:: JEET ::
(Journal of English Education and Technology)
Volume 06 Number 01 2025
This work is licensed under a Creative Commons Attribution- ShareAlike 4.0 International License.
ISSN : 2721-3811 (ONLINE)

PROJECT-BASED AND TECHNOLOGY-ENHANCED ARABIC LANGUAGE EDUCATION

ABDUL RO'UF[1], BIJAK MUHAMMAD MUTTANABI[2], MUHAMAD WILDAN[3], AND MUHAMMAD A'INUL HAQ[4]
Universitas Kiai Abdullah Faqih Gresik
ainulfelays77@gmail.com

First Received: Sept. 15 2024 Final Proof Received: March. 25 2025

ABSTRACT

This article synthesises research published between 2020 and 2025 on project-based learning (PjBL) and technology-enhanced Arabic language education, with particular attention to language skills, learner engagement, curriculum innovation, feasibility, equity, and source-informed assessment. A structured integrative review examined publicly accessible academic search services, journal platforms, publisher records, and DOI-indexed sources. Sixteen core studies met the inclusion criteria. The synthesis identifies four patterns. The synthesis distinguishes reported outcomes from design recommendations. PjBL supports integrated speaking, writing, reading, listening, literacy, and higher-order thinking when learners use Arabic to create authentic artefacts. Digital tools extend multimodal input, practice, feedback, and autonomy, but their value depends on pedagogical alignment, teacher mediation, and equitable access. Engagement and confidence improve when tasks are contextualised and differentiated. Persistent constraints include teacher readiness, infrastructure, time, uneven digital competence, and limited longitudinal assessment. The article proposes an integrated PjBL–technology framework linking contextual questions, scaffolded input, collaborative inquiry, digital production, authentic assessment, and reflective revision. The framework is deliberately adaptable to blended, mobile, and low-technology classrooms. Although the evidence is Arabic-focused, the framework has transferable implications for multilingual and English-mediated language education in the Global South. Future studies should test the framework through longitudinal and mixed-methods designs for transfer.

Keyword: Arabic language education; project-based learning; educational technology; learner engagement; curriculum innovation.

I. INTRODUCTION

Arabic language education is undergoing a significant transition as schools, universities, and Islamic educational institutions respond to changes in learner characteristics, digital communication, and curriculum expectations. Contemporary Arabic instruction is expected to develop not only linguistic knowledge but also communicative competence, critical thinking, collaboration, creativity, and the ability to use Arabic meaningfully in academic and social contexts. Yet classroom

This work is licensed under a Creative Commons Attribution- ShareAlike 4.0 International License.
ISSN : 2721-3811 (ONLINE)

practice frequently remains centered on teacher explanation, grammar translation, vocabulary memorization, and discrete exercises. This tension has encouraged researchers to explore pedagogies that connect language learning with authentic tasks and digital environments.

Project-Based Learning (PjBL) is particularly relevant to this transformation because it organizes learning around a meaningful question, sustained inquiry, collaborative production, and a tangible artefact or performance. In general education, PjBL has been associated with cognitive, affective, and behavioural outcomes, especially when students create authentic products and receive structured guidance (Almulla, 2020; Guo et al., 2020). In Arabic language education, recent studies have extended this logic to speaking projects, writing tasks, digital learning media, literacy development, and web-based projects. Marzuq et al. (2021), for example, combined project-based learning with blended learning in an Arabic learning-media course, while Muid et al. (2022) reported that project-oriented instruction supported Arabic speaking development through repeated, purposeful language use.

The growth of educational technology creates a second major line of innovation. Web platforms, mobile applications, interactive media, and multimodal resources can expand exposure to Arabic, support independent practice, and provide opportunities for audio, text, image, and interactive feedback. Recent Arabic education studies have examined mobile applications for contextual learning and grammar, learner acceptance of speaking applications, and web-based project environments (Paputungan et al., 2024; Rahmah et al., 2024; Yahaya et al., 2024; Aedi et al., 2025). A recent systematic review further shows that technology integration in Arabic curricula is moving toward more flexible, interactive, and learner-centered models, although sustainability and pedagogical coherence remain major concerns (Sapawi and Nik Yusoff, 2025).

Despite this growth, PjBL and technology are often discussed as separate innovations. Some studies focus on project syntax without examining the digital affordances that make project work more authentic, while others focus on applications or platforms without embedding them in a coherent student-centred learning model. Consequently, curriculum developers still need a clearer synthesis of how projects and technology can be combined to improve the four Arabic language skills, learner engagement, literacy, and independent learning while preserving structured linguistic scaffolding.

This article therefore reviews research published between 2020 and 2025 on PjBL and technology-enhanced Arabic language education. It addresses three questions: (1) What learning outcomes are consistently associated with PjBL and technology-enhanced Arabic instruction? (2) What pedagogical mechanisms explain

This work is licensed under a Creative Commons Attribution- ShareAlike 4.0 International License.
ISSN : 2721-3811 (ONLINE)

improvements in language skills and engagement? and (3) What curriculum design principles and research gaps emerge from the recent literature? The review aims to provide a practical conceptual framework that can guide Arabic language teachers, curriculum developers, and researchers in designing communicative and digitally adaptive learning environments.

The review is relevant to JEET because Arabic is taught alongside English and Indonesian in many Islamic institutions. It offers a Global South perspective on multilingual digital pedagogy and identifies design principles that can inform English-mediated and translingual projects without claiming that Arabic findings automatically establish English learning effects.

The review contributes an evidence synthesis, an integrated PjBL–technology sequence with explicit scaffolding and assessment, and implications for multilingual and English-mediated language education. Its central proposition is conditional: technology becomes educationally valuable when it serves a meaningful language task, is supported by teacher judgement, and is evaluated through evidence of learning.

II. THEORETICAL AND CONCEPTUAL FRAMEWORK

Project-Based Learning in Arabic Language Education

PjBL positions language as a tool for accomplishing a meaningful task rather than as an isolated object of study. This orientation is important in Arabic education because students frequently know grammatical rules but have limited opportunities to mobilize vocabulary and structures in sustained communication. In PjBL, the requirement to plan, discuss, write, revise, present, and evaluate a project creates repeated cycles of language use. Arabic-focused studies from 2021–2024 indicate that these cycles can support speaking, writing, literacy, and higher-order thinking (Marzuq et al., 2021; Mufti, 2022; Muid et al., 2022; Fitria and Abidin, 2023; Luhulima, 2024).

The strongest contributions of PjBL appear when students produce authentic artefacts such as presentations, multimedia learning products, written texts, or web-based projects. Such products provide a concrete communicative purpose and can be assessed through linguistic accuracy, fluency, content quality, collaboration, and creativity. The approach also encourages students to negotiate meaning with peers, search for vocabulary, revise language, and connect Arabic with real topics. However, PjBL may become cognitively demanding when the project is too complex or when language scaffolding is insufficient. For this reason, recent differentiated

This work is licensed under a Creative Commons Attribution- ShareAlike 4.0 International License.
ISSN : 2721-3811 (ONLINE)

PjBL research recommends adapting project complexity, resources, and teacher support to learners' proficiency levels (Rahman et al., 2024).

PjBL is relevant to Arabic because it reconnects rule explanation with communicative use. Learners notice a form in input, test it in a draft, receive feedback, and use it in an artefact for an audience. Classroom exhibitions, recorded dialogues, annotated translations, and portfolios can provide authentic endpoints without the risks of unrestricted publication. Haq et al. (2025) and Lubaba and Aziz (2026) support this conditional account.

Technology-Enhanced Arabic Language Learning

Technology-enhanced Arabic learning includes web-based environments, mobile-assisted language learning, interactive applications, multimedia, and digitally mediated projects. These technologies can support language learning by increasing exposure, enabling repetition, integrating native-speaker audio, visualizing vocabulary and grammar, and extending learning beyond classroom time. Zulkepli et al. (2024) emphasize the pedagogical potential of mobile applications for Arabic acquisition, while Yahaya et al. (2024) found high student acceptance of the TAKALLAM mobile application for speaking practice. Paputungan et al. (2024) similarly developed a contextual mobile application for Arabic learning and reported strong validation and positive user responses.

The value of technology is not automatic. Rahmah et al. (2024) found a need for web-based project learning partly because teachers and students still relied on traditional materials and low levels of active language practice. Aedi et al. (2025) likewise identified a technology-adoption paradox: students were familiar with digital tools, yet many did not use smartphones systematically for Arabic learning. Their findings suggest that curriculum alignment, interactive feedback, multimodal scaffolding, and teacher confidence are more important than device ownership alone. Sapawi and Nik Yusoff (2025) reinforce this point by showing that effective technology integration requires pedagogical strategy, curriculum coherence, and sensitivity to cultural and institutional contexts.

Digital access is uneven. UNESCO (2023) warns that technology may reproduce inequality when adoption is driven by availability rather than learning need. Arabic teachers should provide low-technology alternatives, protect learner data, and distinguish platform engagement from language achievement, concerns central to technology agenda.

Translanguaging and Multilingual Learning

Arabic learning in Islamic educational institutions is frequently multilingual. Learners may read classical or Modern Standard Arabic, discuss meaning in Indonesian, and use English for international exchange or academic dissemination. Translanguaging describes the strategic mobilisation of a learner's whole linguistic

This work is licensed under a Creative Commons Attribution- ShareAlike 4.0 International License.
ISSN : 2721-3811 (ONLINE)

and semiotic repertoire to construct meaning, participate, and solve problems (García & Wei, 2014). It should not be reduced to unrestricted code-switching or to a replacement for Arabic input. Its pedagogical value lies in making difficult reasoning accessible while keeping the relationship between source language, interpretation, and communicative purpose visible.

Recent work supports a structured rather than romanticised account of multilingual practice. Aziz and Siddik (2026) show how Arabic–English repertoires can support reading comprehension by enabling learners to build metacognitive bridges between grammatical systems. Canals (2022) and Yüzlü and Dikilitaş (2022) likewise connect language choice with interactional feedback and criticality. For PjBL, students should explain why a term remains in Arabic, why an Indonesian paraphrase is needed, or how an English caption preserves the intended meaning. Such documentation turns multilingual practice into an assessable learning process.

Toward an Integrated PjBL–Technology Framework

Bringing these strands together suggests that technology should function as part of the project process rather than as an optional add-on. A digital Arabic project can begin with a contextual driving question, provide multimodal input, organize collaborative inquiry, support drafting and rehearsal, and culminate in a publicly meaningful artefact such as a digital story, web page, podcast, video dialogue, infographic, or interactive presentation. The teacher's role shifts from sole knowledge transmitter to designer of language scaffolds, formative feedback, assessment rubrics, and differentiated support. This integration has the potential to connect the communicative aims of Arabic education with the digital practices of contemporary learners.

The framework is also compatible with the technological pedagogical content knowledge perspective. Teachers need to know not only how a platform operates, but what Arabic feature it can make learnable, what misconception it may generate, and what form of feedback it enables. A speaking application may support repeated pronunciation, yet it cannot by itself explain a discourse choice. A web page may increase audience awareness, yet it cannot guarantee that a quotation has been interpreted correctly. Curriculum design must therefore begin with language and learning outcomes, then select technology that provides a proportionate affordance.

III. METHOD

Research Design

This study used a structured integrative literature review. The purpose was not to calculate a pooled effect size, but to synthesize recent empirical and conceptual

This work is licensed under a Creative Commons Attribution- ShareAlike 4.0 International License.
ISSN : 2721-3811 (ONLINE)

evidence concerning PjBL and technology-enhanced Arabic language education. The review focused on publications from January 2020 through December 2025 so that the synthesis reflected post-pandemic developments in digital learning, project pedagogy, mobile learning, and curriculum innovation.

Searches were conducted through publicly accessible academic search services, journal websites, publisher platforms, and DOI-indexed records. Search combinations included Arabic language education, Arabic language learning, project-based learning, PjBL, web-based learning, mobile application, speaking skill, Arabic literacy, digital media, and technology integration. Reference lists of relevant papers were also examined to identify closely related studies.

Studies were included when they: (1) were published between 2020 and 2025; (2) addressed Arabic language teaching, Arabic language learning, or a directly relevant PjBL framework; (3) reported empirical findings, development evidence, or a systematic synthesis relevant to pedagogy; and (4) provided sufficient methodological or outcome information for thematic comparison. Studies published outside the date range, papers unrelated to language education, and records with insufficient information were excluded. Sixteen core publications were retained for detailed synthesis.

For each study, information was extracted concerning year, educational level, research design, pedagogical approach, technology or project type, targeted language skills, learner outcomes, and reported implementation challenges. The studies were then coded thematically. Five recurring analytical themes emerged: (1) language-skill development, (2) learner engagement and collaboration, (3) digital autonomy and accessibility, (4) differentiated scaffolding and teacher mediation, and (5) curriculum and implementation constraints. Findings were compared across studies to identify convergent patterns and unresolved research gaps.

Source Selection and Scope

Searches covered January 2020 through December 2025 and used combinations of Arabic language education, Arabic language learning, project-based learning, PjBL, web-based learning, mobile application, speaking skill, Arabic literacy, digital media, technology integration, learner engagement, and curriculum innovation. Publicly accessible academic search services, journal websites, publisher platforms, and DOI-indexed records were examined. Reference lists of relevant papers were also checked. The review retained sixteen core studies that addressed Arabic teaching or learning, PjBL, technology-enhanced pedagogy, or a directly relevant curriculum framework. Table 1 presents fourteen representative studies; the remaining core sources provide broader theoretical or review evidence.

Studies were included when they were published within the date range, addressed Arabic language teaching or learning, reported empirical findings,

This work is licensed under a Creative Commons Attribution- ShareAlike 4.0 International License.
ISSN : 2721-3811 (ONLINE)

development evidence, or a systematic synthesis, and provided enough methodological or outcome information for thematic comparison. Records were excluded when they merely described a platform without educational analysis, lacked a verifiable bibliographic record, or did not address language learning. Canonical works were retained when they offered a necessary conceptual foundation for PjBL, translanguaging, technology integration, or curriculum design. Because the search was focused and publicly accessible rather than exhaustive, the review does not claim PRISMA compliance or a complete census of the field.

Data Extraction, Quality Appraisal, and Analysis

For each study, information was extracted concerning publication year, educational level, research design, pedagogical approach, technology or project type, targeted language skills, learner outcomes, and implementation challenges. The studies were then coded thematically. Five recurring analytical themes were used: language-skill development, learner engagement and collaboration, digital autonomy and accessibility, differentiated scaffolding and teacher mediation, and curriculum alignment and assessment. During appraisal, findings were classified as empirical outcomes, design evidence, or conceptual recommendations. This classification prevented a proposed benefit from being presented as an established effect.

The synthesis mapped descriptive patterns, compared convergences and contradictions, and translated recurring mechanisms into an integrated framework. Claims were treated as more transferable when they appeared across designs and had an explicit mechanism; claims based on perceptions, small samples, short interventions, or development studies remained provisional.

IV. RESULTS AND DISCUSSION

RESULT

Profile of the Reviewed Evidence

The reviewed literature reflects a rapid expansion of student-centred and technology-enhanced approaches in Arabic language education. Earlier publications in the review period emphasize project pedagogy and blended course design, while 2024–2025 studies increasingly examine web-based projects, mobile applications, differentiated PjBL, and curriculum-level technology integration. The evidence includes classroom action research, qualitative field studies, quasi-experimental research, research and development, quantitative acceptance studies, and systematic reviews. This diversity makes direct statistical comparison

This work is licensed under a Creative Commons Attribution- ShareAlike 4.0 International License.
ISSN : 2721-3811 (ONLINE)

inappropriate, but it provides a broad view of how Arabic language pedagogy is changing.

Table 1. Selected evidence on PjBL and technology-enhanced Arabic language education from 2020 to 2025

Study	Design / context	Primary focus	Key contribution
Marzuq et al. (2021)	PjBL + blended/OLSi; university	Arabic learning-media production	Projects increased responsibility, ownership, motivation, and product-oriented learning.
Mufti (2022)	PjBL; school Arabic	Higher-order thinking	Project tasks supported higher-level thinking in Arabic learning.
Muid et al. (2022)	Classroom action research; university	Speaking (maharah kalam)	Repeated project cycles improved speaking practice and performance.
Fitria & Abidin (2023)	PjBL; writing focus	Writing participation and interaction	Project work increased participation and interaction around Arabic writing tasks.
Rahmah et al. (2024)	Web-based PjBL needs analysis; MA	Speaking, reading, writing	Low baseline skills and traditional media use supported the need for web-based project learning.
Salsabila & Setiyawan (2024)	Literature study; psycholinguistic lens	Arabic learning process	PjBL was conceptually aligned with active language processing and contextual practice.
Luhulima (2024)	Qualitative PjBL study	Integrated literacy	PjBL supported reading, writing, speaking, listening, collaboration, and creativity.
Sholihah & Ali (2024)	Quasi-experimental PjBL	Listening and reading	Experimental learning produced stronger listening and reading performance than traditional instruction.
Rahman et al. (2024)	Differentiated PjBL; secondary school	Integrated Arabic skills	Differentiation helped align projects with proficiency and cultural content.
Paputungan et al. (2024)	R&D mobile application	Contextual Arabic learning	High expert validation and positive responses supported contextual mobile learning.
Yahaya et al. (2024)	Quantitative acceptance study	Speaking application	Students reported high acceptance of mobile-supported Arabic speaking learning.

This work is licensed under a Creative Commons Attribution- ShareAlike 4.0 International License.
ISSN : 2721-3811 (ONLINE)

Zulkepli et al. (2024)	Pedagogical study of mobile apps	Arabic acquisition	Mobile applications expanded vocabulary practice, flexibility, and access.
Aedi et al. (2025)	ADDIE mobile development	Grammar and independent learning	Curriculum-aligned multimodal features and feedback improved feasibility and autonomy.
Sapawi & Nik Yusoff (2025)	Systematic review	Technology-integrated Arabic curriculum	Technology benefits depend on pedagogy, curriculum design, policy, and cultural alignment.

Language-Skill Development Through Authentic Projects

Across the reviewed studies, the clearest pattern is that PjBL supports language development when the project obliges students to use Arabic repeatedly for meaningful purposes. Speaking-focused research shows that projects increase opportunities for rehearsal, peer interaction, presentation, and contextualised vocabulary use (Muid et al., 2022). Writing-oriented PjBL similarly encourages planning, drafting, peer response, and revision rather than one-time sentence production (Fitria and Abidin, 2023). Luhulima (2024) extends this pattern by reporting gains across reading, writing, speaking, and listening within integrated literacy activities.

This integrated effect is pedagogically important. Arabic language curricula often divide mahārah al-istimā', al-kalām, al-qirā'ah, and al-kitābah into separate instructional units. Project work creates a more natural sequence: learners listen to or read source material, discuss findings, negotiate vocabulary, write or script a product, and present it orally. Sholihah and Ali (2024) show that PjBL can also improve receptive skills when projects include purposeful listening, reading, synonym work, and multimedia resources. Thus, PjBL can function as an organising framework for skill integration rather than merely as an enrichment activity.

The reviewed evidence also suggests that higher-order thinking becomes part of language learning when students must select information, justify linguistic choices, solve communication problems, and create an artefact. Mufti (2022) specifically connects PjBL with higher-order thinking in Arabic instruction. This is consistent with the broader PjBL literature, which emphasizes authentic products, inquiry, and iterative learning as mechanisms that connect knowledge with cognitive strategies (Almulla, 2020; Guo et al., 2020).

The pattern is strongest when an artefact requires an audience to understand Arabic meaning rather than merely display correct forms. Video dialogue creates reasons to select vocabulary, manage turns, rehearse pronunciation, and revise a script, while annotated reading connects grammatical decisions with writing. Assessment should separate comprehension, accuracy, fluency, lexical range, and

This work is licensed under a Creative Commons Attribution- ShareAlike 4.0 International License.
ISSN : 2721-3811 (ONLINE)

content quality. Authenticity does not require public publication; an in-class presentation or portfolio may be more ethical in low-resource settings.

Learner Engagement, Collaboration, and Communicative Confidence

A second recurring pattern is increased learner engagement. Project environments redistribute classroom participation because students must make decisions, divide roles, discuss content, and produce a visible outcome. Marzuq et al. (2021) reported increased responsibility and ownership when Arabic learning-media projects were combined with blended learning and the OLSi model. In classroom and field studies, collaborative project work also encouraged students to communicate more actively and creatively (Fitria and Abidin, 2023; Luhulima, 2024).

Engagement matters especially for mahārah al-kalām, where anxiety, limited vocabulary, and fear of error can reduce participation. Mobile and web-based tools can provide lower-risk rehearsal spaces before public performance. Yahaya et al. (2024) found high learner acceptance of an Arabic speaking application, suggesting that mobile environments can support willingness to practice. When such tools are embedded inside a project sequence, rehearsal can become purposeful: students record dialogue, refine pronunciation, revise scripts, and prepare a final artefact for peers or a wider audience.

Technology as Pedagogical Infrastructure, Not a Stand-Alone Solution

The literature strongly indicates that technology is most effective when it is aligned with a clear pedagogical task. Paputungan et al. (2024) developed a mobile application using a contextual approach and reported strong validation for technical and curriculum aspects. Aedi et al. (2025) similarly showed that Arabic mobile learning becomes more feasible when applications provide native-speaker audio, annotated visuals, gamified quizzes, formative feedback, adaptive paths, and curriculum-aligned content. These functions correspond to specific language-learning needs: exposure, comprehension support, repetition, feedback, and independent practice.

However, device access does not guarantee learning. Rahmah et al. (2024) found that traditional media and limited project-based practice persisted despite the potential of web-based learning. Aedi et al. (2025) identified learners who were familiar with smartphones but did not use them systematically for Arabic study. Sapawi and Nik Yusoff (2025) likewise conclude that technology integration must be interpreted through curriculum, pedagogy, policy, and culture. The practical implication is that Arabic teachers should begin with the learning objective and project task, then select technology that reduces barriers or expands communicative opportunities.

This work is licensed under a Creative Commons Attribution- ShareAlike 4.0 International License.
ISSN : 2721-3811 (ONLINE)

Differentiation, Scaffolding, and Teacher Mediation

PjBL can create inequity when all learners receive the same complex project without adequate linguistic support. Rahman et al. (2024) provide an important corrective by showing how differentiated PjBL can adapt project difficulty and resources to students' proficiency. In Arabic classrooms, scaffolding may include vocabulary banks, model texts, sentence frames, audio exemplars, pronunciation support, staged deadlines, heterogeneous grouping, and different artefact formats. Such support preserves the authenticity of the project while preventing technical or linguistic difficulty from overwhelming lower-readiness learners.

Teacher competence therefore remains central. Technology-enhanced PjBL requires teachers to manage content knowledge, Arabic language pedagogy, project design, digital tools, assessment, and classroom collaboration simultaneously. The teacher's role becomes more demanding, not less: teachers must design meaningful driving questions, curate reliable Arabic resources, monitor linguistic accuracy, provide formative feedback, and ensure that technology serves learning rather than distracting from it.

Differentiation should not mean lowering the intellectual demand of a project for less proficient learners. It should provide different routes toward a shared communicative purpose. A beginning learner may work with a shorter text, a vocabulary bank, and a sentence frame, while a more advanced learner may compare sources, manage a longer dialogue, or justify stylistic choices. Both can contribute to the same artefact when roles and criteria are explicit. Rahman et al. (2024) provide a useful basis for this approach by linking differentiated PjBL to proficiency and cultural content.

Teacher mediation is the mechanism that keeps differentiation from becoming fragmentation. Teachers select or adapt resources, model language use, monitor peer interaction, provide feedback at moments when revision is possible, and intervene when a project goal becomes detached from the language outcome. This mediation is demanding because it combines disciplinary, pedagogical, technological, and assessment knowledge. The teacher is therefore not displaced by PjBL or technology; the teacher’s work changes from continuous explanation to strategic design, diagnosis, and feedback.

This work is licensed under a Creative Commons Attribution- ShareAlike 4.0 International License.
ISSN : 2721-3811 (ONLINE)

Curriculum Design Implications

Table 2-Proposed integrated PjBL–technology framework for Arabic language education

Project stage	Suggested digital / learning function	Arabic language learning contribution
1. Contextual Driving Question	A real communicative issue relevant to learners	Activates prior knowledge and gives Arabic use a meaningful purpose.
2. Multimodal Input	Short texts, audio, video, vocabulary, models	Provides comprehensible input and linguistic scaffolding.
3. Collaborative Inquiry	Search, reading, listening, discussion, note-making	Integrates receptive skills with negotiation of meaning.
4. Drafting and Rehearsal	Scripts, outlines, dialogues, written drafts, recordings	Creates repeated opportunities for feedback and revision.
5. Digital Artifact Production	Podcast, video, web page, digital story, infographic, presentation	Transforms Arabic into a medium for authentic creation.
6. Public Presentation	Class, school, LMS, or controlled digital publication	Builds speaking confidence, audience awareness, and responsibility.
7. Authentic Assessment	Rubric for language, content, collaboration, creativity, process	Evaluates both linguistic achievement and project quality.
8. Reflection and Revision	Self-assessment, peer feedback, portfolio revision	Supports metacognition, autonomy, and continuous language improvement.

Table 2 translates the literature into a curriculum sequence. The proposed framework avoids two common problems: technology without pedagogy and projects without sufficient language support. Each stage connects a project function with a specific Arabic language-learning contribution. Teachers can scale the model according to institutional resources. A low-technology version may use offline audio, printed sources, and classroom presentations, while a higher-technology version may use mobile applications, web authoring, digital portfolios, or multimedia publication.

The framework is deliberately iterative rather than linear. A draft may reveal that the driving question is too broad, that the input is above the learners' proficiency, or that the selected medium encourages a misleading simplification. Students and teachers should be able to return to an earlier stage without treating revision as failure. This iterative structure is consistent with PjBL's emphasis on inquiry and reflection and with technology-enhanced language learning's emphasis on feedback and self-regulation (Fikria et al., 2025; Yang et al., 2023).

This work is licensed under a Creative Commons Attribution- ShareAlike 4.0 International License.
ISSN : 2721-3811 (ONLINE)

Research Gaps and Future Directions

Although the recent literature is promising, several limitations remain. First, many studies use small samples, classroom action research, descriptive designs, or short implementation periods. More quasi-experimental and longitudinal studies are needed to examine retention, transfer, and sustained communicative proficiency. Second, assessment often relies on perceptions or general achievement rather than standardized rubrics for pronunciation, fluency, grammatical accuracy, vocabulary range, interaction, and integrated literacy. Third, the field needs more evidence comparing different project artefacts and digital tools rather than simply comparing technology with conventional instruction.

Future research should also investigate artificial intelligence, automated speech feedback, learning analytics, and adaptive Arabic learning while maintaining ethical safeguards, source reliability, and teacher oversight. Equally important are studies in pesantren, madrasah, university PBA programmemes, and non-Arabic-speaking contexts with different infrastructure. Research should examine not only whether a technology works, but for whom, under what scaffolding conditions, for which language skill, and with what long-term curriculum consequences.

A further gap concerns the transfer of learning across languages and contexts. The reviewed studies rarely examine whether Arabic project work strengthens learners' English academic communication, whether multilingual planning improves metalinguistic awareness, or whether the same digital affordance functions differently in Arabic, Indonesian, and English. Aziz and Siddik (2026) provide an important starting point by showing how Arabic–English repertoires can support comprehension in digital settings. Future research should examine transfer through clearly defined tasks and measures rather than assuming that multilingual exposure automatically produces cross-linguistic benefit.

DISCUSSION

PjBL, Learner Agency, and Meaningful Language Use

The synthesis indicates that project-based learning (PjBL) becomes productive when it changes the conditions under which language is used. Its contribution does not arise from assigning a project or adding a digital product to an existing lesson. It arises when learners must ask a meaningful question, encounter input, negotiate interpretations, select linguistic resources, produce a message, receive feedback, and revise it for an audience. PjBL therefore creates a repeated movement among listening or reading, collaborative reasoning, speaking or writing, response, and reformulation.

This account also explains how PjBL can integrate Arabic skills without making the curriculum linguistically vague. Listening may provide information, a

This work is licensed under a Creative Commons Attribution- ShareAlike 4.0 International License.
ISSN : 2721-3811 (ONLINE)

pronunciation model, or an example of discourse; reading may supply content, vocabulary, and grammatical form; speaking may occur during planning, negotiation, rehearsal, and presentation; and writing may be required for scripts, captions, annotations, and reflective commentary. The skills are integrated because the communicative task requires their coordination, not because a teacher places several activities. Integration, however, should not eliminate analytic assessment. A coherent video or presentation can conceal weak comprehension, limited lexical control, or inaccurate grammar. Teachers should therefore retain skill-specific evidence within the larger project and distinguish product quality from language development.

Engagement in this model means participation in meaningful decisions rather than entertainment produced by digital media. Learners exercise agency when they interpret a driving question, choose and evaluate resources, negotiate roles, make linguistic choices, respond to feedback, and justify revisions. Technology may enlarge these choices by providing access to sources, rehearsal spaces, multimodal composition, and rapid feedback. It may also narrow agency when platforms prescribe routes, reward superficial activity, or make algorithmic suggestions appear authoritative. It depends on task design, teacher scaffolding, group authority, students' access to legitimate resources, and the cultural relevance of the project.

Communicative confidence is especially important in Arabic education because learners often experience public error as socially risky. Mobile rehearsal, asynchronous recording, peer drafting, and small-group production can reduce that risk by creating opportunities for low-stakes practice. These affordances do not remove the need for accountable performance. Learners still need to make language visible, receive informed feedback, decide whether to accept or reject a suggestion, and explain the reasons for a revision. A student who can defend a vocabulary choice or grammatical change demonstrates stronger agency than a student who simply accepts automated correction or copies a peer's answer. Reflection therefore functions as evidence of learning, not as an optional activity after the "real" project has finished.

The multilingual dimension complicates agency but also creates pedagogical possibilities. Indonesian or English may help learners articulate complex ideas during planning, compare interpretations, and participate in group reasoning, while Arabic in the final artefact can preserve the target-language purpose. Such choices should be explicit and assessed rather than treated either as evidence of deficiency or as unrestricted freedom. Translanguaging is empowering when learners can show how one language supports access to meaning, how a term is retained in Arabic, why an Indonesian paraphrase is necessary, or how an English caption preserves the

This work is licensed under a Creative Commons Attribution- ShareAlike 4.0 International License.
ISSN : 2721-3811 (ONLINE)

source. It becomes pedagogically weak when language alternation hides limited engagement with Arabic input.

Teacher Mediation, Assessment, Technology Governance, and Multilingual Transfer

The teacher remains the central designer of accountability. PjBL and technology alter the teacher's role but do not make disciplinary expertise optional. Teachers select suitable and reliable sources, judge comprehensibility and access, anticipate group inequities, monitor linguistic accuracy, and intervene when a project goal becomes detached from its language outcome. If one learner writes, another controls the application, and a third presents, the artefact may be impressive while individual learning remains uncertain. Role rotation, individual reflection, oral explanation, annotated drafts, and version histories make contributions visible and prevent collaboration from becoming an excuse for unequal participation.

Assessment should combine process, product, and transfer. Process evidence includes planning notes, source evaluations, vocabulary decisions, feedback records, and successive revisions. Product evidence includes accuracy, fluency, intelligibility, lexical range, content relevance, audience awareness, and design. Transfer evidence asks whether learners can use the language or strategy in a new task without the same scaffolds. A robust rubric should combine analytic criteria with a holistic judgement of communicative effectiveness. It should not reward visual polish at the expense of accuracy, but it should also avoid reducing an authentic project to a decontextualised language test. From a curriculum perspective, a polished artefact can conceal borrowed language, superficial source engagement, or unequal labour. Teachers should triangulate the product with individual explanations, peer feedback, short transfer tasks, and revision records so that institutions can distinguish sustainable innovation from temporary enthusiasm about a new platform.

Technology should consequently be treated as pedagogical infrastructure rather than as an authority. Digital tools can extend access, feedback, rehearsal, collaboration, and publication, but they cannot decide what counts as correct Arabic or meaningful learning. Automated pronunciation scores, machine translation, and generative text can provide useful prompts, yet their outputs require human checking. They may misrecognise dialect, overlook pragmatic meaning, flatten cultural nuance, or encourage formulaic language. Teachers should model verification and make tool limitations part of digital literacy.

Technology governance also requires institutional choices about equity and safety. Projects should remain possible with printed materials, shared devices, offline audio, or asynchronous submission when connectivity is limited. Students should not be assessed on the sophistication of equipment they can access. Platforms that

This work is licensed under a Creative Commons Attribution- ShareAlike 4.0 International License.
ISSN : 2721-3811 (ONLINE)

require registration or expose learner recordings raise questions about privacy, consent, copyright, data minimisation, and publication boundaries. These issues belong in the curriculum because they shape who can participate and under what conditions. A technologically advanced project is not necessarily a just project; responsible design includes a low-technology pathway and clear rules for handling learner data and public communication.

Although the corpus focuses on Arabic, its implications extend to JEET's interest in English education and technology. Islamic schools and universities often position English alongside Arabic and Indonesian, creating classrooms in which learners draw on several languages to understand content and communicate with wider audiences. An English-mediated project might ask students to explain an Arabic source, produce bilingual captions, compare translation choices, or present an Arabic learning product internationally. Such a task requires explicit English outcomes, while the Arabic content provides a meaningful context for academic vocabulary, audience design, intercultural communication, and critical source use. Transfer must nevertheless be tested rather than assumed. Arabic and English differ in script, morphology, syntax, discourse conventions, and institutional use; a strategy that supports Arabic vocabulary may not support English writing in the same way.

The theoretical contribution is therefore a conditional model of integration. PjBL supplies the sequence of inquiry and production, technology supplies selected affordances, and teacher mediation supplies the pedagogical and ethical judgement that connects them. Language learning remains the central outcome; engagement, collaboration, confidence, and creativity are mechanisms or accompanying outcomes, not substitutes for proficiency. This distinction explains why high acceptance or motivation does not automatically demonstrate improved language accuracy. Future design-based, quasi-experimental, mixed-methods, and longitudinal studies should test the framework across settings and report proficiency, duration, teacher support, digital access, instrument validity, participation, agency, ethical judgement, and the extent to which students actually revised their language. Such evidence would clarify when technology-enhanced PjBL supports multilingual learning and when it merely produces attractive artefacts.

V. CONCLUSION

The literature from 2020 to 2025 demonstrates a movement in Arabic education toward project-based, digitally supported, and communicative learning. PjBL contributes most when students investigate a meaningful issue, collaborate, revise language, and create an authentic artefact. Technology expands input, practice,

This work is licensed under a Creative Commons Attribution- ShareAlike 4.0 International License.
ISSN : 2721-3811 (ONLINE)

feedback, and flexibility, but alignment, mediation, access, and assessment determine its value. Neither a device nor a project label guarantees language development.

The main benefits are integrated language practice, higher-order thinking, engagement, collaboration, confidence, literacy, and independence. Recurring challenges include unequal proficiency, teacher digital competence, infrastructure, time, uneven participation, and limited long-term assessment. The proposed framework combines contextual questions, scaffolded input, inquiry, drafting, production, presentation, assessment, and revision and should be adapted rather than copied mechanically.

The framework is relevant to JEET because it locates technology-enhanced language education within multilingual Global South realities. Arabic is the focal language, while the principles can inform English-mediated and translingual learning. Empirical studies should now test language, engagement, agency, equity, and ethical outcomes through transparent designs rather than treating the framework as an established causal model.

REFERENCES

Aedi, K., Nasrussalim, M., Gazali, E., & Akhirudin, M. T. (2025). Development of the An-Nasr mobile application to enhance independent learning skills in Arabic language instruction. Ta'lim al-'Arabiyyah: Jurnal Pendidikan Bahasa Arab & Kebahasaaraban, 9(2), 246–268. https://doi.org/10.15575/jta.v9i2.49537

Almulla, M. A. (2020). The effectiveness of the project-based learning (PjBL) approach as a way to engage students in learning. SAGE Open, 10(3), 1–15. https://doi.org/10.1177/2158244020938702

Aziz, I. N., & Siddik, N. A. W. A. (2026). Digital translanguaging and santri cognition: Enhancing English comprehension through Arabic–English repertoires. EDUKASIA Jurnal Pendidikan dan Pembelajaran, 7(1), 247–258. https://doi.org/10.62775/edukasia.v7i1.1918

Canals, L. (2022). The role of the language of interaction and translanguaging on attention to interactional feedback in virtual exchanges. System, 105, 102721. https://doi.org/10.1016/j.system.2022.102721

Fikria, A., Setiawan, S., & Munir, A. (2025). A systematic review of technology-enhanced project-based language learning: Theoretical frameworks, project types, and implications for future research and practice. F1000Research, 14, 775. https://doi.org/10.12688/f1000research.165491.2

Fitria, F., & Abidin, M. (2023). The implementation of project-based learning to improve students' participation and interaction in learning Arabic language: A focus on writing skills. At-Tasyrih: Jurnal Pendidikan dan Hukum Islam, 9(2), 196–206.

This work is licensed under a Creative Commons Attribution- ShareAlike 4.0 International License.
ISSN : 2721-3811 (ONLINE)

https://doi.org/10.55849/attasyrih.v9i2.175

García, O., & Wei, L. (2014). Translanguaging: Language, bilingualism and education. Palgrave Macmillan.

Guo, P., Saab, N., Post, L. S., & Admiraal, W. (2020). A review of project-based learning in higher education: Student outcomes and measures. International Journal of Educational Research, 102, 101586. https://doi.org/10.1016/j.ijer.2020.101586

Hao, T., Wang, Z., & Ardasheva, Y. (2021). Technology-assisted vocabulary learning for EFL learners: A meta-analysis. Journal of Research on Educational Effectiveness, 14(3), 645–667. https://doi.org/10.1080/19345747.2021.1917028

Haq, M. A., Amrulloh, F. S., & Aziz, I. N. (2025). The PjBL for Arabic speaking skills and student confidence: A quasi-experimental study at the University of Kiai Abdullah Faqih Gresik. Al-Himam: Jurnal Ilmu-Ilmu Pendidikan & Bahasa Arab, 5(1), 32–46. https://doi.org/10.51590/alhimam.v5i1.1135

Huang, H., & Li, M. (2024). The impact of technology-enhanced language learning environments on second language learners' willingness to communicate: A systematic review of empirical studies from 2012 to 2023. Language Learning & Technology, 28(1), 1–22. https://doi.org/10.64152/10125/73593

Krajcik, J. S., & Blumenfeld, P. C. (2006). Project-based learning. In R. K. Sawyer (Ed.), The Cambridge handbook of the learning sciences (pp. 317–334). Cambridge University Press.

Lubaba, A., & Aziz, I. N. (2026). Translanguaging in problem-based learning: Fostering critical speaking skills in an Islamic boarding school. Journal on English as a Foreign Language, 16(1), 272–298. https://doi.org/10.23971/jefl.v16i1.10464

Luhulima, Y. A. (2024). Project-based learning method in Arabic language learning to develop students' literacy skills. IJ-ATL: International Journal of Arabic Teaching and Learning, 8(2), 135–143. https://doi.org/10.33650/ijatl.v8i2.10751

Marzuq, A., Lustiyantie, N., Chaeruman, U., Bahtiar, I. R., & Zulharby, P. (2021). Project-based learning and OLSi (Own It, Learn It, Share It) model in the Arabic language learning media course. IJLECR: International Journal of Language Education and Cultural Review, 7(2), 181–187. https://doi.org/10.21009/IJLECR.072.17

Mishra, P., & Koehler, M. J. (2006). Technological pedagogical content knowledge: A framework for teacher knowledge. Teachers College Record, 108(6), 1017–1054. https://doi.org/10.1111/j.1467-9620.2006.00684.x

Muid, A., Fadhlan, M., Rasidin, & Jabir, M. D. (2022). Project-based learning models approach in improving Arabic speaking ability. An Nabighoh, 24(1), 17–32. https://doi.org/10.32332/an-nabighoh.v24i1.4559

Mufti, A. (2022). Project-based learning untuk meningkatkan kemampuan berpikir tingkat tinggi pada mata pelajaran bahasa Arab. Al-Ma'rifah, 19(1), 13–22. https://doi.org/10.21009/almakrifah.19.01.02

This work is licensed under a Creative Commons Attribution- ShareAlike 4.0 International License.
ISSN : 2721-3811 (ONLINE)

Paputungan, M. Z., Ahsanuddin, M., Amrullah, M. K., & Sepriadi. (2024). Pengembangan aplikasi mobile untuk pembelajaran bahasa Arab dengan pendekatan kontekstual. Al-Kilmah: Jurnal Pendidikan Bahasa Arab dan Humaniora, 3(1), 1–15. https://doi.org/10.58194/alkilmah.v3i1.1858

Rahmah, I., Asrowi, & Musadad, A. A. (2024). Web-based project-based learning to enhance Arabic language skills of Madrasah Aliyah students. Arabiyat: Jurnal Pendidikan Bahasa Arab dan Kebahasaaraban, 11(1), 116–134. https://doi.org/10.15408/a.v11i1.40488

Rahman, R. A., Abdullah, Z., Rosyadi, A. S., Ummah, K. R., & Muna, W. L. C. (2024). Simplifikasi project-based learning (PjBL) berdiferensiasi dalam pembelajaran bahasa Arab di SMP Al-Madina Wonosobo. El-Syaker: Samarinda International Journal of Language Studies, 1(2), 67–78. https://doi.org/10.64093/esijls.v1i2.25

Salsabila, N. M., & Setiyawan, A. (2024). Metode project-based learning dalam pembelajaran bahasa Arab perspektif psikolinguistik. Journal of Arabic Education and Linguistics, 4(1), 1–13. https://doi.org/10.24252/jael.v4i1.48530

Sapawi, M. S. M., & Nik Yusoff, N. M. R. (2025). Integrating technology into the Arabic language curriculum: A systematic review of trends, strategies and cultural dimensions. Social Sciences & Humanities Open, 12, 101974. https://doi.org/10.1016/j.ssaho.2025.101974

Sholihah, H. J., & Mohammed Ali, S. (2024). Use of project-based learning model in Arabic language learning to improve students' listening and reading skills. Tadris Al-'Arabiyyah: Jurnal Pendidikan Bahasa Arab dan Kebahasaaraban, 3(2), 183–193. https://doi.org/10.15575/ta.v3i2.39300

Tommerdahl, J. M., Dragonflame, C. S., & Olsen, A. A. (2024). A systematic review examining the efficacy of commercially available foreign language learning mobile apps. Computer Assisted Language Learning, 37(3), 333–362. https://doi.org/10.1080/09588221.2022.2035401

UNESCO. (2023). Global education monitoring report 2023: Technology in education: A tool on whose terms? UNESCO. https://doi.org/10.54676/uzqv8501

Yahaya, H., Abdelhamid, I. Y., Samsun Baharun, M. N. A., & Najwa, N. H. (2024). Students' acceptance of the TAKALLAM mobile application for enhancing Arabic language speaking skill. Journal of Education and Practice, 15(5), 70–77. https://doi.org/10.7176/JEP/15-5-09

Yang, Y., Wen, Y., & Song, Y. (2023). A systematic review of technology-enhanced self-regulated language learning. Educational Technology & Society, 26(1), 31–44. https://doi.org/10.30191/ETS.202301_26(1).0003

Yüzlü, M. Y., & Dikilitaş, K. (2022). Translanguaging as a way to fostering EFL learners' criticality in a hybrid course design. System, 110, 102926. https://doi.org/10.1016/j.system.2022.102926

Zulkepli, M. K. A., Abd Hamid, M. Z., & Dajani, B. A. S. (2024). The impact of mobile applications on Arabic language acquisition: A pedagogical perspective. International Journal

This work is licensed under a Creative Commons Attribution- ShareAlike 4.0 International License.
ISSN : 2721-3811 (ONLINE)

of Research and Innovation in Social Science, 8(8), 4443–4451. https://doi.org/10.47772/IJRISS.2024.8080340

© 2018 by the journal. Submitted for possible open access publication under the
terms and conditions of the Creative Commons Attribution (CC-BY SA) license (http://creativecommons.org/licenses/by/4.0/).