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The Development of an Interactive Website-Based Arabic Learning Media for Grade XI Senior High School Students

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ABSTRACT

Arabic language instruction in Indonesian secondary schools faces persistent challenges, including low student motivation, monotonous methods, and limited access to interactive digital media. This study developed *Al-ʿArabiyyah At-Tafāʿuliyyah*, an interactive website-based Arabic learning media for Grade XI students at SMA Islam Assyafiiyah 02 Bekasi, focused on the thematic unit of *ʿIyādah al-Marīḍ* (Visiting the Sick). Using a Research and Development (R&D) method with the Successive Approximation Model version 2 (SAM2) as the development framework and Hutchinson and Waters' (1987) target-needs framework for needs analysis, the study conducted four evaluation stages: needs analysis, content expert validation, media expert validation, and student practicality assessment. The needs analysis (N = 20) returned 80.22%, confirming strong learner demand for interactive, audio-supported Arabic media. Content validity reached 100% and media validity 88.24%, both classified as Very Feasible. Student practicality assessment yielded 83.44%, classified as Very Practical. These results confirm that the media is pedagogically sound, technically functional, and practically feasible for secondary school deployment, while extending the application of SAM2 and the Hutchinson and Waters framework to Arabic language education in Indonesia.

Key words: Interactive Learning Media; Website-Based Arabic Instruction; SAM2; Needs Analysis; Practicality Evaluation

INTRODUCTION

Arabic is the language of the Holy Quran and one of the six official languages of the United Nations, recognized as such since General Assembly Resolution 3190 (XXVIII) of 18 December 1973 (Nations, 2026). Beyond religion, Arabic is used in diplomacy, scholarship, and intercultural exchange by more than 400 million people worldwide (UNESCO, 2026). In Indonesia, which has the largest Muslim population in the world, Arabic is taught at all school levels as part of the Islamic education curriculum. Arabic instruction targets four language skills: listening

(*mahārah al-istimāʿ*), speaking (*mahārah al-kalām*), reading (*mahārah al-qirāʿah*), and writing (*mahārah al-kitābah*). These four skills together form the communicative competence that Arabic learning is designed to develop (Farhan et al., 2025).

Despite its importance in Indonesian education, Arabic language learning continues to face persistent challenges. Scholars categorize these into two groups: linguistic problems and non-linguistic problems (Mufidah et al., 2023; Putri et al., 2024). Linguistic problems arise from structural features of Arabic that do not exist in Indonesian. These include a phonological system with sounds absent in Indonesian, a morphological derivation system (*sarf*), and a grammar structure in which word endings change based on syntactic function (*nahw*). Non-linguistic problems include low student motivation and teacher overreliance on lecture-based methods with no digital media support (Putri et al., 2024). Mufidah et al. (2023) note that these two problem categories frequently reinforce each other, making it harder for students to maintain engagement when the language itself is difficult and instruction is not varied.

These challenges were observed at SMA Islam Assyafiiyah 02 Bekasi, a school that requires Arabic as a compulsory subject for all grade levels. Classroom observations showed that Arabic instruction at this school relied only on printed textbooks, with no digital learning media available to support any of the four language skills. Interviews conducted on 5 November 2025 with five Grade XI students found that three considered Arabic lessons monotonous because instruction consisted solely of teacher explanation and note copying, with no media variation. Two other students reported difficulty with Arabic pronunciation because they heard correct pronunciation demonstrated only once per lesson. The Arabic teacher confirmed that student engagement during Arabic lessons was low, with many students appearing passive during class. This situation indicates that SMA Islam Assyafiiyah 02 Bekasi requires a learning media that can support active, varied, and audio-based Arabic instruction.

Aulia et al. (2024) and Ilmiani et al. (2020) find that digital learning media increase student engagement, motivation, and academic achievement in language learning. In Arabic instruction specifically, Fitrianto (2024) documents a growing trend toward digital media integration in Indonesian Arabic classrooms, though implementation remains limited because few platforms are specifically designed for Arabic. Several studies have developed Arabic-language learning media for websites in Indonesia. Junelsya et al. (2026) developed QIRAMA, a website-based Arabic reading skills media for MTs students in Batang, which received high feasibility scores from expert validators. A similar study at MTs N 1 Gorontalo produced a website-based media for *qiraah* material. However, a systematic review by Haris et al. (2024) of Arabic-language learning media research in Indonesian Sinta-indexed journals from 2019 to 2023 finds that website-based interactive media remain underexplored, with most studies focusing on app-, video-, or card-based platforms. Furthermore, none of the documented website-based Arabic

learning media combine gamified learning features, cloud-synced student progress, a teacher administration dashboard, and human-recorded audio on a single platform. These are the features that need analysis data from Grade XI students and the Arabic teacher at SMA Islam Assyafiiyah 02, Bekasi, as indicated.

Gamification has been shown to increase motivation and achievement in Arabic language learning (Almelhes, 2024; Rezi et al., 2024). Based on a needs analysis using the Hutchinson and Waters (1987) framework, Grade XI students at SMA Islam Assyafiiyah 02 Bekasi required interactive, audio-supported, and self-paced learning media that none of the existing resources provided. This study therefore develops *Al-ʿArabiyyah At-Tafāʿuliyyah* (العربية التفاعلية), an interactive website-based Arabic learning media accessible at arabiyya-web.my.id, developed using the Successive Approximation Model version 2 (Allen & Sites, 2012). This study aims to evaluate the validity and practicality of *Al-ʿArabiyyah At-Tafāʿuliyyah* as an interactive Arabic learning media for Grade XI students at the senior secondary level.

LITERATURE REVIEW

Previous Related Study

Junelsya et al. (2026) developed QIRAMA, a website-based Arabic learning media for teaching reading skills (*mahārah al-qirāʿah*) to eighth-grade students at MTs in Batang, Central Java. Using the Hannafin and Peck development model, the study produced a single-page web application that combined reading materials, human-recorded audio, interactive vocabulary exercises, and comprehension quizzes into a single accessible platform. Expert validation from media and material validators yielded an average feasibility score of 4.72 out of 5, placing the product in the very feasible category. The website format also allowed students to access the medium outside of classroom hours without installing additional software. Junelsya et al. (2026) noted, however, that the study was limited to feasibility testing and did not measure student learning outcomes through a pre-test and post-test design. The medium also lacked gamification features and cloud-based progress tracking.

Luqiana and Rasyid (2023) developed a WordPress-based Arabic learning platform for Grade IX students at MTs. The study applied an R&D approach and evaluated the product through expert validation and student response questionnaires. Media expert validation produced a score of 91%, material expert validation reached 70.76%, and student response reached 96.15%, yielding an overall feasibility score of 84.61% in the feasible category. These results showed that a web-based Arabic learning platform can make content accessible and easy for students to review independently outside of class. Luqiana and Rasyid (2023) acknowledge, however, that WordPress as a content management system imposed constraints on technical customization and limited the range of exercise formats and interactive features that developers could build into the medium.

Anugrah et al. (2025) examined the effect of interactive digital-based Arabic learning at an Islamic senior secondary school in Indonesia. The study used an action research approach and integrated interactive applications, instructional videos, and digital exercises into the Arabic learning process. Student scores increased by 30% compared to conventional teaching methods, and both teacher and student responses were strongly positive. Anugrah et al. (2025) concluded that students at the Islamic senior secondary level responded well to varied, technology-supported Arabic learning activities. The study, however, did not produce an original purpose-built medium. It integrated existing commercial digital tools into classroom practice and did not develop content specifically aligned to a particular school curriculum or a defined thematic unit of Arabic instruction.

Firdausia et al. (2020) developed an offline web-based Arabic learning media for Grade X students at SMA Negeri 8 Malang using the R&D approach with the Borg and Gall model. The product was an offline HTML-based website covering Arabic vocabulary and reading materials. Expert validators assessed the product as feasible and effective in supporting student learning outcomes. The offline format, however, meant that student progress could not be tracked across learning sessions or accessed from different devices. In addition, the Borg and Gall model did not allow for iterative revision based on ongoing user feedback during the development process, as each stage was completed sequentially before the next could begin.

Hansayani and Husna (2026) investigated teacher and student perceptions of interactive digital media use in Arabic language learning across several school contexts in Indonesia. Their findings showed that students who learned Arabic through interactive digital media demonstrated higher engagement levels than those taught through conventional methods. Hansayani and Husna (2026) identified gamification features, immediate feedback, and visually rich interfaces as the factors most responsible for sustained student motivation. Teachers in the study also reported that students showed greater willingness to repeat exercises independently and demonstrated improved Arabic vocabulary retention after using interactive media. The study did not develop a specific medium but did provide evidence that students and teachers most value gamification and immediate feedback in digital Arabic learning tools.

The five studies reviewed above show that website-based and interactive digital media are a productive direction for Arabic language learning at the junior and senior secondary levels in Indonesia, with feasibility scores consistently above the acceptable threshold and positive responses from both students and teachers. At the same time, the studies reveal a shared limitation. Studies that developed custom website-based Arabic learning media either relied on content management systems that constrained interactivity, used offline formats that prevented progress synchronization, or stopped at feasibility testing without extending to classroom effectiveness measurement. No study produced a website-based Arabic learning media that combined gamification, cloud-synced student progress, speech recognition exercises, a teacher administration panel, and human-recorded audio

within a single platform designed for a specific Arabic curriculum unit at the senior secondary Islamic school level. This gap is what the development of *Al-ʿArabiyyah At-Tafāʿuliyyah* seeks to address.

Interactive Website-Based Learning Media

Learning media are any instruments, whether hardware or software, used in a planned manner during the learning process to deliver instructional messages, stimulate learners' cognitive and affective development, and support the achievement of learning objectives. Fadilah et al. (2023) describe learning media as tools that can help learners learn more effectively and enjoyably, serving as instruments that deliver learning material while stimulating thoughts, feelings, attention, and interest to achieve predetermined learning goals. Aulia et al. (2024) add that learning media play a significant role in enhancing student engagement, conceptual understanding, and academic outcomes by providing structured interaction between learners and instructional content. Firdaus and Mahardika (2022) further specify that in digital learning environments, media function not only as content carriers but as interactive systems capable of responding to learner input in real time. Taken together, these definitions confirm that learning media are active instruments that shape the cognitive, affective, and instructional dimensions of the learning experience.

Interactive learning media allow two-way communication between the user and the media system, enabling learners to interact, respond, and control the course of learning according to their individual needs and abilities. Firdaus and Mahardika (2022) define web-based interactive learning media as media with two-way communication capacity between the user and the medium, accessible through the internet at any time and from any location, with interactivity built from multimedia components such as text, images, audio, and video that facilitate learner understanding of instructional material. Purba et al. (2021) state that web-based interactive learning media are computer-based tools designed to provide feedback on user activity, in which learners do not receive material passively but actively respond to each stimulus and receive immediate feedback on every response. Three characteristics consistently distinguish interactive media from passive media in the literature. The first is active user response: learners click, answer, choose learning paths, and navigate independently. The second is immediate feedback: the system confirms correct or incorrect answers and provides additional explanation when needed. The third is learner control over the sequence, pace, and depth of material studied, reflecting principles of self-directed instruction.

A website as a learning media is an internet-based platform that presents learning content in an integrated manner, accessible to learners at any time and from any place through an internet-connected device. Firdaus and Mahardika (2022) note that website-based learning media remove the spatial and temporal constraints of conventional classrooms, allowing students to access materials and practice independently outside school hours. Sipahutar and Yahfizham (2025) conducted a

systematic literature review on the implementation of HTML and JavaScript in web-based learning media. They concluded that the effectiveness of such media is determined not only by the technology used but also by the quality of instructional design and the implementation context. Their review further affirms that integrating technical and pedagogical aspects is the key to developing effective web-based media. Website-based learning media offer four key advantages (Firdaus & Mahardika, 2022). First, universal accessibility across devices, with no time or location restrictions. Second, multimedia integration that combines text, images, audio, video, animation, and interactive elements on a single platform. Third, ease of content updating without reprinting costs—fourth, high interactivity through quizzes, adaptive exercises, and gamification elements that encourage active learner engagement.

Selecting an appropriate learning media requires careful evaluation against established pedagogical criteria. Wulandari et al. (2023) identify several criteria for selecting learning media, including the purpose of use, the intended audience, the advantages and limitations of the medium, the availability of time and resources, and the availability of media in the field. Research on website-based educational media confirms that an effective web-based media must align with learning objectives, suit the characteristics of the target learners, and support independent and flexible learning (Adibowo et al., 2025). Aulia et al. (2024) further identify the level of interactivity, media diversity, instructional consistency, flexibility, and responsiveness to student needs as the key design factors that determine how effectively an interactive media supports engagement and learning outcomes. In this study, an interactive website was selected as the Arabic learning media because it meets all of these criteria. It aligns with the communicative and multimodal goals of Arabic instruction, suits Grade XI students who are familiar with digital technology, supports repeated practice with immediate feedback, and can be accessed independently outside school hours.

Arabic Language Learning

Arabic language learning is a systematic, purposeful pedagogical process aimed at building communicative competence across all four language skills. Al-Naqah (2006) defines it as an organized process grounded in linguistic, psychological, and pedagogical foundations that aims to enable learners to acquire the four language skills and apply them in real communicative situations. Thu'aimah (1998) defines it as an effort to enable learners to communicate in Arabic, both in writing and in speech, and to understand it through listening and reading, through planned programs and curricula that consider the learner's characteristics, needs, and goals. Contemporary studies reinforce these foundational definitions. Rahmah et al. (2024) demonstrate that web-based Arabic learning programs in Indonesian Islamic secondary schools are most effective when they are designed around learners' actual communicative needs and structured to develop the four language skills in an integrated and contextual manner. In Indonesia, Arabic is taught from primary through senior secondary levels in Islamic schools, where its role extends beyond

functional communication to deepen understanding of Islamic teachings, given that the primary sources of Islamic jurisprudence and scholarship are written in Arabic. Arabic language instruction is built around four integrated language skills referred to collectively as *al-mahārāt al-arba'*: listening (*mahārah al-istimāʿ*), speaking (*mahārah al-kalām*), reading (*mahārah al-qirāʿah*), and writing (*mahārah al-kitābah*). Hizza and Kholiq (2026) affirm that students are expected to improve competence in all four of these skills as an integrated system, as they are the foundations of Arabic foreign language learning, and that progress in one skill supports development in the others. Harisca and Muslim (2023) note that speaking instruction should target real language use, so learners can practice communication in contextual situations and develop the ability to use Arabic in daily life, rather than merely understanding its formal structure. Khaerati (2023) explains that reading skill involves not only text recitation but also the ability to understand content, identify main ideas, and interpret meaning critically, which is particularly challenging in Arabic because the writing system often omits vowel markers. Huda et al. (2023) report that the implementation of Arabic learning media in Indonesian Islamic higher education contexts shows that vocabulary and writing competencies are most effectively developed when learners receive structured, staged instruction that moves from word-level to sentence-level production. These four skills are not developed in isolation; effective Arabic instruction, therefore, requires a design that integrates all four (Zubair, 2024).

At the senior secondary level in Islamic schools in Indonesia, Arabic language learning aims to develop competence across cognitive, skill, and attitudinal dimensions. The cognitive dimension concerns understanding of *nahw* and *sarf*, vocabulary, and sound systems. The skill dimension emphasizes the ability to use Arabic in real communicative situations through the four integrated skills. The attitudinal dimension involves developing interest, motivation, and appreciation for Arabic as a language that carries cultural, intellectual, and spiritual value in the Islamic context (1998 ,طعيمة; 2006 ,الناقة).

METHOD

Design and Samples

This study used a Research and Development (R&D) approach with the Successive Approximation Model 2 (SAM2) developed by Allen and Sites (2012) as the development framework. SAM2 was selected for its iterative and collaborative nature, allowing the developer to make gradual revisions at each development cycle, making it more flexible and efficient than linear models such as ADDIE. Development in this study was bound to the Beta Version, during which the product underwent expert validation and user practicality testing. However, it had not yet reached the Gold (final) version. The study was conducted at SMA Islam Assyafiiyah 02 in Bekasi during the 2025–2026 academic year. The school was selected because Arabic is taught as a compulsory subject at all grade levels, and the school actively supports technology-based learning innovation.

The participants consisted of 20 students from Grade XI Teknik 1, selected through purposive sampling from all Grade XI classes at the school. This class was chosen because its students had already built a foundational understanding of Arabic in Grade X and were at the stage of developing advanced language skills, making them well-suited to evaluate an interactive website-based learning media. The study also involved content experts and media experts as validators at the design and development stages. The learning content of the medium was scoped to the thematic unit of *ʿIyādah al-Marīḍ* (*Visiting the Sick*), the third chapter of the Grade XI Arabic curriculum at SMA Islam Assyafiiyah 02, Bekasi. The theme covers communicative situations including greetings, expressing concern, describing health conditions, and formulating prayers for recovery, reflecting the communicative and contextual orientation of Arabic instruction at the senior secondary level. The content is delivered across six sequential sections: *Hiwar* (dialogue), *Mufrodat* (vocabulary), *Tadribat 1* (first exercises), *Qawaid* (grammar, covering *fiil madhi*, *fiil mudhari*, and *jumlah filiyyah*), *Tadribat 2* (second exercises), and *Imtihan* (final assessment).

Instrument and Procedure

Primary quantitative data were collected through four types of questionnaires administered at different phases of the SAM2 procedure, as summarized in Table 1. Preliminary qualitative data classroom observations and semi-structured interviews conducted in November 2025 informed the Savvy Start session and are reported in the Introduction as contextual background.

Table 1. Research Instruments

No.	Instrument	Items	Respondents	Phase of Use
1.	Needs Analysis Questionnaire	17	Grade XI Teknik 1 students (n = 20)	Preparation Phase
2.	Content Expert Validation Questionnaire	18	Content expert (1 validator)	Iterative Design Phase
3.	Media Expert Validation Questionnaire	17	Media expert (1 validator)	Iterative Design Phase
4.	Student Practicality Questionnaire	16	Grade XI Teknik 1 students (n = 20)	Iterative Development Phase

All four questionnaires used a 4-point Likert scale. An even-numbered scale was chosen to eliminate the neutral midpoint option and thus prompt respondents to take a clear stance on each statement, reducing central tendency bias (see Table 2).

Table 2. Scoring Scheme for the 4-Point Likert Scale

No.	Response Option	Score	Description
1.	Strongly Agree (SA) / Very Appropriate / Very Feasible / Very Practical	4	Respondent strongly endorses the statement
2.	Agree (A) / Appropriate / Feasible / Practical	3	Respondent endorses the statement
3.	Disagree (D) / Inappropriate / Less Feasible / Less Practical	2	Respondent does not endorse the statement
4.	Strongly Disagree (SD) / Very Inappropriate / Not Feasible / Not Practical	1	Respondent strongly does not endorse the statement

The Needs Analysis Questionnaire (17 items) was constructed based on the Hutchinson and Waters (1987) framework, which centers on target needs as the competencies and conditions learners require to achieve their learning goals. Target needs are organized into three dimensions. Necessities (items 1–6) cover the competencies learners must acquire to function effectively at the Grade XI level. Lacks (items 7–12) address the gap between students' current Arabic proficiency and the target level. Wants (items 13–17) capture learners' own perceived needs and preferences toward the learning media. This questionnaire was distributed to Grade XI Teknik 1 students (n = 20) during the Preparation Phase, prior to any design activity.

The Content Expert Validation Questionnaire (18 items) evaluated the pedagogical feasibility of the medium across four aspects. Content feasibility (5 items) assessed alignment with Grade XI learning outcomes and the accuracy of the Arabic material. Presentation feasibility (5 items) examined the sequencing of learning content and its capacity to engage learners. Language feasibility (4 items) evaluated the correctness and consistency of Arabic and Indonesian language use throughout the medium. Assessment feasibility (4 items) measured the quality and educational value of the practice exercises and the feedback provided. The Media Expert Validation Questionnaire (17 items) assessed the technical and aesthetic dimensions of the website across four aspects: software engineering (5 items), visual design (5 items), navigation and interactivity (4 items), and multimedia quality (3 items). Both questionnaires were administered to the respective validators during the Iterative Design Phase. The Student Practicality Questionnaire (16 items) was administered to Grade XI Teknik 1 students (n = 20) after they had used the Beta Version independently. The instrument captured end-user perspectives across four dimensions: ease of use (4 items), interface appeal (4 items), content clarity (4 items), and learning benefits (4 items).

In terms of procedure, the research followed the three phases of SAM2. The Preparation Phase began with preliminary qualitative data collection. Classroom observations were conducted to document existing instructional conditions, and

semi-structured interviews were held with five Grade XI students and the Arabic teacher in November 2025 to gather initial perspectives on Arabic learning challenges at the school. These qualitative data established the contextual basis for the study and informed the subsequent Savvy Start session. The needs analysis questionnaire was then distributed to Grade XI Teknik 1 students (n = 20) to systematically identify their target learning needs. The Preparation Phase concluded with a Savvy Start session, a structured collaborative discussion among the researcher, the Arabic teacher, and the media expert, which translated the needs analysis findings into preliminary content and design directions (Allen & Sites, 2012). In the Iterative Design Phase, detailed design artifacts (storyboard, navigation flowchart, and visual mockups) were produced, reviewed by the content and media experts, and revised accordingly before development commenced. In the Iterative Development Phase, the interactive website was built using Visual Studio Code and then validated by both experts (Alpha Version). Based on the validation feedback, the product was refined and subsequently tested by Grade XI Teknik 1 students, who completed the practicality questionnaire (Beta Version). Data collection concluded at this stage.

Data Analysis

Data from all four questionnaires were analyzed using descriptive statistics. The percentage score for each instrument was calculated using the following formula adapted from Akbar (2013) and Riduwan (2015):

$$P = (\Sigma Score\ Obtained / \Sigma Maximum\ Score) \times 100\%$$

where P is the percentage score, ΣScore Obtained is the total score given by respondents, and ΣMaximum Score is the highest possible total score. The resulting percentages were interpreted using the criteria in Table 3.

Table 3. Practicality Assessment Criteria

No.	Percentage (%)	Practicality Category
1.	81% – 100%	Highly Practical
2.	61% – 80%	Practical
3.	41% – 60%	Moderately Practical
4.	21% – 40%	Less Practical
5.	0% – 20%	Not Practical

The medium is declared practical if it achieves a minimum score of 61% the Practical category averaged across the content and media expert validation scores and the student practicality assessment. This threshold serves as the benchmark for evaluating whether the Beta Version is ready for further development toward the Gold Version.

RESULT AND DISCUSSION

The needs analysis questionnaire was distributed to Grade XI Teknik 1 students (n = 20) at the Preparation Phase, before any design work began. Built on the target-

needs framework of Hutchinson and Waters (1987), the 17-item instrument measured three dimensions: Necessities, Lacks, and Wants. Results are presented in Table 4.

Table 4. Results of Needs Analysis (n = 20, 17 items)

Dimension	Items	Avg. Score	Percentage	Category
Necessities	6	3.26	81.46%	High
Lacks	6	3.03	75.83%	Moderate
Wants	5	3.36	84.00%	High
Overall Average	**17**	**3.22**	**80.22%**	**High**

Across all three dimensions, students rated their target needs as high priority. The Wants dimension achieved the highest score (84.00%), indicating that students sought an Arabic learning media with interactive exercises, immediate answer feedback, human-recorded pronunciation audio, and visually engaging design precisely the features identified as motivationally significant by Almelhes (2024) in his systematic review of gamification in Arabic language instruction. The Necessities dimension scored 81.46%, showing that students were aware of the linguistic competencies required at Grade XI level: vocabulary (mufradāt), grammar (qawā'id), and the four integrated language skills (mahārāt al-arbaʿ). The Lacks dimension scored 75.83%, the lowest of the three, though still categorized as Moderate, indicating that students perceived themselves as having foundational Arabic competence from Grade X while acknowledging persistent gaps in listening comprehension (istimāʿ), oral production (kalām), and reading unvocalized text (qirāʾah). The overall average was 80.22%, classified as High, confirming a clear and well-documented demand for an interactive, web-based learning media among the target learners.

The content of the medium was validated by Rosdiantini, S.Ag, a practitioner with expertise in Arabic language education at the secondary level. Validation was conducted during the Iterative Design Phase using the 18-item instrument. Results are shown in Table 5.

Table 5. Results of Content Expert Validation

Aspect	Items	Score	Max Score	Percentage
Content Feasibility	5	20	20	100%
Presentation Feasibility	5	20	20	100%
Language Feasibility	4	16	16	100%
Assessment Feasibility	4	16	16	100%
Total	**18**	**72**	**72**	**100%**

The content validation returned a perfect score of 100% across all four aspects. The medium was placed in the Very Feasible category with no revisions required. The technical and visual quality of the website was assessed by Dr. Khambali, M.Pd., a specialist in educational technology and digital media. Validation was conducted

during the Iterative Design Phase using the 17-item instrument. Results are shown in Table 6.

Table 6. Results of Media Expert Validation

Aspect	Items	Score	Max Score	Percentage
Software Engineering	5	16	20	80.00%
Visual Design	5	20	20	100.00%
Navigation & Interactivity	4	14	16	87.50%
Multimedia Quality	3	10	12	83.33%
Total	**17**	**60**	**68**	**88.24%**

The media validation produced an overall score of 60 out of 68 (88.24%), placing the medium in the Very Feasible category. Visual Design received a perfect score of 100%: the validator rated the page layout as neat and proportional, the color palette as harmonious and non-distracting, the Arabic and Latin typography as appropriately legible, and the overall visual presentation as engaging. Navigation and Interactivity scored 87.50%, confirming that menus and buttons function correctly, page transitions are smooth, interactive features (quiz items, drag-and-drop exercises, audio playback) operate as designed, and feedback is delivered to users appropriately. Multimedia Quality scored 83.33%, with the validator noting clear Arabic pronunciation audio, accurate audio-text synchronization, and relevant supporting animations. Software Engineering received the lowest score of 80.00%, with the validator identifying one specific concern: page load speed is slower under poor network conditions, due to the relatively large file sizes of the uploaded audio and image assets. The validator's conclusion was Feasible for use with revisions per recommendations, accompanied by two concrete suggestions: (1) optimize audio and image file sizes to reduce loading latency, and (2) add an admin dashboard enabling teachers to track individual student scores, introduce sequential section-locking so students must complete earlier sections before proceeding, and add a final examination accessible only upon 100% progress completion. Both revisions were implemented during the Alpha-to-Beta transition and are present in the Beta Version tested by students. Figure 1 below presents representative screens of Al-ʿArabiyyah At-Tafãʿuliyyah at the Beta Version stage.

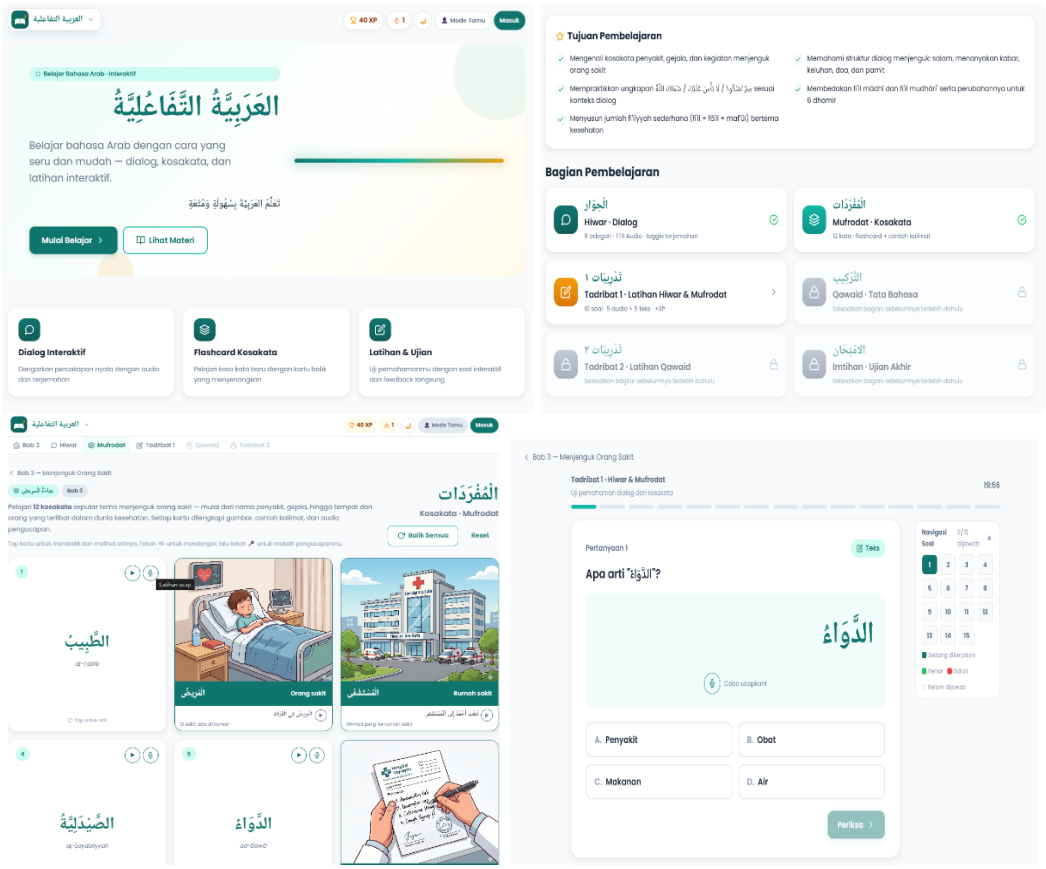

Figure 1. Screenshots of Al-ʿArabiyyah At-Tafāʿuliyyah — Beta Version

Following the Alpha-to-Beta revision cycle, Grade XI Teknik 1 students (n = 20) used the Beta Version independently before completing the Student Practicality Questionnaire. Results across four dimensions are presented in Table 7.

Table 7. Results of Student Practicality Assessment (n = 20, 16 items)

Dimension	Items	Avg. Score	Percentage	Category
Ease of Use	4	3.33	83.12%	Very Practical
Interface Appeal	4	3.34	83.44%	Very Practical
Content Clarity	4	3.38	84.38%	Very Practical
Learning Benefits	4	3.31	82.81%	Very Practical
Overall Average	**16**	**3.34**	**83.44%**	**VERY PRACTICAL**

All four practicality dimensions were rated as Very Practical. Content Clarity achieved the highest score of 84.38%, with students finding the Arabic and Indonesian text readable, the pronunciation audio clear and easy to reproduce, and the exercise instructions straightforward. This result is consistent with the content expert's perfect validation score. Rigorous pedagogical design in the Alpha Version appears to have translated directly into student-perceived clarity in the Beta Version.

The four sets of results present a coherent pattern: student need is high, content is valid, the medium is technically sound, and students find it practical to use. Each evaluation stage reinforced the others. The needs analysis identified specific gaps and preferences that shaped the content design. The content expert confirmed that the design addressed those gaps accurately. The media expert validated the technical delivery while identifying one correctable weakness in loading performance. Students rated the corrected Beta Version as Very Practical across all dimensions. This consistency across evaluation stages reflects the iterative logic of the SAM2 framework, which builds expert review and revision into every phase before learners encounter the product (Allen & Sites, 2012).

The Wants dimension scored highest in the needs analysis at 84.00%, indicating that students had a specific picture of what the medium should provide: interactive exercises with immediate feedback, human-recorded pronunciation audio, and visually engaging design. Nurhayati and Fathurrohman (2025), in a systematic review of 21 studies published between 2021 and 2024, found that gamification positively influences student motivation in primary and secondary education, with points and progress-tracking mechanisms producing the most consistent motivational effects. The high Wants score confirms that the gamification features in Al-ʿArabiyyah At-Tafāʿuliyyah, namely XP points and daily streak tracking, responded to documented learner preferences rather than being added arbitrarily.

The Lacks dimension scored 75.83%, the lowest of the three needs analysis dimensions, and this result is contextually coherent. Within the Hutchinson and Waters (1987) framework, Lacks captures the perceived gap between a learner's current competency level and the target level required. A moderate score on this dimension does not indicate a weak need. Rather, it reflects that Grade XI students entered the study with a foundational Arabic competence built during Grade X, which partially narrows the gap. Students acknowledged persistent deficiencies in listening comprehension (istimāʿ), oral production (kalām), and reading unvocalized text (qirāʾah), but they did not perceive themselves as beginners starting from zero. The medium was designed specifically for this learner profile: students who require structured reinforcement and skill extension, not remediation. The 75.83% score, therefore, confirms that the development target was correctly calibrated to the Grade XI level.

The Content Clarity dimension achieved the highest student practicality score at 84.38%, and this result is directly traceable to the 100% content validity awarded by the expert validator. The ʿIyādah al-Marīḍ content was structured around the Grade XI Capaian Pembelajaran, sequenced through six sections (ḥiwār, mufradāt, tadrībāt 1, qawāʿid, tadrībāt 2, and imtihān), and incorporated varied exercise formats with educationally meaningful feedback. All of these are criteria directly measured by the content validation instrument. The translation from expert-validated content structure to student-perceived comprehensibility is consistent with the pattern documented by Firdaus and Mahardika (2022), who observed that media achieving high content feasibility ratings from expert validators tend to

produce correspondingly high student usability scores. Pedagogically, the content's sequential progression from ḥiwār to mufradāt to interactive exercises, then to qawāʿid, and finally to further practice exercises mirrors the approach advocated by Al-Naqah (2006), who argued that effective Arabic instruction integrates vocabulary, grammar, and communicative context in a staged, coherent sequence. The medium operationalizes this principle in a digital, self-paced environment, allowing students to progress through the ʿIyādah al-Marīḍ unit without teacher-led pacing.

This study makes two theoretical contributions. First, it demonstrates the applicability of the SAM2 development model in the Arabic language education domain, a context where ADDIE and Borg-and-Gall remain far more widely used (Firdausia et al., 2020; Junelsya et al., 2026). SAM2's iterative structure, in which expert feedback is incorporated within each development phase rather than deferred to a terminal evaluation stage, proved well-suited to media that integrates multiple technical components alongside language-specific content. The Alpha-to-Beta revision cycle, in which the media expert's recommendations were fully implemented before student testing commenced, is a direct product of this iterative logic. Second, the study extends the Hutchinson and Waters (1987) needs analysis framework to Arabic secondary school media development, where its published applications have been limited. The framework's three-dimensional target-needs structure generated design specifications directly traceable to specific features of the medium and, subsequently, to the students' practicality ratings of those features. This traceability between front-end analysis outputs and deployment-stage outcomes provides a methodological argument for systematic needs analysis in Arabic media development projects.

Future research should extend the current findings in several directions. Effectiveness studies measuring learning outcomes, such as vocabulary retention, grammar comprehension, and communicative performance, are the most immediate priority, since high practicality ratings confirm usability but do not establish learning gains. Multi-site replication across schools with different socioeconomic profiles and digital infrastructure levels would determine whether the findings generalize beyond a single Grade XI cohort at one Islamic secondary school. Development and evaluation of the full Gold Version, incorporating the sequential section-locking and final examination features proposed by the media validator, is a natural continuation of the current work. Longitudinal studies using the admin dashboard's built-in data-collection capabilities could track engagement and achievement patterns throughout an entire academic year.

For Arabic language teachers at Islamic secondary schools, the medium can function as a structured, self-paced supplement to classroom instruction without requiring technical expertise to operate. The admin dashboard, added in response to the media expert's recommendation, allows teachers to monitor individual student progress and scores, creating a basis for data-informed differentiated follow-up.

This study has three notable limitations. First, the research is bound to the Beta Version. The sequential section-locking mechanism and the final examination feature, both added in response to the media expert's recommendations, had not been evaluated by students at the time this study concluded. Second, the study was conducted with a single class (Grade XI Teknik 1, n = 20) at a single school, limiting the generalizability of the findings to other student populations, school infrastructure, or Arabic curriculum contexts. Third, the evaluation design did not include a learning outcomes measure: the practicality data confirm that students found the medium usable and engaging, but no pre-test or post-test was administered to assess whether engagement translated into measurable gains in vocabulary acquisition, grammar comprehension, or communicative skill. These limitations define the scope of the current study's claims and outline the research that should follow.

CONCLUSION

This study evaluated the validity and practicality of Al-ʿArabiyyah At-Tafāʿuliyyah, an interactive website-based Arabic learning media developed for Grade XI students at SMA Islam Assyafiiyah 02 Bekasi using the SAM2 development framework and the Hutchinson and Waters (1987) needs analysis approach. A four-stage evaluation confirmed that the medium is valid in content (100%, Rosdiantini, S.Ag), technically sound (88.24%, Dr. Khambali, M.Pd.), and practically feasible for secondary school deployment (83.44% overall from 20 Grade XI Teknik 1 students). The convergence of high validity and practicality scores across independent evaluators with different assessment foci confirms that the iterative SAM2 process successfully integrated pedagogical rigor and technical functionality throughout development. Three patterns in the findings warrant emphasis. The Wants score (84.00%) in the needs analysis proved predictive: students' stated preferences for immediate feedback, pronunciation audio, and visual coherence corresponded directly to the dimensions on which the medium later scored highest in practicality testing (Content Clarity 84.38%, Interface Appeal 83.44%). The consistency of student practicality ratings across all four dimensions (82.81%–84.38%, a range of under 2 percentage points) indicates that the medium performs reliably across functional areas rather than excelling in one at the expense of others. Moreover, the alignment between 100% expert content validity and 84.38% student-rated content clarity confirms that rigorous design-stage review translates into student-perceived quality at deployment. Al-ʿArabiyyah At-Tafāʿuliyyah demonstrates that locally developed, iteratively designed Arabic learning media can meet high standards of content validity, technical quality, and practical usability in authentic school contexts. For educators and administrators in Indonesian Islamic secondary schools, this study offers a replicable model in which curriculum-aligned, needs-grounded development produces pedagogically coherent results comparable to those of commercial platforms.

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