali, A. (2025). Tibyan corpus: Balanced and comprehensive error coverage corpus using ChatGPT for Arabic grammatical error correction. *PeerJ Computer Science, 11*, Article e2724. https://doi.org/10.7717/peerj-cs.2724

Azka, L., Hafsoh, U. N., & Ibrahim, F. M. A. (2024). The challenges of learning Arabic listening skills using YouTube as a learning tool. *Alsina: Journal of Arabic Studies, 6*(2), 229–246. https://doi.org/10.21580/alsina.6.2.23369

Barrot, J. S. (2024). ChatGPT as a language learning tool: An emerging technology report. *Technology, Knowledge and Learning, 29*(2), 1151–1156. https://doi.org/10.1007/s10758-023-09711-4

Cabinet Office, Government of Japan. (2016). *Society 5.0*. https://www8.cao.go.jp/cstp/english/society5_0/index.html

Dabis, A., & Csaki, C. (2024). AI and ethics: Investigating the first policy responses of higher education institutions to the challenge of generative AI. *Humanities and Social Sciences Communications, 11*(1), Article 1006. https://doi.org/10.1057/s41599-024-03526-z

Ding, A.-C. E., Shi, L., Yang, H., & Choi, I. (2024). Enhancing teacher AI literacy and integration through different types of cases in teacher professional development. *Computers and Education Open, 6*, 100178. https://doi.org/10.1016/j.caeo.2024.100178

El Alaoui, H., & Cavalli-Sforza, V. (2025). DarijaGenie: Learning Moroccan Arabic through a multimodal chatbot. In B. Hdioud & S. L. Aouragh (Eds.), *Arabic language processing: From theory to practice* (pp. 74–89). Springer. https://doi.org/10.1007/978-3-031-79164-2_7

Gu, W., & Yu, Z. (2025). A bibliometric analysis of the application of AI chatbots in language learning contexts. *Quality & Quantity, 59*(1), 639–661. https://doi.org/10.1007/s11135-024-01946-2

Guo, X. (2025). Facilitator or thinking inhibitor: Understanding the role of ChatGPT-generated written corrective feedback in language learning. *Interactive Learning Environments, 33*(5), 3526–3544. https://doi.org/10.1080/10494820.2024.2445177

Habash, N. Y. (2010). *Introduction to Arabic natural language processing*. Morgan & Claypool. https://doi.org/10.2200/S00277ED1V01Y201008HLT010

Hanandeh, A., Ayasrah, S., Kofahi, I., & Qudah, S. (2024). Artificial intelligence in Arabic linguistic landscape: Opportunities, challenges, and future directions. *TEM Journal, 13*(4), 3137–3145. https://doi.org/10.18421/TEM134-48

Idhan, M., Jabir, M., Ruslin, R., Asmawi, M. N., Arafah, B., Ubadah, & Ubay. (2026). Teachers' experiences with mobile apps for Arabic language learning: Insights from Islamic schools in Palu, Indonesia. *Journal of Language Teaching and Research, 17*(1), 338–350. https://doi.org/10.17507/jltr.1701.34

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. https://doi.org/10.26803/ijlter.24.10.31

Kim, A., & Su, Y. (2024). How implementing an AI chatbot impacts Korean as a foreign language learners' willingness to communicate in Korean. *System, 122*, 103256. https://doi.org/10.1016/j.system.2024.103256

Lee, S., Choe, H., Zou, D., & Jeon, J. (2025). Generative AI (GenAI) in the language classroom: A systematic review. *Interactive Learning Environments, 34*(1), 335–359. https://doi.org/10.1080/10494820.2025.2498537

Li, Y., & Chiu, T. K. F. (2025). The mediating effects of needs satisfaction on the relationship between teacher support and student engagement with generative artificial intelligence (GenAI) chatbots from a self-determination theory (SDT) perspective. *Education and Information Technologies, 30*(14), 20051–20070. https://doi.org/10.1007/s10639-025-13574-w

Mahbubi, A. (2024). Conventional and contemporary Arabic language teaching methods: A comparative analysis. *Alsina: Journal of Arabic Studies, 6*(2), 205–228. https://doi.org/10.21580/alsina.6.2.23307

Minaei-Bidgoli, B., Alshuhayeb, H., & Hossayni, S.-A. (2026). Domain sensitivity in Arabic morphological analysis: A multi-corpus evaluation of Farasa, CAMeL, and ALP across modern, classical religious, and classical jurisprudential domains. *Journal of Open Humanities Data, 12*, Article 18. https://doi.org/10.5334/johd.418

Mohammed, T. A. S. (2025). Evaluating translation quality: A qualitative and quantitative assessment of machine and LLM-driven Arabic-English translations. *Information, 16*(6), Article 440. https://doi.org/10.3390/info16060440

Phornprasert, W., Nuankaew, W. S., & Nuankaew, P. (2026). Artificial intelligence and the transformation of academic integrity in higher education: A systematic review. *International Journal of Advanced*

Computer Science and Applications, 17(6), 501–511. https://doi.org/10.14569/IJACSA.2026.0170649

Ridha, M. R., Nurkholis, M. A., Nikmah, K., Himam, A. S., Ibadillah, B. I., & Hamzah, A. M. (2025). Optimizing Arabic listening skills: A systematic review and the proposal of an integrated suggestopedic brain-based learning (ISBBL) model. *Alsina: Journal of Arabic Studies, 7*(2), 161–200. https://doi.org/10.21580/alsina.7.2.27815

Ritonga, M., Mudinillah, A., Wasehudin, W., Julhadi, J., Amrina, A., & Shidqi, M. H. (2024). The effect of technology on Arabic language learning in higher education. *Journal of Education and Learning (EduLearn), 18*(1), 116–127. https://doi.org/10.11591/edulearn.v18i1.20867

Riwanda, A., Ridha, M., & Islamy, M. I. (2024). Empowering asynchronous Arabic language learning through PDF hyperlink media. *The International Review of Research in Open and Distributed Learning, 25*(1), 66–88. https://doi.org/10.19173/irrodl.v25i1.7425

Rizki, R. B., Rizal, M. F., Rahmawati, C., Bachrudin, M. A., Farhani, S., & Batul, Z. (2025). Qalam AI: A study on the potential of automatic ḥarakat detection for Arabic sentence learning. *Alsina: Journal of Arabic Studies, 7*(2), 285–316. https://doi.org/10.21580/alsina.7.2.27500

Ruan, S., Jiang, L., Xu, Q., Liu, Z., Davis, G. M., Brunskill, E., & Landay, J. A. (2021). EnglishBot: An AI-powered conversational system for second language learning. In *Proceedings of the 26th International Conference on Intelligent User Interfaces* (pp. 434–444). ACM. https://doi.org/10.1145/3397481.3450648

Slamet, J. (2024). Potential of ChatGPT as a digital language learning assistant: EFL teachers' and students' perceptions. *Discover Artificial Intelligence, 4*(1), Article 46. https://doi.org/10.1007/s44163-024-00143-2

Vallejo Blanxart, A., & Nicolas Sans, R. (2025). The role of generative AI chatbots in higher education: A student-centric conceptual analysis of benefits, ethics, and privacy concerns. *Journal of Technology and Science Education, 15*(3), Article 810. https://doi.org/10.3926/jotse.3643

Wang, S., Cui, Y., & Pan, X. (2026). Research on the impact of artificial intelligence on EFL learners' foreign language anxiety. *Frontiers in Psychology, 17*, Article 1847269. https://doi.org/10.3389/fpsyg.2026.1847269

Zhang, D., Wu, J. G., & Fu, Z. (2024). From shy to fly: Facilitating EFL learners' willingness to communicate with an AI chatbot and an intelligent tutoring system. *System, 127*, 103501. https://doi.org/10.1016/j.system.2024.103501

Zhang, W. (2026). The impact of AI chatbots on EFL learners' oral proficiency and willingness to communicate. *System, 136*, 103919. https://doi.org/10.1016/j.system.2025.103919

Zheng, Y.-B., Zhou, Y.-X., Chen, X.-D., & Ye, X.-D. (2025). The influence of large language models as collaborative dialogue partners on EFL English oral proficiency and foreign language anxiety. *Computer Assisted Language Learning, 39*(4), 1092–1118. https://doi.org/10.1080/09588221.2025.2453191