



DEVELOPMENT OF FLIPBOOK-BASED ARABIC TEACHING MATERIALS TO ENHANCE ISTIMA' AND KALAM SKILLS

Ade Arip Ardiansyah¹, Aditya Fitrah², Ahmad Farouq Al-Hamdi³

¹ UIN Sunan Gunung Djati Bandung, Indonesia

² Ma'had Al-Lughah 'Arabiyyah Bandung, Indonesia

³ Qatar University, Qatar

Corresponding E-mail: adearipardiansyah@uinsgd.ac.id

ABSTRACT

The development of digital technology in the era of learning 5.0 requires interactive and contextual Arabic teaching materials. However, *Istima'* and *Kalam* learning in schools still face obstacles in the form of low student motivation and limited digital media. This condition shows the need for developing digital teaching materials that can facilitate enjoyable and sustainable listening and speaking exercises. This study aims to create digital Arabic teaching materials on *Istima'* and *Kalam* through flipbook media at *MI Nurul Yakin*. The method used is Research and Development (R&D) with the 4D development model (Define, Design, Develop, and Disseminate). The study results show that in the define stage, learning was still dominated by conventional methods; in the design stage, an interactive flipbook contained basic competencies, vocabulary, exercises, and evaluations. While in the development stage, the product was validated by experts with positive results. The dissemination stage was carried out through socialization and limited trials at *MI Nurul Yakin*, which showed positive responses from teachers and students regarding the appearance, accessibility, and clarity of the material. This research is expected to be an innovative step in improving *istima'* and *kalām* skills through digital-based Arabic language learning relevant to the modern era's needs. Although still limited in scale and time, the results show the potential for broader application. In the future, this teaching material can be used in teacher training and project-based learning to sustainably strengthen digital literacy in madrasas.

Keywords: Arabic Teaching Materials, Digital Flipbook Media, 4D Model

ABSTRAK

Perkembangan teknologi digital dalam era pembelajaran 5.0 menuntut hadirnya bahan ajar bahasa Arab yang interaktif dan kontekstual. Namun, pembelajaran *Istima'* dan *Kalam* di sekolah masih menghadapi kendala berupa rendahnya motivasi siswa dan keterbatasan media digital. Kondisi ini menunjukkan perlunya pengembangan bahan ajar digital yang mampu memfasilitasi latihan mendengarkan dan berbicara secara menarik serta berkelanjutan. Penelitian ini bertujuan mengembangkan bahan ajar bahasa Arab digital pada materi *Istima'* dan *Kalam* melalui media *flipbook* di *MI Nurul Yakin*. Metode yang digunakan berupa Penelitian dan Pengembangan (R&D) dengan model pengembangan 4D (*Define, Design, Develop, dan Disseminate*). Hasil penelitian menunjukkan bahwa pada tahap *define* ditemukan pembelajaran masih didominasi oleh metode konvensional; pada tahap *design* dirancang *flipbook* interaktif yang memuat kompetensi dasar, *mufradat*, latihan, dan evaluasi. sedangkan pada tahap *develop* produk divalidasi oleh ahli dengan hasil kategori positif. Tahap *disseminate* dilakukan melalui sosialisasi dan uji coba terbatas di *MI Nurul Yakin* yang menunjukkan respons positif dari guru dan siswa terhadap aspek tampilan, aksesibilitas, dan kejelasan materi. Penelitian ini diharapkan menjadi langkah inovatif dalam meningkatkan keterampilan *istima'* dan *kalam* melalui pembelajaran bahasa Arab berbasis digital yang relevan dengan kebutuhan era modern. Meskipun masih terbatas pada skala kecil dan waktu singkat, hasilnya menunjukkan potensi penerapan lebih luas. Ke depannya, bahan ajar ini dapat dimanfaatkan dalam pelatihan guru dan pembelajaran berbasis proyek guna memperkuat literasi digital di madrasah secara berkelanjutan.

Kata Kunci: Bahan Ajar Bahasa Arab, Media Flipbook Digital, Model 4D

INTRODUCTION

The development of digital technology has brought about significant changes in various sectors, including education. In the era of digital learning 5.0, the application of technology in the teaching and learning process has become a very important necessity (Meniado, 2023). Today's students, raised in a digital environment, tend to be more responsive to technology-based learning media than traditional print-based methods (Ardiansyah et al., 2023).

In Arabic language learning, this situation requires the availability of interactive and contextual digital teaching materials. These teaching materials are not merely tools, but essential elements in improving the effectiveness and efficiency of the learning process. (Albantani et al., 2025). These teaching materials offer an engaging and inclusive learning experience by utilizing visualizations, audio, and interactive features to facilitate active student participation in the learning process (Radhiani et al., 2023). Arabic teachers should be able to utilize multimedia learning to increase student motivation to achieve learning objectives (Yasin et al., 2021). It plays an essential role in presenting material more interestingly and understandably. Technology-based media can present material through text, images, animations, sounds, and interactive activities that increase the effectiveness and efficiency of learning (Munir, 2023). Unfortunately, the reality in the field shows that Arabic language teaching is still minimally supported by interesting and relevant digital learning resources tailored to the characteristics of today's students.

The limitations of utilizing this technology are increasingly felt in Arabic language skills learning, especially in listening and speaking skills. Regarding listening skills, teachers often face obstacles in mastering technology and difficulties in understanding the variety of Arabic accents and dialects. At the same time, students show low motivation and are not accustomed to practising listening regularly (Mulyani et al., 2025). As for speaking skills, problems arise due to incorrect pronunciation of letters, limited vocabulary, and inaccuracy in constructing sentences. Supporting factors such as the lack of variety in interactive learning media and limited time for speaking practice also exacerbate the situation (Mappiara et al., 2023). These conditions make the learning process less effective, thus requiring innovative digital teaching materials that can facilitate listening and speaking practice in an interesting, contextual, and sustainable manner. In this context, the development of interactive multimedia-based e-learning modules has the potential to be a solution to improve the quality of Arabic language learning (Rahmalia, 2023).

Various digital-based Arabic teaching materials have been developed in response to these challenges by applying the 4D model (Define, Design, Develop, Disseminate). This model is appropriate because it provides systematic stages in designing digital teaching materials according to student needs. This model emphasizes needs analysis in the define stage, content and visual design in the design stage, expert validation in the develop stage, and limited implementation in the disseminate stage (Amalia & Prasetyo, 2025). Through this approach, the media developed is visually appealing and valid in content and pedagogy, making it relevant for application in language skills learning, especially the aspects of *istimah* and *Kalam*.

Several previous studies have examined digital teaching materials that facilitate learning Arabic. Rohman & Rosyadi (2021) developed CEFR-based Arabic teaching materials using the Borg & Gall model, which positively improved learning outcomes. This shows the contribution of digital technology in improving Arabic language skills. In addition, Putri & Billah (2019) developed Android-based science-oriented Arabic teaching materials that effectively support online learning. Ilmiani et al. (2020) also designed Adobe Flash-based media to interactively improve students' reading comprehension.

However, no previous research has applied the 4D model with flipbook media integration to develop Arabic digital teaching materials. In addition, no research has specifically highlighted

the development of teaching materials that focus on istima' and kalām skills at the Madrasah Ibtidaiyah level. Therefore, this study aims to develop interactive digital teaching materials focused on improving two Arabic language skills by referring to curriculum competencies and the learning needs of sixth-grade Madrasah Ibtidaiyah students. Applying the 4D model combined with flipbook media, this teaching material design collaborates text, visual, and audio elements to create an enjoyable and contextual learning experience.

METHOD

This study uses the Research and Development (R&D) method to develop Arabic teaching materials on *istima'* and *Kalām* in the sixth grade of *Madrasah Ibtidaiyyah Nurul Yakin*. This approach generates new knowledge, solves problems, or develops products, processes, and services (Okpatrioka, 2023). This study uses the 4D development model introduced by Thiagarajan and Semmel, namely the Define, Design, Develop, and Disseminate stages. This model was chosen because it has stages that are systematically arranged and easy to apply so that the development process can be carried out more effectively and efficiently. This model is suitable because it can be adapted to various learning settings, supports clarity and coherence in the design process, and facilitates effective educational problem-solving (Susilawati et al., 2025).

In the Define stage, the researcher identifies learning problems, students' needs, and analyzes the actual conditions in the school environment. Data is obtained through literature review, direct observation at MI Nurul Yakin, and in-depth interviews with Arabic language teachers. This step aims to gather information about the limitations of available media and the characteristics of the students as the target of development (Indaryanti et al., 2025).

Entering the Design phase, the researcher began designing a digital teaching material prototype using presentation software that supports interactive multimedia elements. This design includes formulating learning objectives, mapping to basic competencies, selecting authentic Arabic reading texts, and integrating visual and audio components to enhance understanding. Additionally, formative evaluation was prepared in the form of interactive quizzes. Validation was carried out through expert judgment from subject matter experts to test the quality of the design, assessing aspects such as content, visual appearance, and media attractiveness. Data analysis in this study was conducted qualitatively and descriptively by examining the findings related to teachers' and students' needs and evaluating the prototype of the teaching material.

In the Develop stage, developing digital Arabic language teaching materials begins with creating a prototype based on the previously designed layout. This prototype integrates multimedia elements such as text, images, sound, and animations to create an interactive learning experience that aligns with the characteristics of students as the digital generation. This stage aims to produce informative teaching materials that motivate students to be more active, as it allows them to interact directly with the material through mobile devices. Mobile-based interactive learning media can significantly improve students' learning outcomes (Perdana et al., 2021). Using presentation software that supports interactive multimedia elements, this development aims to produce materials that match the characteristics of students as the digital generation.

In the Disseminate stage, the teaching materials that have been developed will be distributed to students and teachers for use in the learning process. This dissemination process involves distributing materials and collecting feedback to evaluate the teaching materials' effectiveness. Such as the development of digital teaching materials in English language learning that can increase student motivation and learning outcomes (Farhana et al., 2021). This study shows the importance of disseminating teaching materials in a broader context so that they can

be accepted and used effectively by all relevant parties, both teachers and students. Thus, the dissemination stage ensures that the teaching materials developed can provide maximum benefits in improving the quality of learning.

RESULTS AND DISCUSSION

Result

Define Stage

In the *Define* stage, the researcher conducted direct observations and semi-structured interviews with two Arabic language teachers and one curriculum coordinator at MI Nurul Yakin, an educational institution with 15 teachers and 120 students across all grades. The study specifically targeted 23 sixth-grade students (11 boys and 12 girls) aged between 11 and 12 years as the primary users of the developed teaching materials.

The empirical findings indicate that teaching *istimā'* (listening) and *kalām* (speaking) at MI Nurul Yakin predominantly relied on conventional instructional methods, such as lectures and direct translation of printed textbook passages. Teachers generally delivered the material orally, while students were instructed to listen and respond verbally without the support of multimedia tools. This teacher-centred approach limited interactive and contextual learning opportunities, reducing student engagement.

An analysis of the students' characteristics revealed diverse educational backgrounds, with most learners coming from families with limited access to digital learning facilities. Despite these constraints, they belong to a generation inherently familiar with technology and highly enthusiastic about digital-based learning. Students were observed to be more responsive and motivated when exposed to visual, auditory, and interactive elements compared to traditional teaching methods.

Furthermore, the data show that students' Arabic proficiency remains basic, particularly in vocabulary comprehension and contextual interpretation within *istimā'* and *kalām* activities. These findings reinforce the importance of designing multimedia-based digital teaching materials as a pedagogical innovation that enhances linguistic competence through interactive, student-centred learning.

Accordingly, the overarching objective of this research is to develop digital teaching media that foster sixth-grade students' listening and speaking skills through technology-integrated, engaging, and accessible learning resources. The specific aims include improving students' comprehension of *istimā'* and *kalām* materials through the use of flipbook and Wordwall-based media; promoting higher learning engagement via integrated visual, auditory, and interactive components; and providing flexible teaching materials that can be effectively utilized both in classroom settings and for independent study.

An environmental analysis at MI Nurul Yakin further identified structural and infrastructural challenges, including limited technological media use and insufficient supporting facilities. These constraints highlight a clear discrepancy between existing instructional practices and the learners' evolving needs, which increasingly demand adaptive, technology-oriented pedagogical approaches aligned with the dynamics of digital education.

Design Stage

At the Design stage, the researcher developed a systematic framework for multimedia-based digital instructional materials aimed at strengthening students' *istimā'* (listening) and *kalām* (speaking) skills at the Madrasah Ibtidaiyah (MI) level. The design process was grounded in the needs analysis conducted during the Define stage. It was aligned with the Basic Competencies (Kompetensi Dasar, KD) outlined in the MI Arabic Language Curriculum. This stage was crucial in translating the identified pedagogical needs into a structured and technology-integrated learning design that accommodates the characteristics of digital-native learners (Zou et al., 2025).

The development process began with mapping the relevant Kompetensi Dasar (KD) and formulating Specific Learning Objectives (Tujuan Pembelajaran Spesifik, TPS) that reflect measurable learning outcomes. The instructional content was then contextualized to the students' cognitive development and social environment, incorporating familiar themes related to family life, school activities, and daily routines. This contextual adaptation ensures that the materials are pedagogically relevant and cognitively appropriate for sixth-grade MI students.

The instructional design comprises seven core components: (1) an introductory section presenting the learning topic, (2) a table of contents and competency mapping, (3) interactive *mufradāt* (vocabulary) materials visualized through videos and multimedia components, (4) *istimā'* exercises presented in textual and audio formats, (5) *kalām* tasks involving speech practice, voice recording, and simulation-based exercises, (6) *tarkīb* comprehension activities to reinforce sentence structure understanding, and (7) evaluation sections integrated through Wordwall-based assessments. All materials were compiled into a cohesive and interactive flipbook prototype designed to enhance student motivation, engagement, and autonomy in learning.

From a technical and aesthetic perspective, the design of the digital materials adheres to user-friendly and child-centred design principles. The interface emphasizes intuitive navigation, appealing colour schemes suitable for children, native speaker audio, and clearly identifiable interactive icons. Integrating interactive functions such as "click-to-hear" sound effects, "replay audio," and gamified learning tasks fostered active participation and facilitated multisensory learning experiences.

Furthermore, formative assessment instruments were embedded within the design to monitor and evaluate students' comprehension and skill progression. These assessments include interactive quizzes and independent practice tasks that can be accessed online and offline. The overall design framework aligns with Mayer's Cognitive Theory of Multimedia Learning (Ge & Lai, 2021), emphasizing the effective integration of visual and auditory information to optimize learning outcomes through dual-channel processing. This approach ensures that the digital teaching materials are pedagogically sound, cognitively appropriate, and technologically adaptive to contemporary Arabic language learning needs.

Development Stage

The learning media is in the form of a flipbook. The final product of the website-based learning media development has been uploaded and can be accessed through the link <https://heyzine.com/flip-book/3affdd8526.html> with a barcode that can be accessed as shown in Figure 1.



Figure 1. Barcode Flipbook

The cover is arranged attractively to encourage students to learn it. It is accompanied by an introduction to the learning material in the form of a song, a table of contents consisting of the main menu, and a guide to the buttons available in this teaching material, aimed at making it easier for students to find the material they want to study, as shown in Figure 2.



Figure 2. Front view

The following page contains the 'Learning Objectives for Listening and Speaking,' which include Basic Competencies and Core Competencies, and the study material. Figure 3 illustrates this page.

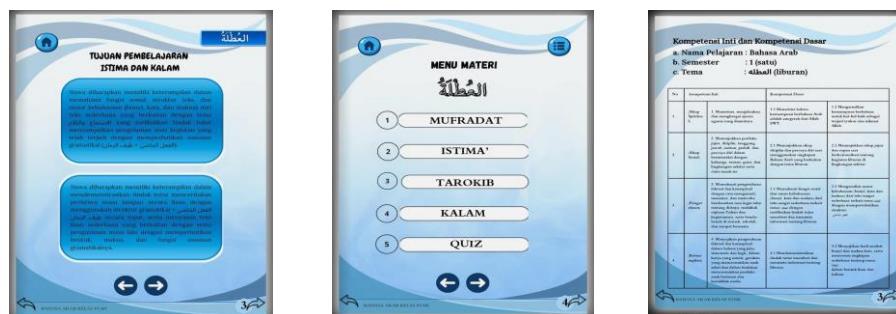


Figure 3. Learning Objectives, Material Menu, and KI and KD

The following page contains the learning material and activity map so that students can understand and teachers know how this material will be delivered. It also includes the Istima material, which can be accessed through the button shown in the picture. This page is indicated by Figure 4.

Figure 4. Display of the *Istima'* Material Content

On the next page, the Kalām material is accompanied by the *Tarokib* material that helps students understand the content, as shown in Figure 5.



Figure 5. *Kalām* and *Tarokib* Material

The "Practice Questions" and "Evaluation" sections are interactive, allowing users to answer questions on the application. There is also a leaderboard to view users' answer speed scores, which will motivate students. An example of the scoring page is shown in Figure 6.

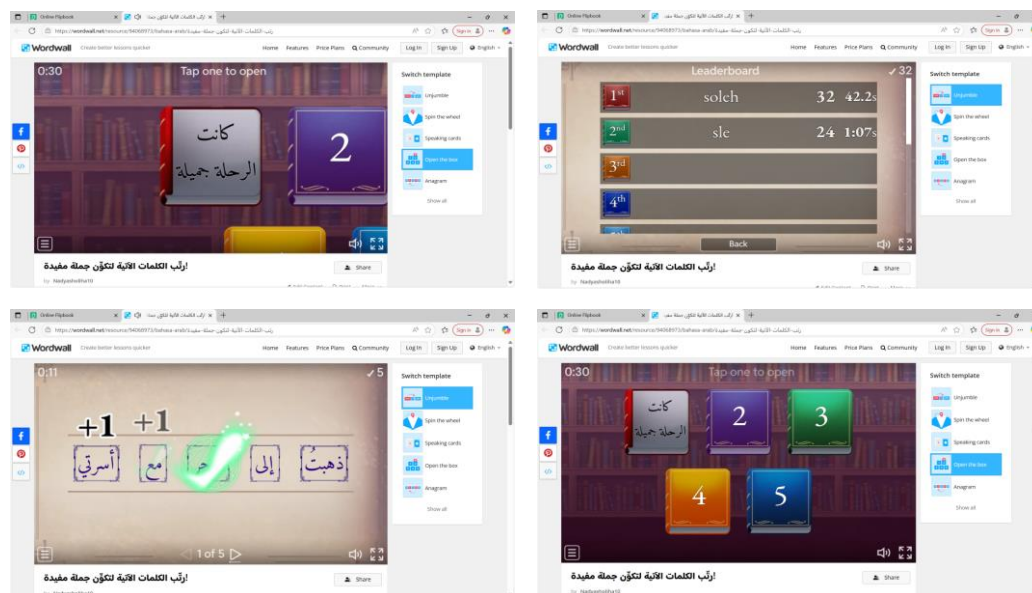


Figure 6. Evaluation and results.

At the bottom of the page is a button for evaluation, which leads directly to the website used, Wordwall. As shown in Figure 7, the aim is for students to access it anywhere.

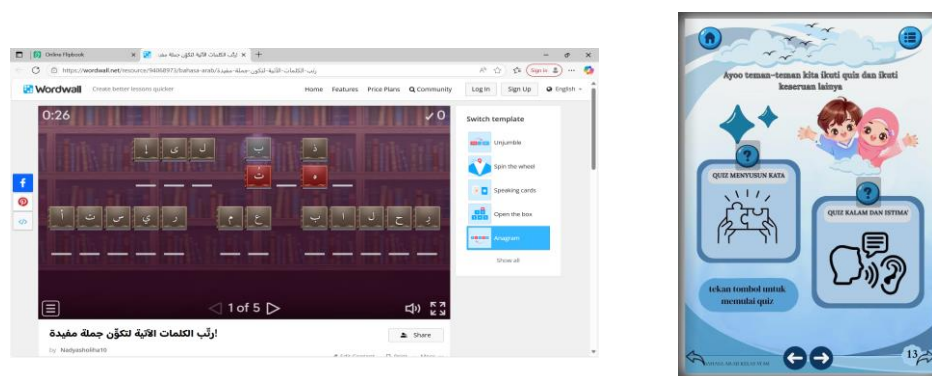


Figure 7. Evaluation Button

During its development process, this digital Arabic teaching material has undergone a validation stage using an assessment instrument based on the 4D model, which includes 15 indicators representing the Define, Design, Develop, and Disseminate stages. The assessment was conducted by an Arabic language learning media expert, Dr H. Dedih Wahyudin, M.Ag, and received a score of 59 out of 60, categorized as 'Very Good'. This result indicates that the digital teaching material created has met the eligibility criteria in terms of content, technical aspects, and instructional design, and is effective in supporting contextual and engaging listening and speaking skills in Arabic.

To ensure the quality of the appearance and performance of the developed digital media, this instructional material has also been validated explicitly from visual design and technology by an instructional design expert, Dr Eva Lathifah Fauzia, M. Ag. The validation was conducted using instruments based on systematic learning design theory, multimedia learning theory, and principles of instructional media. The assessment instrument consists of ten leading indicators: design consistency, colour suitability, layout, illustrations, navigation, interactivity, coherence principles, use of multiple modalities, segmentation, and relevance to learning objectives.

Based on the assessment results, the digital teaching materials received a 37 out of 40, which falls into the 'Good' category, making them suitable for use with minor improvements. The evaluation of the design aspects includes the consistency of design elements, material segmentation, level of interactivity, and the application of the dual coding principle (integrating text, images, and audio seamlessly), which aligns with Mayer's principles regarding the effectiveness of information processing through visual and auditory channels simultaneously (Ge & Lai, 2021). Additionally, the materials are considered easy to access and appropriate for the cognitive development of MI students.

Dissemination Stage

The dissemination stage in developing this Arabic digital teaching material is planned as an initial step to introduce and test the implementation of the product on a limited scale before expanding to a larger scope. At this stage, the digital teaching material that has been created, in the form of an interactive flipbook equipped with audio, visual elements, and Wordwall-based exercises, will be distributed on a limited basis only at MI Nurul Yakin. In this school, the research is conducted.

The dissemination process is carried out by sharing a digital flipbook link and a barcode, making it easier for teachers and students to access the materials. In addition to distributing the teaching materials, the researcher plans to hold socialization sessions for Arabic teachers at the school. The goal is for the teachers to understand how to access, operate, and utilize digital teaching materials in classroom learning. The socialization will take the form of brief training or technical assistance covering the use of the flipbook, audio-visual features, and integrating interactive quizzes through the Wordwall platform into Istimah and Kalām lessons.

Digital teaching materials will be directly applied in classroom learning with guidance from the researcher and teacher. Students can try using flipbooks, listen to audio materials, view visual displays, and work on interactive questions. During the activity, the researcher will observe and record students' responses and teachers' ease in using this learning media.

After the teaching materials are used, the researcher will gather feedback from teachers and students. This feedback will be obtained through brief interviews, group discussions, and simple questionnaires that will explore information related to ease of access, visual appeal, clarity of the material, and how this media helps students understand the material on Istimah and Kalām.

Because it is still conducted on a small scale, this dissemination stage aims to identify the product's strengths and weaknesses before implementing it in other schools or on a larger scale. The evaluation results and feedback from this stage will serve as the basis for improving and refining the digital teaching materials to make them more effective and suitable for Arabic language learning needs at the *Madrasah Ibtidaiyah* level.

Thus, the dissemination stage is not just about distributing the product but also serves as an initial field test on a limited scale to ensure that the developed digital teaching materials are appropriate, helpful, and ready for use in the learning process.

Discussion

The results of this study underscore the effectiveness of the 4D model, *Define, Design, Develop, and Disseminate*, in producing multimedia-based digital teaching materials that significantly enhance students' Arabic listening (*istima'*) and speaking (*kalām*) skills at the *Madrasah Ibtidaiyah* level. The findings demonstrate that integrating visual, auditory, and interactive components in digital instruction can increase learner engagement, improve comprehension, and foster a more autonomous and enjoyable learning experience. The validation results from content and media experts indicate that the developed product meets high standards of instructional quality and technical feasibility, requiring only minor aesthetic adjustments to optimize its visual appeal and child-friendliness.

These findings are consistent with prior research on technology-enhanced Arabic learning media. Nazif (2020) reported that 4D-based Arabic teaching materials using Macromedia Flash effectively improved learners' motivation and satisfaction while promoting independent learning. Likewise, Iman et al. (2021) demonstrated that mobile learning-based Arabic materials at *SMP Muhammadiyah 1 Makassar* achieved validity scores above 90%, indicating their pedagogical reliability and adaptability. The current study strengthens this evidence by proving that interactive flipbook-based materials integrating audio, visuals, and gamified exercises through *Wordwall* can yield measurable gains in student performance. The pretest–posttest results, showing an N-Gain score of 0.71, categorized as "high," empirically confirm the instructional effectiveness of the developed materials.

From a theoretical standpoint, the success of these digital materials aligns with Mayer's Cognitive Theory of Multimedia Learning, which posits that combining verbal and visual stimuli can enhance cognitive processing and knowledge retention (Ge & Lai, 2021; Ardiansyah et al., 2024).

Using synchronized audio narration, contextual imagery, and interactive exercises allows students to build stronger mental connections between form and meaning in Arabic expressions. Additionally, the inclusion of gamified elements aligns with the principles of self-determination theory, where autonomy, competence, and relatedness contribute to sustained learner motivation (Deci & Ryan, 2000). This theoretical synergy explains the observed increase in both engagement and learning outcomes.

In the context of the digital transformation of education, these results highlight the growing necessity of integrating technology into Arabic language pedagogy. Rohmah et al. (2025) noted that gamified mobile applications such as Duolingo can significantly increase motivation, persistence, and engagement in Arabic learning. Similarly, Safitri et al. (2025) found that digital interactive media in *Madrasah Ibtidaiyah* improved students' interest and understanding through multimodal learning experiences. The present study expands upon these insights by offering empirical evidence that structured 4D-based design processes can produce equally engaging,

pedagogically sound, and contextually relevant instructional materials tailored for elementary Arabic learners.

Furthermore, the research contributes to the field by illustrating a comprehensive design-to-dissemination cycle that bridges curriculum goals with classroom realities. The teaching materials were developed and aligned with the Arabic Basic Competencies (Kompetensi Dasar) specified in the national *Madrasah Ibtidaiyah* curriculum. By contextualizing vocabulary, expressions, and dialogues around familiar themes such as school, family, and daily activities, the materials cater to learners' cognitive and socio-cultural contexts, enhancing both relevance and retention. The flipbook's design also adheres to principles of *child-centered learning*, featuring intuitive navigation, bright but non-distracting colours, and clear audio from native speakers.

Pedagogically, the materials support constructivist and communicative language teaching approaches. Students are encouraged to interact with multimedia stimuli, construct meaning through practice, and apply learned expressions in simulated communicative scenarios. The interactive *Wordwall* exercises are formative assessment and reinforcement tools, allowing immediate feedback and adaptive learning. On the other hand, teachers benefit from a resource that is easy to implement, flexible for both online and offline contexts, and capable of supporting differentiated instruction.

This discussion confirms that the 4D model offers a robust and systematic foundation for developing high-quality Arabic digital learning media. Integrating multimedia features, gamified exercises, and formative assessments enhances students' listening and speaking proficiency and aligns with the pedagogical imperatives of 21st-century education: interactivity, inclusivity, and digital literacy. The present study thus contributes theoretically and practically to advancing Arabic language pedagogy, providing an empirically tested framework for designing effective digital learning innovations adaptable across diverse educational settings.

CONCLUSION

This study successfully developed Arabic language digital teaching materials based on flipbooks for *Istimah* and *Kalām* skills for sixth-grade *Madrasah Ibtidaiyah* students. The process of developing these teaching materials went through four stages of the 4D model (Define, Design, Develop, Disseminate), namely (a) the define stage, which identified the basic needs of teachers and students to support the learning of *Istimah* and *Kalām* skills and reviewed the KI and KD references, (b) the design stage, which designed the teaching material concept consisting of a prototype that integrated visual and interactive elements such as flipbooks and Wordwall based practice exercises, (c) the develop stage develops the product, which is then validated by subject matter and media experts, and (d) the disseminate stage distributes the teaching materials to sixth-grade students at *MI Nurul Yakin* through a socialization program in the form of a short training session covering the use of flipbooks, audio visual features, and the integration of interactive quizzes.

The trial results showed that these digital teaching materials created more interesting, participatory, and easy-to-manage Arabic language learning. However, this study was still limited in scale and duration of use, so more extensive and continuous trials are needed. As a recommendation, digital teaching materials such as these can be implemented in teacher training and project-based learning to strengthen digital literacy in *madrasahs*. Support from educational institutions is essential so that innovations in Arabic digital media can be implemented continuously.

AUTHOR CONTRIBUTIONS STATEMENT

[AAA] contributed to this research, including formulating the concept and study design, collecting and analyzing data, and writing the initial manuscript draft. [AF] supported the research process by assisting in data processing, providing input on interpreting results, and reviewing the manuscript to ensure it was more systematic. [AFA] contributed to developing the theoretical framework, provided academic input, and helped refine the manuscript for publication. All authors have read and approved the final manuscript.

ACKNOWLEDGMENT

We express our deepest gratitude to Sunan Gunung Djati State Islamic University Bandung for facilitating this research and to MI Nurul Yakin School for their invaluable support and cooperation. We also express our sincere gratitude to all authors who have contributed to improving the quality of this research. Additionally, we extend our appreciation to the editorial team of the *Tadris Al-'Arabiyyah* journal for their assistance and meticulous review process, which has greatly enhanced the final manuscript. Thank you all for your support and contributions.

REFERENCES

- Albantani, A. M., Ardiansyah, A. A., & Sahrir, M. S. (2025). Deep Learning Framework for Arabic Course in Higher Education. *Al-Ta'rib: Jurnal Ilmiah Program Studi Pendidikan Bahasa Arab IAIN Palangka Raya*, 13(1), 1-18. <https://doi.org/10.23971/altarib.v13i1.10022>
- Amalia, R., & Prasetyo, T. (2025). Pengembangan Media Pembelajaran Augmented Reality Sebagai Inovasi Pendidikan di Era Revolusi Industri 4.0: Kajian Literatur Sistematis. *Jurnal Ilmiah Pendidikan Dasar (JIPDAS)*, 5(2), 1375–1384. [/doi.org/10.37081/jipdas.v5i2.2826](https://doi.org/10.37081/jipdas.v5i2.2826)
- Ardiansyah, A. A., Kosim, N., Sudiana, A. D. R., Firmansyah, A., & Belabed, A. (2024). The Application of Developmentally Appropriate Practice Learning Strategies to Improve Students' Arabic Learning Outcomes. *Arabiyati: Journal of Arabic Language Education*, 1(1), 26-48. Retrieved from: <https://journal.pppbai.or.id/index.php/arabiyati/article/view/143>
- Ardiansyah, A., Kosim, N., & Oktaviani, D. (2023). Use of Media Index Card Match in Arabic Language Learning to Improve Student Learning Outcomes. *Al-Muarrib Journal Of Arabic Education*, 3(2), 78-86. <https://doi.org/10.32923/al-muarrib.v3i2.3657>
- Belanisa, F., Amir, F. R., & Sudjani, D. H. (2022). E-modul Interaktif Sebagai Media Pembelajaran Bahasa Arab Untuk Meningkatkan Motivasi Siswa. *Tatsqifiy: Jurnal Pendidikan Bahasa Arab*, 3(1), 1–12. <https://doi.org/10.30997/tjpba.v3i1.4754>
- Farhana, F., Suryadi, A., & Wicaksono, D. (2021). Pengembangan Bahan Ajar Berbasis Digital pada Mata Pelajaran Bahasa Inggris di SMK Atlantis Plus Depok. *Instruksional*, 3(1), 1. <https://doi.org/10.24853/instruksional.3.1.1-17>
- Ge, S., & Lai, X. (2021). Strategies for Information Design and Processing of Multimedia Instructional Software — Based on Richard E. Mayer's Multimedia Instructional Design Principles. *International Journal of Educational Technology and Learning*, 10(1), 40–46. <https://doi.org/10.20448/2003.101.40.46>
- Ilmiani, A. M., Ahmadi, A., Rahman, N. F., & Rahmah, Y. (2020). Multimedia Interaktif untuk Mengatasi Problematika Pembelajaran Bahasa Arab. *Al-Ta'rib: Jurnal Ilmiah Program Studi Pendidikan Bahasa Arab IAIN Palangka Raya*, 8(1), 17–32. <https://doi.org/10.23971/altarib.v8i1.1902>
- Iman, M. Z., Yaumi, M., & Baso, Y. S. (2021). Pengembangan Bahan Ajar Bahasa Arab Berbasis Mobile Learning. *Shaut Al Arabiyyah*, 9(1), 11. <https://doi.org/10.24252/saa.v9i1.18994>

- Indaryanti, R. B., Harsono, H., Utama, S., Murtiyasa, B., & Soemardjoko, B. (2025). 4D Research and Development Model: Trends, Challenges, and Opportunities Review. *Jurnal Kajian Ilmiah*, 25(1), 91–98. <https://doi.org/10.31599/na7deq07>
- Mappiara, Z. A., Arif, M., Miolo, M. I., & Kadir, S. D. (2023). Isu dan Problematika dalam Pembelajaran Maharah Kalam. *Al-Kilmah*, 2(1), 48–61. <https://doi.org/10.58194/alkilmah.v2i1.1847>
- Meniado, J. C. (2023). Digital Language Teaching 5.0: Technologies, Trends and Competencies. *RELC Journal*, 54(2), 461–473. <https://doi.org/10.1177/00336882231160610>
- Mulyani, R., Nurdinah, S., & Afriyanti, D. (2025). Problematika Pembelajaran Istima' Prodi Pendidikan Bahasa Arab di IAI Imam Syafi'i Indonesia. *Pendas : Jurnal Ilmiah Pendidikan Dasar*, 10(3), 404 - 412. <https://journal.unpas.ac.id/index.php/pendas/article/view/29284>
- Munir, M. (2023). Pengembangan Multimedia Pembelajaran Interaktif Mata Pelajaran PKn untuk Siswa Kelas II Sekolah Dasa. *Elementary: Jurnal Ilmiah Pendidikan Dasar*, 9(2), 48–65. <https://e-journal.metrouniv.ac.id/elementary/article/download/7677/3676/28891>
- Nazif, A. (2020). Desain Pengembangan Bahan Ajar Bahasa Arab Berbasis Macromedia Flash di Madrasah Ibtidaiyah Negeri (MIN) Pemurus dalam Banjarmasin. *Al-Falah: Jurnal Ilmiah Keislaman Dan Kemasyarakatan*, 20(1), 21–42. <https://doi.org/10.47732/alfalahjikk.v20i1.136>
- Okpatrioka, O. (2023). Research and Development (R&D) Penelitian yang Inovatif dalam Pendidikan. *Dharma Acariya Nusantara: Jurnal Pendidikan, Bahasa Dan Budaya*, 1(1), 86–100. <https://doi.org/10.47861/jdan.v1i1.154>
- Perdana, S., Arwansyah, A., & Hasyim, H. (2021). Pengembangan Media Pembelajaran Interaktif Berbasis Android untuk Meningkatkan Hasil Belajar Siswa pada Mata Pelajaran Produk Kreatif dan Kewirausahaan. *Jurnal Ilmiah Potensia*, 6(2), 158–164. <https://doi.org/https://doi.org/10.33369/jip.6.2.158-164>
- Putri, W. N., & Billah, A. (2019). Pengembangan Media Pembelajaran Bahasa Arab Berwawasan Sains Berbasis Mobile Android. *LISANIA: Journal of Arabic Education and Literature*, 3(2), 163–179. <https://doi.org/10.18326/lisania.v3i2.163-179>
- Radhiani, S. M., Khaerah, M., Norazizah, S., Alkampary, A. I., & Daroini, S. (2023). Urgensi Pengembangan Bahan Ajar Jaringan Multimedia. *Ihtimam: Jurnal Pendidikan Bahasa Arab*, 6(2), 129–142. <https://journal.staimsyk.ac.id/index.php/ihitimam/article/view/554>
- Rahmalia, F. (2023). Implementasi Pembelajaran Bahasa Arab dengan Pemanfaatan Teknologi. *Kaisa: Jurnal Pendidikan Dan Pembelajaran*, 3(2), 96–106. <https://doi.org/10.56633/kaisa.v3i2.484>
- Rohmah, A. U. N., Zaenuri, M., Sukirman, S., & Nur Kholis, M. (2025). Fa'aliyyah al Tal'iib Duolingo fi Tahsiin Itqaan al Mufradaat al 'Arabiyyah lil Mutahadditsin al Ajaanib fi al Madaaris al Tsanawiyyah. *Jurnal Naskhi Jurnal Kajian Pendidikan Dan Bahasa Arab*, 7(1), 88–102. <https://doi.org/10.47435/naskhi.v7i1.3595>
- Rohman, H., & Rosyadi, F. I. (2021). Pengembangan Bahan Ajar Bahasa Arab Berbasis CEFR untuk Meningkatkan Keterampilan Bahasa Arab Siswa / Development of Arabic Teaching Materials Based on the Common European Framework of Reference (CEFR) to Improve Students' Arabic Language Skills. *Al Mahara: Jurnal Pendidikan Bahasa Arab*, 7(2), 163–183. <https://doi.org/10.14421/almahara.2021.072-01>
- Safitri, A., Alfattunisa, A., Afifah, A., Abdullah, D., & Mardani, D. (2025). Efektivitas Media Interaktif Berbasis Digital dalam Pembelajaran Bahasa Arab Untuk Siswa MI. *Wulang: Jurnal Pendidikan Guru Madrasah Ibtidaiyah*, 3(2), 45–56. <https://doi.org/10.55656/wjip.v3i2.355>

- Susilawati, A., Al-Obaidi, A. S. M., Abduh, A., Irwansyah, F. S., & Nandiyanto, A. B. D. (2025). How to do Research Methodology: From Literature Review, Bibliometric, Step-by-step Research Stages, to Practical Examples in Science and Engineering Education. *Indonesian Journal of Science and Technology*, 10(1), 1–40. <https://doi.org/10.17509/ijost.v10i1.78637>
- Yasin, Z., Anwar, H., & Luneto, B. (2021). Multimedia PowerPoint-Based Arabic Learning and its Effect on Students' Learning Motivation: A treatment by level designs experimental study. *International Journal of Instruction*, 14(4), 33–50. <https://doi.org/10.29333/iji.2021.1443a>
- Zou, Y., Kuek, F., Feng, W., & Cheng, X. (2025). Digital learning in the 21st Century: Trends, Challenges, and Innovations in Technology Integration. *Frontiers in Education*, 10, 1562391. <https://doi.org/10.3389/feduc.2025.1562391>