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TRANSFORMING CLASSICAL ARABIC POETRY LEARNING THROUGH AUGMENTED REALITY: A DESIGN-BASED STUDY IN UNIVERSITY LEVEL

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Abstract:

The teaching of Classical Arabic poetry in higher education continues to present significant pedagogical challenges, particularly for non-native speakers of Arabic who must contend with dense linguistic structures, complex imagery, and culturally embedded meanings. Conventional text-centred instructional approaches have often proven insufficient in fostering sustained engagement and deep literary comprehension. In response to these challenges, this study

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explores the pedagogical potential of Augmented Reality (AR) as a curriculum-aligned medium for advanced Arabic literary instruction. Guided by a Design and Development Research (DDR) methodology and grounded in constructivist learning theory, multimedia learning theory, and experiential learning theory, the study reports on the design, development, and prototype implementation of i-Syair, an AR-based mobile application for Classical Arabic poetry at the tertiary level. Evidence of learner engagement and comprehension was derived from classroom observation, informal learner feedback, and interaction with the prototype during implementation. The findings indicate that AR-supported learning environments offer indications of increased learner engagement and can support the interpretation of poetic imagery and themes when aligned with curricular objectives and learning theory. By extending the application of AR beyond foundational language learning into advanced humanities education, this study contributes a theoretically informed and pedagogically grounded model for innovation in Arabic literary pedagogy.

Keywords:

Arabic Poetry, Augmented Reality (AR), Educational App, i-Syair, Arabic Literature Education, Mobile Learning

Introduction

Classical Arabic poetry represents one of the most sophisticated and influential literary traditions in world literature, occupying a central position in Arabic language studies, Islamic civilisation, and the humanities more broadly. At the university level, the study of Classical Arabic poetry is not limited to linguistic comprehension; it requires learners to engage critically with rhetorical devices, metaphorical language, historical context, and aesthetic meaning. Such engagement presupposes a level of linguistic proficiency and cultural literacy that many contemporary students particularly non-native speakers, find difficult to attain through conventional instructional approaches.

A growing body of scholarship has documented the pedagogical difficulties associated with teaching Arabic literature in non-native contexts. Students frequently report that Arabic poetry is challenging, abstract, and inaccessible, citing difficulties with archaic vocabulary, syntactic complexity, and implicit cultural references (Osman et al., 2022; Hashim et al., 2023). These challenges are often exacerbated by traditional lecture-based and text-centred pedagogies that emphasise teacher explanation and passive reception rather than active interpretation and learner engagement. As a result, students may approach Arabic literary texts as objects of memorisation rather than as dynamic works open to critical and imaginative exploration.

In parallel with these pedagogical challenges, higher education has witnessed a rapid expansion in the use of digital and immersive technologies to enhance teaching and learning. Educational technology research increasingly highlights the potential of technology-mediated environments to support learner-centred pedagogy, multimodal representation of knowledge, and deeper cognitive engagement (Akçayır & Akçayır, 2017). Within this landscape, Augmented Reality has emerged as a particularly promising technology due to its capacity to overlay digital information onto physical learning environments, thereby enabling contextualised and experiential learning (Bacca et al., 2014).

Systematic reviews of AR in education suggest that AR can enhance motivation, conceptual understanding, and engagement across a range of disciplines when its use is guided by pedagogical intent rather than technological novelty (Radianti et al., 2020). However, despite growing interest in AR for education, its application within Arabic literary studies, and particularly in the teaching of Classical Arabic poetry remains limited. Existing AR-based Arabic learning applications predominantly focus on vocabulary acquisition or basic language skills, while the use of immersive technologies to support higher-order literary interpretation at the tertiary level has received little scholarly attention.

This gap is particularly significant given the abstract and imaginative nature of poetry as a literary form. Poetry relies heavily on imagery, symbolism, and emotional resonance, elements that can be difficult for learners to visualise and interpret through text alone. Educational theorists have long argued that multimodal and experiential approaches can support deeper engagement with complex and abstract content by connecting cognitive processing with sensory and affective experience (Mayer, 2009; Kolb, 1984). From this perspective, AR offers unique affordances for literature education by enabling learners to encounter poetic worlds through immersive visual and interactive representations.

Against this backdrop, the present study proposes and examines i-Syair, an AR-based mobile application designed to support the teaching and learning of Classical Arabic poetry in higher education. The study is guided by the premise that AR, when grounded in learning theory and aligned with curriculum requirements, can function as a pedagogically meaningful medium for literary interpretation rather than a superficial enhancement. By adopting a design and development research approach, the study seeks to contribute both a practical instructional innovation and a theoretically informed model for integrating AR into Arabic literary pedagogy. In doing so, it addresses a critical gap in the literature and responds to contemporary calls for innovation in humanities education.

Research Problem

The teaching of Classical Arabic poetry at the tertiary level continues to face enduring pedagogical challenges, particularly in contexts where learners are non-native speakers of Arabic. Classical Arabic poetry is linguistically dense, stylistically complex, and deeply embedded in historical, cultural, and rhetorical traditions that are often unfamiliar to contemporary learners. Conventional instructional approaches, which rely heavily on close reading, lecturer exposition, and static printed texts, frequently fail to support students in navigating these layers of meaning in a way that is engaging or cognitively accessible. As a result, students often experience Arabic literature courses as abstract, monotonous, and disconnected from their lived learning experiences.

Empirical studies in Arabic literary education report that students struggle not only with archaic vocabulary and syntactic complexity, but also with interpreting metaphor, symbolism, and culturally embedded imagery that require contextual knowledge beyond linguistic competence alone (Hashim et al., 2023). These difficulties are particularly pronounced at the university level, where students are expected to perform higher-order literary analysis, including thematic interpretation, rhetorical evaluation, and historical contextualisation. When instructional methods do not adequately scaffold these processes, learners tend to resort to surface-level memorisation rather than meaningful engagement with the text.

Recent evidence further highlights a growing mismatch between traditional pedagogical practices and students' learning preferences. Osman et al. (2022) demonstrate that a significant majority of learners prefer technology-supported approaches to Arabic literature learning, reporting higher levels of motivation and perceived comprehension when digital tools are integrated into instruction. Despite this, Arabic literature pedagogy has been comparatively slow to adopt immersive and interactive technologies that have shown promise in other disciplines. Consequently, there remains a critical need for pedagogical innovations that can bridge the gap between the cognitive demands of Classical Arabic poetry and the learning expectations of contemporary university students.

Within this context, the core research problem addressed in this study is the lack of curriculum-aligned, theoretically informed, and pedagogically robust technological interventions that support deep engagement with Classical Arabic poetry at the tertiary level. Existing digital tools largely focus on basic language skills or general literary appreciation, leaving advanced literary interpretation underexplored. This study responds to that gap by investigating how Augmented Reality can be systematically designed and implemented to enhance the teaching and learning of Classical Arabic poetry in higher education.

Research Objectives

Guided by the identified pedagogical challenges and technological gaps, this study seeks to achieve several interrelated objectives. The primary objective is to design and develop an Augmented Reality-based mobile application, known as i-Syair, that supports the teaching and learning of Classical Arabic poetry at the university level. This objective extends beyond technical development to include pedagogical design principles that align AR features with literary learning outcomes.

A further objective of the study is to enhance students' interest, motivation, and sustained engagement with Arabic literary studies by transforming traditional text-based instruction into immersive and interactive learning experiences. By visualising poetic imagery, themes, and cultural settings through AR, the study aims to support learners in constructing meaning more effectively and engaging with poetry as a lived intellectual experience rather than a static textual artifact.

In addition, the study aims to facilitate deeper literary comprehension and analytical skills by integrating multimedia explanations, contextual annotations, and immersive AR scenes that scaffold interpretation of metaphor, symbolism, and historical references. Another important objective is to ensure that the AR-based content is explicitly aligned with university Arabic literature curricula, learning outcomes, and assessment expectations, thereby enhancing its pedagogical legitimacy and adoption potential.

Finally, the study seeks to examine the feasibility and pedagogical relevance of implementing an AR-based poetry learning application within authentic higher education environments. By evaluating i-Syair at a functional prototype level, the research aims to establish its potential as a scalable and transferable model for Arabic literary education in both local and international contexts.

Significance of the Study

This study holds significance at multiple levels. Pedagogically, it contributes to the advancement of Arabic literary instruction by demonstrating how immersive technologies can be meaningfully integrated into the teaching of Classical Arabic poetry. The i-Syair application offers instructors a practical tool for addressing learner disengagement, linguistic difficulty, and abstract literary concepts through visualisation and interactivity.

From a theoretical perspective, the study extends existing research on Augmented Reality in education by situating AR within the domain of advanced literary analysis rather than basic language learning. It provides empirical and design-based evidence that AR can support higher-order cognitive processes such as interpretation, contextual reasoning, and thematic analysis when aligned with curriculum and pedagogy.

At an institutional and policy level, the findings support ongoing efforts to digitalise higher education curricula and promote innovative teaching practices in the humanities. By offering a scalable and curriculum-aligned model, this study has the potential to inform future curriculum development, instructional design, and educational technology adoption in Arabic and other literary studies.

Theoretical Framework

The design and pedagogical implementation of the i-Syair application are grounded in a multi-theoretical framework that integrates constructivist learning theory, multimedia learning theory, and experiential learning theory. This combined framework provides a robust conceptual foundation for understanding how Augmented Reality can support deep engagement, meaning-making, and higher-order literary analysis in the context of Classical Arabic poetry.

From a constructivist perspective, learning is understood as an active process in which learners construct knowledge through interaction with content, context, and prior experience rather than passively receiving information. Constructivist theorists argue that understanding emerges when learners actively interpret and reorganise information within meaningful contexts (Piaget, 1972; Vygotsky, 1978). In the study of Classical Arabic poetry, this process is particularly important, as learners must negotiate layers of linguistic form, imagery, cultural reference, and historical meaning. The i-Syair application operationalises constructivist principles by allowing learners to interact with poetic texts through AR scenes, annotations, and multimedia explanations that encourage exploration, interpretation, and reflection rather than rote memorisation.

Multimedia learning theory further informs the design of i-Syair by explaining how learners process information presented through multiple modalities. According to Mayer's cognitive theory of multimedia learning, learners understand complex material more effectively when information is presented through coordinated verbal and visual channels, provided that cognitive load is appropriately managed (Mayer, 2009). Classical Arabic poetry often places heavy demands on working memory due to unfamiliar vocabulary and abstract imagery. By visualising poetic scenes, illustrating metaphors, and integrating audio explanations alongside textual content, i-Syair reduces extraneous cognitive load and supports meaningful integration of verbal and visual representations. This alignment between multimedia design and cognitive processing is essential for facilitating deeper literary comprehension.

Experiential learning theory provides an additional lens through which the pedagogical value of AR in literary education can be understood. Kolb (1984) conceptualises learning as a cyclical process involving concrete experience, reflective observation, abstract conceptualisation, and active experimentation. AR environments are particularly well suited to supporting experiential learning because they immerse learners in simulated experiences that connect abstract concepts to concrete representations. In i-Syair, learners are not merely reading about poetic imagery or cultural settings; they encounter these elements through immersive AR scenes that function as experiential entry points into literary interpretation. This experiential engagement encourages reflection and conceptual understanding, which are critical for advanced literary analysis.

Taken together, these three theoretical perspectives justify the pedagogical use of AR for Classical Arabic poetry learning. Constructivism explains how learners actively construct literary meaning, multimedia learning theory clarifies how multimodal representations support cognitive processing, and experiential learning theory accounts for the value of immersion and interaction. The integration of these theories ensures that i-Syair is not a technology-driven novelty, but a theoretically grounded educational intervention aligned with the cognitive and interpretive demands of university-level Arabic literature.

Methodology

This study employs a Design and Development Research (DDR) methodology, which is well suited for the systematic creation, refinement, and evaluation of educational innovations. DDR emphasises the integration of theoretical foundations, empirical inquiry, and practical design, making it particularly appropriate for research that aims to develop technology-enhanced learning tools for authentic educational contexts.

The research process comprises two primary phases. The first phase focuses on the design and development of the i-Syair AR mobile application. During this phase, Classical Arabic poetry content is analysed and mapped against university curriculum requirements, learning outcomes, and assessment expectations. AR scenes, multimedia explanations, and interactive elements are then designed to support literary interpretation, contextual understanding, and learner engagement.

The second phase involves prototype implementation and demonstration at Technology Readiness Level 6, where the application is tested in a relevant educational setting. Data informing this phase were collected through classroom observation, informal learner feedback, and analysis of user interaction with the prototype during demonstration sessions. Rather than focusing solely on technical performance, the evaluation emphasises how effectively the application supports literary learning processes and integrates into existing instructional practices.

Findings

The results are discussed in relation to existing literature on multimedia and AR-based learning, highlighting how i-Syair contributes to enhancing engagement, comprehension, and accessibility in Arabic poetry learning. Emphasis is also given to how the students' feedback reflects the practical and pedagogical potential of i-Syair as a modern approach to Arabic literary education.

The findings of this study indicate that the implementation of the i-Syair Augmented Reality application provides clear pedagogical benefits for the teaching and learning of Classical Arabic poetry at the tertiary level. Observational data and user interaction feedback reveal that learners demonstrate noticeably higher levels of engagement when interacting with poetic texts through AR-supported environments compared to conventional text-based instruction. Students were more inclined to explore poetic content actively, revisit explanations, and spend longer periods engaging with individual verses when immersive visual and multimedia elements were available.

One of the most salient findings relates to learners' improved comprehension of poetic imagery and thematic content. Classical Arabic poetry frequently relies on dense metaphorical language and culturally embedded symbolism that pose interpretive challenges for non-native learners. The AR visualisation of poetic scenes, cultural settings, and symbolic elements enabled learners to form more concrete mental representations of abstract imagery. This supports prior research suggesting that visualisation and contextualisation can significantly enhance comprehension of abstract literary concepts (Bacca et al., 2014; Radianti et al., 2020).

In addition, the integration of audio narration and multimedia explanations within i-Syair was found to support learners in decoding complex vocabulary and rhetorical devices. Learners were able to synchronise textual reading with auditory explanations, which reduced cognitive overload and facilitated meaning-making. This finding aligns with multimedia learning research demonstrating that coordinated verbal and visual input can improve understanding when designed in accordance with cognitive processing principles (Mayer, 2009).

Another important finding concerns learner motivation and affective response. Students reported greater enjoyment and curiosity when engaging with Classical Arabic poetry through AR, perceiving the learning experience as more contemporary and relevant. This increased motivation is particularly significant in literature education, where affective engagement plays a critical role in sustaining deep reading and interpretation. The findings corroborate earlier studies indicating that AR environments can positively influence learner motivation and attitudes toward challenging subject matter (Akçayır & Akçayır, 2017).




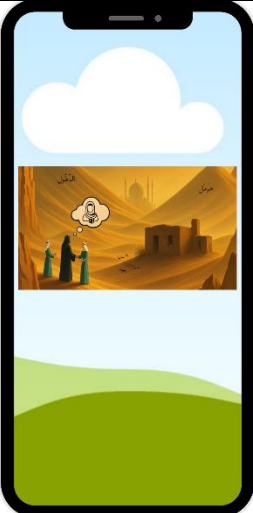
Accordingly, this section does not aim to report statistical learning outcomes or experimental comparisons. Instead, it focuses on presenting the design outcome of the study, namely the i-Syair Augmented Reality prototype, as a pedagogically grounded instructional tool for university-level Arabic poetry learning. The presentation of the prototype serves to illustrate how theoretical principles from constructivist learning, multimedia learning, and experiential learning are operationalised within the application's structure, interface, and interactive features.

The prototype is presented to provide readers with a concrete understanding of how Classical Arabic poetic texts are transformed into immersive learning experiences through AR. Particular attention is given to the visualisation of poetic imagery, the integration of multimedia explanations, and the sequencing of learner interaction with the text.

The following figures in table 1 therefore illustrate key screens and AR interactions within the i-Syair prototype. These visuals are intended to support the descriptive analysis of the application's design features and pedagogical affordances, rather than to serve as evaluative


evidence of learning effectiveness. Empirical assessment of learning outcomes is beyond the scope of this article and is reserved for subsequent phases of the research.

Table 1: i-Syair (high-fidelity)

| Scene 1: Home Interface | Description | Scene 2: Poem Selection | Description |
|---|--|--|---|
|  | <p>This opening scene displays the i-Syair logo along with a selection menu for different periods or eras of Arabic poetry. Users can choose a specific literary period to explore, such as Jahiliyyah, Abbasid, or Andalusian poetry.</p> |  | <p>After selecting a period, users are presented with a curated list of poems from that specific era. In this sample, the interface displays the list of poems under the Jahiliyyah period. Each poem is shown with its title, helping users choose which poem they would like to explore in greater depth.</p> |
| Scene 3: Poem Details + AR | Description | Scene 4: AR Camera Interface | Description |
|  | <p>Once a poem is selected, this scene displays detailed information about the poem, including its full text, background, and author. This screen also features a button that allows users to activate the Augmented Reality (AR) experience, bringing the poem to life in a visually immersive way.</p> |  | <p>Upon tapping the AR button, the app transitions to AR camera mode. In this scene, users can scan a printed marker or visual cue, and the poem's verses will appear as interactive 2D images. These visuals are designed to illustrate the meanings and imagery intended by the poet in the scanned text, and they are overlaid into the real world, enhancing understanding and enriching the learning experience through immersive visual engagement.</p> |

The following illustrations in Table 2 demonstrate how Augmented Reality functions within the i-Syair application to support learners' interaction with selected poetic texts. These examples are intended to clarify the pedagogical mechanism through which AR visualisation is integrated into the learning process, particularly in facilitating interpretation of poetic meaning and imagery. Rather than serving as evidence of measured learning outcomes, the illustrations in Table 2 provide a descriptive account of how AR operates as an instructional affordance within the prototype. Empirical evaluation of learning effectiveness is beyond the scope of the present study and is reserved for subsequent phases of the research.

Table 2: How AR works in i-Syair (Sample)

| Module | How AR Works |
|--|--|
| <p>قَفَا نَبِكَ مِنْ ذِكْرِي حَبِيبٍ وَمَنْزِلٍ بَسِطِطِ اللّٰوِيَّ بَيْنَ الدَّحُولِ فَحَوْمَلِ</p> |  |
| <p>This is the first text from a selected poem by the renowned Jahiliyyah poet, Imru' al-Qais.</p> | <p>When the user scans this text (either printed or digital), a second image appears through AR, visually representing the meaning or imagery conveyed in the verse. This interactive 2D illustration helps students grasp the poetic message in a more vivid and contextualized manner.</p> |

Discussion

This discussion interprets the study's results through established learning theories and situates the contribution of i-Syair within broader scholarly debates on Augmented Reality and humanities education. Rather than reiterating empirical observations, the discussion focuses on explaining why AR-based learning environments are pedagogically appropriate for Classical Arabic poetry and how this study advances existing knowledge.

From a constructivist standpoint, the use of AR in i-Syair reflects a shift away from transmissive models of literary instruction toward learner-centred meaning construction. Classical Arabic poetry requires learners to negotiate multiple layers of meaning, including linguistic form, metaphor, and cultural context. Constructivist theory posits that such complex understanding emerges when learners actively engage with content and contextual cues rather than passively receive interpretations (Piaget, 1972; Vygotsky, 1978). The pedagogical value of i-Syair lies in its ability to create conditions for exploration and interpretation, thereby supporting the kind of active cognitive engagement necessary for literary understanding.

Multimedia learning theory further clarifies the educational relevance of AR for advanced literary studies. Mayer's (2009) theory emphasises that learning is enhanced when verbal and visual information are meaningfully integrated and aligned with cognitive processing limits. In the context of Classical Arabic poetry, AR functions as a mediating tool that bridges abstract textual language and concrete mental representation. Rather than simply adding visual elements, AR enables structured visualisation that supports conceptual integration, helping

learners connect poetic language with imagery, themes, and cultural settings. This positions AR as a cognitive support mechanism rather than a motivational add-on.

Experiential learning theory offers an additional explanation for the suitability of AR in literary education. Kolb (1984) argues that learning begins with concrete experience, which then leads to reflection and abstraction. Literature, particularly poetry, is inherently experiential, engaging imagination, emotion, and cultural memory. AR environments allow learners to encounter poetic worlds experientially, providing an interpretive entry point that precedes formal analysis. This experiential dimension is especially valuable in bridging the gap between affective engagement and critical interpretation in university-level literature courses.

Beyond theoretical alignment, this study contributes to the AR education literature by extending the application of immersive technologies into advanced humanities pedagogy. Prior AR research in Arabic education has largely focused on vocabulary acquisition and foundational language skills (Osman et al., 2022), while broader AR studies have often prioritised STEM disciplines (Bacca et al., 2014; Radianti et al., 2020). By situating AR within curriculum-aligned literary analysis, this study demonstrates that immersive technologies can support higher-order interpretive skills when grounded in pedagogy and theory.

Importantly, the study also responds to critiques that AR risks being used as a novelty rather than a meaningful instructional tool. By anchoring design decisions in constructivist, multimedia, and experiential learning theories, *i-Syair* illustrates how AR can be purposefully integrated into higher education curricula to support disciplinary learning goals. In doing so, the study contributes a theoretically informed and contextually grounded model for the use of AR in Arabic literary education and, more broadly, in humanities teaching.

Conclusion

This study set out to address persistent pedagogical challenges in the teaching of Classical Arabic poetry at the tertiary level by exploring the potential of Augmented Reality as a curriculum-aligned instructional medium. Grounded in constructivist, multimedia learning, and experiential learning theories, the development and implementation of the *i-Syair* application demonstrate that immersive technologies can be meaningfully integrated into Arabic literary education to support engagement, comprehension, and higher-order interpretive learning. Rather than positioning AR as a supplementary or motivational tool, this study conceptualises it as a pedagogically grounded environment for literary meaning-making.

The findings and subsequent theoretical interpretation suggest that AR has particular value in mediating between the abstract nature of Classical Arabic poetry and learners' cognitive and experiential needs. By enabling visualisation of poetic imagery, contextualisation of cultural references, and multimodal explanation of complex language, *i-Syair* responds directly to long-standing difficulties reported in Arabic literature pedagogy. The study therefore contributes to the growing body of educational technology research by extending the application of AR into advanced humanities education, an area that remains comparatively underexplored in existing scholarship (Bacca et al., 2014; Radianti et al., 2020).

From a pedagogical perspective, the study has important implications for Arabic literature instructors and curriculum designers. It illustrates how traditional literary content can be re-envisioned through immersive design without compromising disciplinary rigor or curricular

alignment. The i-Syair model demonstrates that technology-enhanced literature instruction can support interpretive depth, not merely surface engagement, when grounded in clear learning objectives and theoretical principles. This has broader relevance for literature education in multilingual and non-native learning contexts, where abstract textual analysis often presents significant barriers to student understanding.

At an institutional and policy level, the study aligns with ongoing efforts to promote digital transformation and innovative teaching practices in higher education. The development of a scalable, mobile-based AR application offers a practical pathway for integrating immersive technologies into humanities curricula, which are often perceived as less amenable to digital innovation than STEM disciplines. As such, the study provides empirical and conceptual support for the inclusion of educational technologies in arts and humanities programmes as part of broader institutional digitalisation strategies.

Despite its contributions, this study is not without limitations. As a design and development research project evaluated at a functional prototype level, the findings are primarily qualitative and exploratory in nature. Future research should build upon this foundation through experimental or mixed-method studies that examine learning outcomes, interpretive skill development, and long-term retention in more controlled settings. Further investigations could also explore learners' metacognitive processes and the role of instructor mediation when using AR-based literary tools.

In conclusion, this study establishes i-Syair as a theoretically informed and pedagogically meaningful AR-based model for Classical Arabic poetry learning in higher education. By bridging educational technology, learning theory, and Arabic literary pedagogy, the research offers a sustainable and transferable framework for innovation in literature education. It underscores the potential of immersive technologies to revitalise the teaching of complex literary traditions while preserving their intellectual depth and cultural significance.

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