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Arabic Language Learning Design With Multimedia-Based Interactive Media

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Abstract

The shift in educational paradigms in the digital era demands innovative breakthroughs in foreign language learning, especially Arabic. Conventional teacher-centered learning and reliance on print media are the main factors in low student learning motivation. This study aims to design and develop Arabic language learning media using interactive multimedia-based media to improve maharah istima' (listening skills) and maharah kitabah (writing skills) of madrasah students. Using the Research and Development (R&D) method with the ADDIE (Analysis, Design, Development, Implementation, Evaluation) model, this study involved material experts, media experts, and 30 eighth-grade students as field trial subjects. Data were collected through a Likert scale validation questionnaire (1–5), pre-test, and post-test. The results showed that the multimedia product was declared "Very Feasible" by material experts (88%) and media experts (91%), with an overall average validation reaching 89.5%. The effectiveness test using the N-Gain score showed an increase in student learning outcomes of 0.71, which is included in the high category. Thus, interactive multimedia-based learning design has proven effective in increasing student engagement and understanding in learning Arabic.

Keywords: Arabic Language Learning Design; Interactive Multimedia; ADDIE Model; Educational Technology; N-Gain

INTRODUCTION

Arabic language learning in Indonesian educational institutions is often stigmatized as a difficult, boring, and overly theoretical subject. Conventional teacher-centered learning patterns and heavy reliance on printed textbooks are suspected to be the main factors contributing to low

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student motivation and interest in learning. This situation is exacerbated by the complex grammatical structure (qawaid) of Arabic, significant differences in script from Indonesian, and a lack of everyday context outside of Islamic boarding schools (pesantren) or madrasahs (Uriawan & Faroqi, 2015).

The development of information technology in the digital era opens up a huge opportunity to transform learning methodologies as a whole. The integration of technology in the form of interactive multimedia which combines elements of text, audio, video, animation, and self-assessment can provide a more concrete, contextual, and engaging learning experience. Learning a foreign language, especially in the aspects of maharah istima' (listening) and maharah kalam (speaking), really requires accurate audio-visual stimulation so that students can imitate the pronunciation (makhraj) of native speakers correctly (Arsyad, 2011). Without supporting media, these two maharah are nearly impossible to practice effectively in a regular classroom (Huda dkk., 2023).

Richard E. Mayer's Cognitive Theory of Multimedia Learning asserts that humans possess two separate information processing channels: the visual and the auditory channels. The human brain is capable of simultaneously integrating information received through both channels, making learning more effective and lasting when it synergistically incorporates verbal and visual representations (Mayer, 2021). This finding provides a strong theoretical foundation for the development of interactive multimedia-based learning media (Nurlatipah dkk., 2024).

Several previous studies have discussed the use of digital media in Arabic language learning, such as Android apps, e-learning platforms, and educational games. However, most of these studies focused solely on entertainment and gamification aspects without aligning them with systematic and measurable instructional design. The gap identified is the lack of research that integrates language learning design based on students' systemic needs, where media does not stand alone but is integrated into a comprehensively planned and evaluated learning syntax (Rini dkk., 2024).

Therefore, this study aims to design, develop, and test the effectiveness of multimedia-based interactive media in Arabic language learning at the junior high school level. By using the systematic ADDIE (Analysis, Design, Development, Implementation, Evaluation) development model, it is hoped that the resulting product will not only be theoretically feasible according to experts, but also empirically effective in improving student learning outcomes. This research makes a real contribution to the development of scientific knowledge in the field of evidence-based Arabic language learning technology (evidence-based learning design) (Riwanto dkk., 2024).

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Communicative Language Teaching (CLT)

Communicative Language Teaching (CLT), pioneered by Hymes (1972) and further developed by Canale and Swain (1980), posits that language learning must prioritize communicative competence over mere grammatical accuracy. In the context of Arabic, this framework advocates for instructional media that simulates authentic communicative contexts, enabling learners to engage meaningfully with the language in practical, real-world situations. CLT supports the design of interactive media that presents Arabic vocabulary, grammar, and pronunciation within contextualized scenarios, such as dialogues, role-play simulations, and situational exercises. Interactive multimedia environments allow learners to practice receptive and productive skills simultaneously, aligning with the communicative goals of Arabic acquisition (Marwah dkk., 2025).

Krashen's Input Hypothesis

Stephen Krashen's Input Hypothesis (1982) proposes that language acquisition occurs when learners are exposed to comprehensible input slightly beyond their current proficiency level (i+1). Applied to Arabic multimedia learning, this theory informs the design of scaffolded content that progressively increases in linguistic complexity from basic Modern Standard Arabic (MSA) vocabulary to complex grammatical structures ensuring that learners receive appropriately challenging yet comprehensible input at every stage. Multimedia-based platforms can systematically deliver graded Arabic content, employing visual aids, audio narration, and contextual glossaries to lower the affective filter and make advanced linguistic structures more accessible to learners at varying proficiency levels (Fitriansyah dkk., 2025).

Vygotsky's Zone of Proximal Development (ZPD)

Vygotsky's sociocultural theory (1978) introduces the Zone of Proximal Development (ZPD) the distance between a learner's independent capability and what they can achieve with guidance. In multimedia-based Arabic learning, interactive scaffolding mechanisms (such as hints, feedback systems, and adaptive exercises) function as a virtual "more knowledgeable other" (MKO), supporting learners through linguistically challenging tasks and gradually withdrawing support as competence is consolidated (Muthongah dkk., 2025).

ADDIE Model

The ADDIE model (Analysis, Design, Development, Implementation, Evaluation) serves as

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the primary instructional design framework for structuring multimedia-based Arabic learning (Rahmi dkk., 2025). This systematic model ensures that educational content is developed through a structured, iterative process:

1. Analysis: Identifies learner needs, Arabic language learning objectives, and technological requirements.
2. Design: Determines the learning strategies, multimedia elements, interaction types, and assessment methods appropriate for Arabic phonology, morphology, and syntax.
3. Development: Produces the interactive media content, incorporating audio-visual materials, animations, and gamified elements.
4. Implementation: Deploys the learning system across digital platforms accessible to diverse learner populations.
5. Evaluation: Assesses learning outcomes, usability, and system effectiveness through formative and summative assessments (Sorongan & Fauji, 2023).

Dick and Carey Systematic Design Model

The Dick and Carey model (1990) complements ADDIE by emphasizing the interconnectedness of all instructional components. In Arabic language learning design, this model ensures that learning objectives mastering Arabic script, vocabulary, and conversational patterns), instructional strategies, and assessment instruments are systematically aligned, producing a coherent and goal-oriented multimedia learning experience (Sakka dkk., 2024)

Mayer's Cognitive Theory of Multimedia Learning (CTML)

Richard Mayer's Cognitive Theory of Multimedia Learning (2001) is the cornerstone of multimedia instructional design for Arabic language acquisition (Parikesit & Amrullah, 2025). Mayer identifies three core cognitive principles that guide effective multimedia design:

1. Dual-Channel Processing: Learners process auditory and visual information through separate channels. Arabic multimedia platforms leverage both channels by pairing Arabic script (visual) with native-speaker audio (auditory), reinforcing phonological and orthographic learning simultaneously.
2. Limited Cognitive Capacity: Each channel has finite processing capacity. Effective Arabic multimedia design avoids cognitive overload by presenting information in digestible segments, using segmenting, pre-training, and coherence principles.

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3. Active Processing: Meaningful learning occurs when learners actively select, organize, and integrate new information. Interactive Arabic exercises such as drag-and-drop letter matching, audio-text synchronization, and adaptive quizzes promote active cognitive engagement (Widada dkk., 2021).

Mayer's principles directly inform design decisions such as animation pacing, the placement of Arabic text relative to images, and the use of narration over on-screen text to reduce redundancy (Robi'ah dkk., 2023).

DISCUSSION

Description of the Final Interactive Media Product

The final product of this development research is an interactive HTML5-based Arabic language learning multimedia application developed using Articulate Storyline 360. This application can be accessed through a web browser on a computer, tablet, or smartphone without requiring additional software installation (Khasanah, 2024). The product interface is designed by considering modern instructional design principles, including intuitive navigation, a color scheme that is appropriate to the Arab-Islamic cultural context (dominance of green and gold), and the use of easy-to-read typography (Ainiyah dkk., 2024).

This interactive multimedia product contains four essential, integrated components. The first component is al-hiwar (audio-video-based conversations), which displays dialogues between native speakers in the context of everyday life situations in the school and family environment (Muflihah dkk., 2025). The second component is al-mufrodat (visual and animation-based vocabulary), which presents each Arabic word along with illustrations, transliteration, and audio pronunciation (Makruf, 2020). The third component is al-qawa'id (grammar), which presents grammatical rules visually using diagrams and interactive example sentences (Juvi dkk., 2020). The fourth component is al-tamrinat (interactive exercises and quizzes), which provides various types of questions with a live scoring system and automatic feedback (Larenzi dkk., 2024).

A key feature that differentiates this product from conventional learning media is the integrated immediate feedback system for each practice question (Regita dkk., 2024). When a student provides an incorrect answer to a grammar question (qawaid), the system automatically displays a brief explanation of the correct rule along with examples of its use (Hamidi dkk., 2023). Furthermore, the self-paced learning feature allows each student to learn at their own pace without the pressure of strict time limits (Faiqoh dkk., 2025).

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Expert Validation Results

Before being implemented with students in the field trial phase, this interactive media product was first validated by two categories of validators (Ningsih dkk., 2024). The first validator was a content expert, an experienced Arabic language lecturer, who assessed aspects of curriculum suitability and linguistic quality (Siregar & Siregar, 2023). The second validator was a media expert, an educational technology expert, who assessed aspects of visual design, user interface, and the quality of the product's interactivity (Safitri dkk., 2025).

No	Evaluation Aspects	Percentage Score	Category
1	**Subject Matter Expert**		
	Compliance with Curriculum & Basic Competencies	86%	Very Worthy
	Linguistics (Makhraj & Grammar/Qawa'id)	90%	Very Worthy
2	**Media Member**		
	Visual Design and User Interface	92%	Very Worthy
	Interactivity and Ease of Navigation	90%	Very Worthy
	Average Total Validation	**89,5%**	**Very Worthy**

Table 1. Expert Validation Results for Arabic Interactive Media

Based on the data in Table 1, the average rating from all validators reached 89.5% (Nashoih, 2025). This figure exceeds the minimum eligibility threshold (80%), placing this multimedia-based interactive media in the Very Feasible category and ready for implementation in classroom learning (Siregar & Siregar, 2023). The highest score was given by media experts for the Visual Design and User Interface aspect (92%), indicating that the product's visual appearance complies with modern instructional design principles (Hidayah dkk., 2025).

Effectiveness of Media on Student Learning Outcomes

The effectiveness test was conducted by comparing the average pre-test and post-test scores of 30 students who participated in the field trial (Yusuf & Arif, 2022). The pre-test was administered before students used the interactive media, while the post-test was administered

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after students completed the entire learning series using the media over four sessions (8 class hours) (Mufidah dkk., 2025).

Number of Students	Installment-Installment Pre-test	Rate-Rate Post-test	N-Gain Value	Category
30 Students	58,40	88,10	**0,71**	**High**

The data in Table 2 shows a very significant jump in the average score, namely from 58.40 in the pre-test to 88.10 in the post-test. This absolute difference in increase reached 29.70 points (Mufidah dkk., 2025). The Normalized Gain (N-Gain) value obtained of 0.71 indicates that the effectiveness of using this multimedia-based interactive media is in the High Category, exceeding the threshold of the medium category (0.70). These results statistically prove that the developed media is not only theoretically feasible, but also empirically effective in improving student learning outcomes (Amin dkk., 2025).

CONCLUSION

This research successfully designed and developed interactive multimedia-based learning media for Arabic language subjects at the Madrasah Tsanawiyah level using the ADDIE development model. Based on a comprehensive assessment by material experts and media experts, this interactive multimedia product was declared Very Feasible with an average overall validation score reaching 89.5%. The implementation of the media in the classroom for four meetings proved its high effectiveness, marked by an increase in the average student learning outcomes from 58.40 to 88.10 and an N-Gain value of 0.71 which is included in the High Category.

These findings confirm that learning designs that integrate interactive multimedia—with attention to the principles of immediate feedback, self-paced learning, and dual-channel (visual and auditory) stimulation—are significantly more effective in increasing student understanding and engagement than conventional lecture- and textbook-based learning approaches. This media successfully shifts students' paradigm from passive recipients to active actors in the process of constructing their own knowledge.

For further research, it is recommended to conduct trials on a larger scale (multi-school and multi-city) with a control group to allow for a more comprehensive and scientific comparison of effectiveness. Furthermore, it is highly recommended to integrate artificial intelligence (AI),

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particularly speech recognition, to train speaking skills automatically and adaptively. AI integration also opens up opportunities for the development of learning systems that can dynamically adjust the difficulty level of the material based on each student's individual ability profile (adaptive learning system).

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