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Needs Analysis of Seesaw LMS Features for Designing Multimodal Arabic Language Learning Activities

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ABSTRACT

Arabic learning for beginners requires digital media that support the four language skills (*istimā'*, *kalām*, *qirā'ah*, and *kitābah*) through multiple modes. This study analyzes the functional features of the Seesaw learning management system (LMS) as a multimodal medium for Arabic learning. A qualitative content analysis was conducted through exploration of the Teacher, Student, and Family interfaces and a hands-on simulation of two beginner topics, *Al-Usrah* (Family) and *As-Sā'ah* (Time). The features were grouped into five functions and mapped to the four skills. Audio input, voice recording, the creative canvas, and voice feedback support productive and receptive skill activities, while teacher approval and the digital journal support content control and portfolio documentation. Document uploads accepted 20 of 23 pages. The study provides a functional basis for designing Arabic activities on Seesaw but does not test its effect on learners.

Keywords: Seesaw; learning management system; Arabic language learning; multimodal media.

مستخلص البحث

تواجه تعليم اللغة العربية للمبتدئين حاجة إلى وسائط رقمية متعددة الأنماط تدعم المهارات الأربع: الاستماع والكلام والقراءة والكتابة. يحلل هذا البحث الخصائص الوظيفية لنظام Seesaw بوصفه وسيطًا متعدد الوسائط لتعليم العربية، باستخدام منهج تحليل المحتوى الكيفي، من خلال استكشاف واجهات المعلم والطالب والأسرة، ومحاكاة موضوعين للمبتدئين هما الأسرة والساعة. صُنّفت الميزات إلى خمس وظائف ورُبطت بالمهارات الأربع. وتدعم الإدخالات الصوتية والتسجيل الصوتي ولوحة الإبداع والتغذية الراجعة الصوتية أنشطة المهارات الإنتاجية والاستقبالية، بينما يدعم اعتماد المعلم والدفتر الرقمي ضبط المحتوى وتوثيق الأعمال. وقُبلت 20 صفحة من أصل 23 صفحة عند رفع المستندات. ويوفر البحث أساسًا وظيفيًا لتصميم أنشطة عربية على المنصة، دون اختبار أثرها في تعلم الطلاب.

الكلمات المفتاحية: Seesaw ؛ نظام إدارة التعلم؛ تعليم اللغة العربية؛ الوسائط المتعددة.

1. Introduction (المقدمة)

1.1 General Background

Arabic language learning in Indonesian madrasahs and university programs increasingly relies on digital tools that go beyond delivering content. Learners need to listen to spoken Arabic, speak it, read Arabic script, and write it, and each skill places different demands on the medium. Listening requires exposure to sound, speaking requires chances to produce speech, and reading and writing require engagement with written symbols (Kamal, 2026). Multimedia learning theory explains why this matters. Mayer (2021) argues that people learn more effectively from words and pictures

together than from words alone, and that carefully designed multimodal material can reduce unnecessary cognitive load. Arabic makes these demands sharper because it is written from right to left, its letter forms change with position in the word, and pronunciation depends on vowel marks and emphatic consonants.

1.2 Previous Studies

Recent studies have examined digital media for Arabic instruction from several angles. Al Bukhari and Dewey (2023) reported that multimodal glosses improved learning of Arabic vocabulary. In Indonesian Islamic universities, Mufidah et al. (2025) found that teachers already use audio, visual, audio-visual, and interactive multimedia formats. Setiadi (2025) argued that interactive and multimedia resources can help strengthen productive language skills. Studies that evaluated LMS platforms in other languages have reported gains as well. Qaddumi and Smith (2024), for example, used an experimental design with undergraduate learners of English as a foreign language on Moodle and found improvements in language skills and attitudes. Research on Seesaw, a platform designed for early and elementary education that describes itself as a digital portfolio (Seesaw, n.d.), has focused on its use as a teaching and assessment medium (Pujiarto et al., 2023) and as a support for speaking and writing practice in English (Sulthoniyah & Nur, 2025).

1.3 Research Gap

Existing studies leave two gaps. First, few have examined the internal features of Seesaw and mapped them systematically to the four Arabic skills. Second, most LMS studies measure learning outcomes, while analyses of what a platform can support before design begins are rare. Such analyses are a necessary early step in the analysis phase of instructional design (Branch, 2009). Developers and teachers need to know which modes a platform supports, which feedback and moderation tools are available, and where its technical limits lie before they design Arabic activities.

1.4 Research Objectives and Contribution

This study differs from earlier work in its unit of analysis. It examines platform features rather than learner outcomes, and it maps those features to Arabic skill needs. The study has three objectives: (1) to identify the functional features of Seesaw that are relevant to Arabic language learning, (2) to map these features to *istimā'*, *kalām*, *qirā'ah*, and *kitābah* for beginner learners, and (3) to identify technical limitations that affect design decisions. The research questions are: (1) which Seesaw features are relevant for Arabic learning activities, (2) how these features correspond to the four skills, and (3) what design needs and constraints follow. The contribution is a functional basis and a set of design specifications for preliminary Arabic activity design. The study does not claim that Seesaw improves learners' Arabic.

1.5 Article Organization

Section 2 presents the theoretical framework. Section 3 describes the research method. Section 4 reports and discusses the findings. Section 5 presents the conclusions, implications, and recommendations for future research.

2. Theoretical Framework (الإطار النظري)

2.1 Multimodal Learning

Multimodal learning holds that learners interact with material through more than one mode, such as text, image, sound, and video (Mayer, 2021). For language learning, this means that a medium should represent input and allow output in the same range of modes. The framework guides the analysis of which Seesaw features provide input (audio, video, text, and images) and which provide output (voice recording, video, drawing, and typed text).

2.2 The Four Arabic Language Skills

Arabic language teaching organizes competence into four skills: *istimā'* (listening), *kalām* (speaking), *qirā'ah* (reading), and *kitābah* (writing) (Kamal, 2026). Studies of Arabic media note that these skills are closely connected in instruction (Sarah et al., 2024), and that media are commonly used as learning aids for all four (Rizqoh & Taufik, 2024). The framework therefore treats the skills as the target against which platform features are mapped.

2.3 Digital Portfolio and Non-Test Assessment

Non-test assessment evaluates learners through products, performance, and documentation of the learning process (Kamal, 2026). Digital portfolios support this approach by collecting student work in one place. Pujiarto et al. (2023) describe the use of Seesaw for digital learning portfolio reports. The framework uses this concept to analyze the journal and folder features of Seesaw.

2.4 Analysis Phase of Instructional Design

The ADDIE model begins with an analysis phase, which identifies conditions, constraints, and requirements before design begins (Branch, 2009). This study corresponds to that phase. Its findings are intended to inform the design stage of Arabic activities, not to evaluate their effectiveness.

3. Research Method (منهجية البحث)

3.1 Research Design

The study was a preliminary needs analysis for a design project on Arabic multimodal learning activities. A descriptive qualitative design was used to describe what the platform can do and how its functions relate to the skills to be taught (Creswell & Creswell, 2018). The analysis followed qualitative content analysis, in which data are systematically categorized and interpreted within a defined context of use (Krippendorff, 2018). No quantitative measurement was conducted.

3.2 Object of Analysis, Sample, and Sampling Technique

The object of analysis was the Seesaw platform, examined from three perspectives: the teacher interface, the student interface, and the family interface. Because the study analyzed platform features rather than people, the unit of analysis was the feature and no human sample was drawn. Features were selected purposively. The team examined those related to material presentation, activity design, student responses, feedback and evaluation, moderation, and Arabic text support. Two beginner-level topics, *Al-Usrah* (Family) and *As-Sā'ah* (Time), were used as simulation contexts. They served as test cases rather than as learning materials for measuring outcomes.

3.3 Instruments and Data Collection

Primary data were collected through exploration and hands-on simulation. The team developed an analysis checklist based on five categories: (a) support for media materials, (b) multimodal assignment, (c) evaluation and feedback, (d) security and moderation, and (e) Arabic accessibility (Table 1). The checklist was reviewed by Dr. Moh. Ahsanuddin, S.Pd., M.Pd., lecturer in the Arabic Language program, before use. Evidence for each record consisted of screenshots, notes from function tests, records of simulated activities, and notes on technical limitations. Secondary data were obtained from peer-reviewed studies on Seesaw and Arabic learning media (Mufidah et al., 2025; Pujiarto et al., 2023; Sulthoniyah & Nur, 2025; Setiadi, 2025) and from official Seesaw sources (Seesaw, 2025; Seesaw Learning, 2026; Seesaw, n.d.).

3.4 Procedure

Data were collected in stages over two weeks. First, the team explored the three interfaces and identified the main features. Second, the team carried out hands-on simulations on the two topics.

For listening, audio vocabulary was uploaded. For speaking, a teacher voice instruction asked the student to name family members, and the response was simulated with the recording function. For reading, a short dialogue was placed on the canvas and words were marked with the text and drawing tools. For writing, the canvas, text tool, and drawing pen were tested, and a photograph of handwritten Arabic was uploaded. The team also tested the upload of a 23-page textbook excerpt. Third, the team compared the screenshots and notes with the secondary sources and grouped the findings by category.

3.5 Data Analysis

The data were analyzed through three steps. Data reduction selected information relevant to the five categories. Data display organized the features in tables by category and by skill. Conclusion drawing interpreted the mapping between features and skill needs (Miles et al., 2014). Credibility was maintained through triangulation of primary data (the team's exploration and simulation records) with secondary sources. Because the analysis was descriptive, no statistical reliability coefficient was calculated. Each record was checked against its screenshot or test note before it was included in the findings.

3.6 Research Ethics

The study did not involve human participants, personal data, or student work. Simulated accounts were created by the team, and no real learner data were accessed or stored. Screenshots were reviewed to ensure that no personal information appeared in the documentation.

4. Results and Discussion (نتائج البحث ومناقشاتها)

4.1 Functional Categories of Seesaw

The exploration identified features that could be grouped into five functions: (1) multimodal material presentation, (2) activity creation and response, (3) evaluation and feedback, (4) moderation and communication, and (5) portfolio documentation (Table 1).

Table 1. Analysis categories, features, and data sources

Category	Main features identified	Data source
Material support	Audio upload, video, images, links, and files	Screenshots; upload tests
Multimodal assignment	Activities, creative canvas, text, drawing/pen, voice and video recording	Simulation records
Evaluation and feedback	Gradebook, voice feedback, comments, send-back	Feedback simulation notes
Security and moderation	Teacher approval, comment management, publication settings	Simulation records
Arabic accessibility	Right-to-left text support, text entry in activities	Screenshots; Seesaw Learning (2026)

The Journal functions as the central space for student work. Within a Journal entry, a user can write notes, add images, draw, record audio and video, and attach links and files. Activities allow a teacher to present tasks and instructions that combine text, audio, and visual media. Together, these two features link material, instruction, student response, and collection of work in one sequence.

4.2 Mapping of Features to the Four Arabic Skills

The team mapped each feature to the four skills according to the activity it could support in the simulation (Table 2). The mapping shows the potential of each feature, not evidence that it improves learners' performance.

Table 2. Mapping of Seesaw features to Arabic language skills

Skill	Relevant features	Form of use in simulation
Istimā' (listening)	Audio upload, voice instruction, video	Teacher uploads audio of family vocabulary (*abb*, *umm*, *akh*, *ukht*) for learners to hear
Kalām (speaking)	Voice recording, video, record and draw	Learner records a spoken response naming family members after a voice instruction
Qirā'ah (reading)	Text, file, canvas, drawing/pen	Short dialogue is placed on the canvas and words are marked with the pen
Kitābah (writing)	Text, drawing/pen, photo/file upload	Learner types Arabic words or uploads a photograph of handwritten work

The simulation shows that Seesaw allows one learning sequence to move across skills. A teacher can begin with audio input, continue with a spoken response, and then ask the learner to read or write. This sequence supports an integrated design rather than separate activities for each skill.

4.3 Voice Features and Feedback

Voice recording and voice feedback were the most distinctive features for Arabic learning. A student can record a spoken answer, and a teacher can respond with a voice message that models pronunciation or points to a specific sound. Audio feedback may be especially useful for pronunciation, which is difficult to address with written comments alone. The send-back function also supports a cycle of submission, feedback, revision, and resubmission, which fits language learning better than a single submission followed by a grade. These features were identified through exploration and simulation. The study did not test whether voice feedback or revision improves pronunciation, fluency, or accuracy, so the findings describe functional possibilities only.

4.4 Moderation and Communication

Teacher approval holds certain comments or contributions until the teacher reviews them. In the simulation, comments entered by the student account were not displayed until the teacher account approved them. This gives the teacher control over what appears in the class space and over the form of language students publish. The team did not test the effect of approval on cyberbullying or student behavior, so the feature is described only as a control mechanism. Notifications inform users of new activity, and the family interface allows parents to view their child's work according to access settings. Seesaw presents this combination of messaging and portfolio access as a way to keep families connected to learning (Seesaw, n.d.).

4.5 Portfolio Documentation

Work in the Journal can be organized into folders or categories. For Arabic learning, folders could be arranged by skill, such as *istimā'*, *kalām*, *qirā'ah*, and *kitābah*. This would allow a teacher to see which activities a learner has completed and how the work is distributed across skills. Pujiarto et al. (2023) describe the use of Seesaw for digital learning portfolio reports, and Kamal (2026) places portfolio

assessment within the non-test approach to Arabic assessment. The study did not analyze longitudinal change in portfolios, so it cannot conclude that a portfolio improves language ability.

4.6 Technical Limitation of Document Upload

The team tested the upload of a 23-page textbook excerpt. Only 20 pages were accepted into the canvas. This result was obtained on the account and configuration used in the exploration and may not apply to all Seesaw versions or account types. It suggests that long textbooks should be divided into shorter, activity-based units rather than uploaded as one file. This is a design constraint for teachers and developers, not a general claim about the platform.

4.7 Triangulation and Design Needs

The primary findings were compared with the secondary sources. The official announcements confirm right-to-left support and the availability of an Arabic platform (Seesaw Learning, 2026). The peer-reviewed studies describe Seesaw's use for teaching, assessment, and language skills (Pujiarto et al., 2023; Sulthoniyah & Nur, 2025). These sources are consistent with the simulation findings. The main divergence is that the secondary sources describe early childhood and English-language contexts, whereas this study examined Arabic activities at a beginner level. The features are therefore treated as transferable to Arabic only where the simulation confirmed them. From these findings, five needs were identified and translated into design specifications (Table 3).

Table 3. Findings, needs, and design specifications

Finding (source)	Need	Design specification
Audio upload and voice instruction are available (simulation)	Listening input in Arabic	Provide vocabulary and dialogue audio at the start of each activity
Voice recording is available for responses (simulation)	Spoken production practice	Design speaking tasks with recorded responses and voice feedback
Canvas with text and drawing tools works for marking (simulation)	Reading and written practice in Arabic script	Place short texts on the canvas and ask learners to mark words or write answers
Documents over 20 pages were truncated (simulation)	Manageable learning materials	Divide textbook content into units of 20 pages or fewer
Teacher approval holds comments (simulation)	Teacher control of content	Keep approval enabled for classes with beginner learners

These specifications describe what the platform can support in Arabic instruction. They are design recommendations, not measured outcomes, and they should be tested with learners before any claim about their effectiveness is made.

5. Conclusions and Recommendations (الاستنتاج والخلاصة)

5.1 General Summary

This study analyzed the features of the Seesaw LMS to identify their relevance for designing Arabic learning activities for beginners. The analysis found five functions: multimodal material presentation, activity creation and response, evaluation and feedback, moderation and communication, and portfolio documentation. These functions can be mapped to the four Arabic language skills, particularly through audio input, voice recording, the creative canvas, and voice

feedback. Teacher approval and the journal support content control and documentation of learning. The document-length limitation requires teachers to divide longer materials into units.

5.2 Recommendations and Further Research

The findings provide a functional basis for the next stage of the project, which is to design and pilot Arabic activities on Seesaw with learners. The study does not show that Seesaw improves Arabic learning. Future research should test the activities with learners, measure outcomes in one skill such as speaking or writing, and examine the experiences of teachers and families.

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