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Design and Implementation of Interactive Digital Media Using the ADDIE Model for Arabic Learning in Madrasah Ibtidaiyah

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Abstract

Mastery of Arabic vocabulary is the cornerstone of language proficiency in Madrasah Ibtidaiyah; however, students often encounter difficulties due to a lack of engaging learning resources. This study aims to develop and evaluate the effectiveness of interactive digital learning media for enhancing Arabic vocabulary mastery. Using the Research and Development (R&D) method within the ADDIE approach (analyze, design, develop, implement, and evaluate), this research developed an integrated tool that combines interactive PowerPoint, educational videos, and Kahoot-based digital quizzes. The content focused on "school supplies," specifically tailored for second-grade students. The product underwent rigorous validation, achieving "excellent" ratings from subject-matter experts (94.72%), media experts (93.04%), and practitioner teachers (94.30%). Effectiveness trials involved a small group (10 students) and a large group (30 students) using a pretest-posttest design. The results demonstrated a substantial improvement in student performance. The average score in the small group rose from 66.5 to 89.0, while the large group improved from 63.7 to 91.0. Statistical analysis using a paired-samples t-test confirmed significant differences ($p < 0.05$). Furthermore, N-Gain scores of 61.25% and 69.80% indicate that the improvement was moderately effective. These findings conclude that the developed interactive digital media is valid, practical, and effective, offering a viable solution for optimizing Arabic language instruction in elementary education settings.

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INTRODUCTION

Learning at the elementary education level should no longer be solely focused on mastering subject matter, but should also develop students' thinking and communication skills in a meaningful way to prepare them to face real-life problems in their daily lives. Critical thinking, creativity, communication, and collaboration skills are important competencies that need to be facilitated from an early age through active and reflective learning experiences (Day et al., 2025; Widodo, 2021). Mastery of thinking, communication, and collaboration skills is not developed instantly but requires a learning process that actively and meaningfully involves students in learning activities (Choo et al., 2024). One of the main foundations in developing these skills is language proficiency, because language acts as a means of thinking, communicating, and building understanding. In the context of Islamic education, mastery of Arabic plays a strategic role, not only as a means of communication but also as the main medium for comprehensively understanding the sources of Islamic teachings (Inah & Khairunnisa, 2019).

A number of studies show that the use of digital technology has significant potential in supporting foreign language vocabulary learning (Chowdhury et al., 2024). Systematic integration of digital learning has been proven to improve learning experiences and vocabulary mastery among students compared to learning methods that lack interaction and active student participation (Babazade, 2024; Wahab & Astri, 2025). The use of digital tools also encourages independent vocabulary learning through the reinforcement of self-regulated learning, enabling students to manage the vocabulary acquisition process more effectively (Alibakhshi et al., 2025; Xu et al., 2025;). In addition, the application of gamification elements in digital learning has a positive impact on vocabulary retention and student memory in second language learning (Ika Aprianti et al., 2024; Azizah & Batubara, 2021). The effectiveness of digital-based vocabulary learning is further reinforced by findings showing that contextual and multimodal presentation of vocabulary through multimedia and digital applications can improve students' understanding and meaningful learning (Yaşar Sağlık, 2024; Vargo et al., 2023).

Not only does it have an impact on improving learning outcomes, but digital-based vocabulary learning also influences students' perceptions and learning experiences. Various studies report that students have a positive perception of the use of digital vocabulary learning applications because they help them understand and remember vocabulary better (Indriyani & Yulianto, 2025; Zaharani, 2023). This is in line with findings on the effectiveness of mobile-based vocabulary applications and interactive e-books that are able to improve word comprehension through visual support and a high level of interactivity (Polakova & Klimova, 2022). However, most of these studies still focus on learning English or foreign languages in general. In the context of Arabic language learning at the Madrasah Ibtidaiyah level, vocabulary (mufradat) mastery is the most fundamental aspect that

determines the success of language learning, as it is a prerequisite for students to understand texts, express ideas, and communicate simply in learning activities (Okumuş Dağdeler, 2023; Zhang & Hasim, 2023). Therefore, a study is needed that specifically develops interactive digital learning media that are in line with the cognitive characteristics of elementary school students and the context of Arabic language learning.

Initial observations conducted at Islamic Elementary School Ath Thoriqun Najat, Karangpawitan District, Garut Regency, show that the vocabulary mastery of second-grade students is still relatively low. Based on observations of the learning process and interviews with Arabic teachers, it was found that most students were unable to recognize and use basic vocabulary in simple contexts, which was related to the use of learning methods that tended to be monotonous and did not make optimal use of interactive learning media. This finding is reinforced by pre-test data showing that out of 28 students, 18 students (64.3%) were unable to identify the meaning of simple vocabulary in short texts, and 20 students (71.4%) were unable to use the vocabulary in simple sentences orally. The average score for vocabulary mastery was only 56, which is still below the minimum passing score of 70. This data confirms the need for more innovative, contextual learning interventions that are appropriate for the cognitive development characteristics of lower-grade elementary school students.

Previous studies have developed Arabic language learning media, including through the use of songs, picture cards, and Android-based applications (Mar'atussolichah et al., 2024; Robi'ah et al., 2023; Tegar Wicaksana, 2023). However, some of these studies tend to separate the delivery of material and learning evaluation activities (Azizah & Batubara, 2021). Unlike these studies, this study emphasizes the development of interactive digital learning media that integrates vocabulary introduction, usage context, and learning interaction into a complete pedagogical flow. The media was developed specifically for second-grade Madrasah Ibtidaiyah students, taking into account the cognitive characteristics of children in the early concrete operational stage and its suitability with the learning syntax in the applicable teaching module.

This approach allows students to actively interact with learning materials, thereby facilitating more meaningful understanding and retention of vocabulary. Thus, this study aims to fill the gap in previous studies through the development of interactive digital media based on contextual instructional design that specifically targets the low vocabulary mastery of second-grade Madrasah Ibtidaiyah students. Specifically, this study aims to develop interactive digital learning media and evaluate their effectiveness in improving Arabic vocabulary mastery and student engagement in learning (Badrus et al., 2025; Firdaus & Aziz, 2024; Hadlirotul Humayro et al., 2022). Based on these objectives, the research questions focused on the process of developing media that is in line with the characteristics of second-

grade MI students and the Arabic language curriculum, as well as the effectiveness of the media in improving students' vocabulary mastery.

The urgency of this research stems from the real problem of low Arabic vocabulary mastery among second-grade Madrasah Ibtidaiyah students, caused by limited interactive learning media and suboptimal use of digital technology. Therefore, the development of interactive digital learning media is important to support more meaningful, contextual vocabulary learning that is in line with the cognitive characteristics of elementary school students. In addition to providing practical solutions for teachers, this research is expected to enrich scientific knowledge in the field of digital learning media development and Arabic language learning in Madrasah Ibtidaiyah.

METHODS

This study uses a research and development (R&D) approach with the ADDIE model (Analyze, Design, Develop, Implement, and Evaluate), which has been proven effective for the development of digital-based interactive learning media (Molenda, 2001; Branch, 2009). The ADDIE model allows researchers to systematically design, develop, and evaluate media according to the needs of students. The research subjects included second-grade Madrasah Ibtidaiyah students as media users, Arabic language teachers as facilitators, and subject matter and media validators selected based on minimum qualifications of a master's degree and more than five years of work experience (Taufiqurrahman et al., 2022).

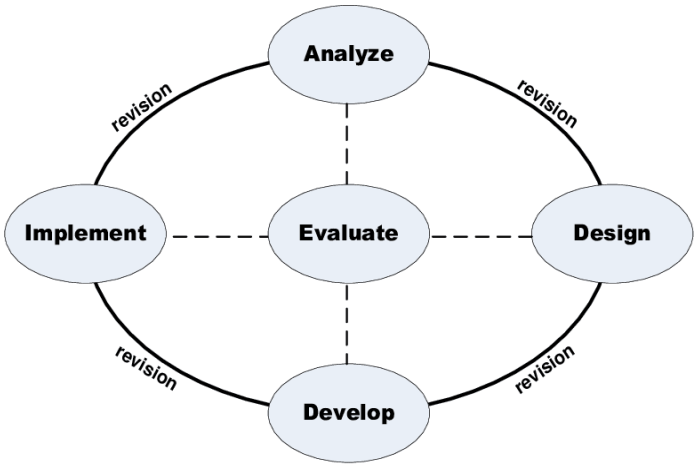


Figure 1. Stages of ADDIE Model Development
In the book by Tegeh, et al. (2014:41)

The research instruments used included interview grids to determine learning needs and student characteristics, expert validation sheets to assess the suitability of the content and appearance of the media, user response questionnaires to evaluate the acceptance of the media by teachers and students, and pre-tests and

post-tests to measure Arabic vocabulary mastery before and after using the media. The pre-test and post-test were designed with test indicators that included: students' ability to identify the meaning of the mufradat taught, use mufradat in simple sentences orally, recognize the correct written form of vocabulary, and read and spell vocabulary according to the learning context.

Data were collected through classroom observations, teacher interviews, user-response questionnaires, documentation, and pre- and post-test administration. Observations and interviews were conducted to understand the learning context and students' characteristics, while questionnaires and tests were used to assess the effectiveness of the media. The learning media were developed iteratively during the Development stage and validated by subject-matter experts, media experts, and practicing teachers to ensure the suitability of their content and appearance. The pre-test and post-test were validated in advance by subject-matter experts and experienced teachers to ensure that the test indicators were reliable and aligned with the learning objectives. Quantitative data were analyzed using descriptive methods, comparing the pre-test and post-test mean scores, and calculating the percentage of vocabulary mastery with a minimum target of 70%.

Based on the research objectives, the questions asked are: (1) How is the process of developing interactive digital learning media that is suitable for the characteristics of second-grade MI students and the Arabic language curriculum? and (2) How effective is the interactive digital learning media developed in improving students' Arabic vocabulary mastery?

Table 1. Validity Criteria

No.	Criteria validity	Validity
1.	85.01% - 100.00	Very high
2.	70.01% - 85.00	High
3.	50.01% - 70.00	Moderate
4.	01.00% - 50.00	Low

Source: Akbar (Nesri, 2020)

The implementation stage was conducted to test the learning media following the revision and validation processes in the previous stage. This interactive Arabic learning media was applied to Arabic materials in a Madrasah Ibtidaiyah, in accordance with the ADDIE approach. At this stage, the researcher conducted limited trials (small groups) and field trials (large groups) with fifth-grade students at a Madrasah Ibtidaiyah. The purpose of this implementation was to assess users' acceptance of the media and its effectiveness in improving students' Arabic language competence.

Before instruction began, students were administered a pretest to assess their initial abilities. After completing the interactive media learning, students were administered a posttest to assess their learning progress. In addition, researchers

also distributed questionnaires to students and teachers to determine their responses to the media developed, in terms of content, appearance, and ease of use.

The evaluation stage is the process of assessing the success of developing interactive Arabic learning media. This evaluation is carried out comprehensively and continuously at each stage of the ADDIE model (Branch, 2010). The assessment is conducted through two approaches: formative evaluation, conducted during the development process to improve the media based on input from validators (subject-matter experts, media experts, and practicing teachers). Summative evaluation, which is carried out after the media is implemented, using test instruments (pre-tests and post-tests) as well as teacher and student response questionnaires.

Data analysis was conducted using the N-Gain test to determine the effectiveness of improving student learning outcomes, as well as the t-test (paired sample t-test) to determine the significance of the difference between pretest and posttest scores. Meanwhile, user responses were analyzed using a Likert scale to determine the level of acceptance of the media by students and teachers (Hasriadi, 2022). At this stage, the strengths and weaknesses of the learning media can be identified objectively and serve as the basis for improvement and further development.

RESULTS

1. Analysis Stage

The analysis stage in this study covers three main aspects obtained from interviews with second-grade homeroom teachers who teach Arabic, namely student characteristics, curriculum, and teachers. First, the analysis of student characteristics shows that second-grade students are at the concrete operational stage of cognitive development (Piaget, 1972), so visual, active, and interactive learning is more appropriate. This analysis also considers students' learning styles, thinking abilities, characters, and personalities (Santrock, 2018). Based on these findings, technology-based learning media such as interactive PowerPoint, educational videos, and digital quizzes are considered effective in supporting vocabulary comprehension and student engagement.

Second, the curriculum analysis reviewed the mastery of vocabulary related to "school supplies" and potential obstacles in its implementation. These results formed the basis for the development of contextual and meaningful interactive digital media, in accordance with the learning principles of Bruner (1966) and Gagne (1985), and in line with the Arabic language curriculum in Madrasah Ibtidaiyah. Third, teacher analysis shows that limited digital competence and a lack of technological facilities are challenges in the use of digital-based media. Therefore, training, mentoring, and the provision of adequate facilities are needed to support optimal use of media (Hristov et al., 2022). These three aspects are interrelated and

form the basis for designing strategic solutions to improve the effectiveness of Arabic language learning through interactive digital media that are appropriate to the characteristics and needs of students.

The results of the questionnaire analysis in this study support the findings of the interviews by reinforcing three main aspects: student characteristics, curriculum, and teacher competence. The majority of teacher respondents stated that second-grade students tend to be more responsive to learning that involves visual elements, games, and hands-on activities. This shows that conventional learning approaches are less effective in reaching their learning styles. In addition, in terms of curriculum, most teachers acknowledged that *vocabulary* material on the theme of "school supplies" is easier for students to understand when delivered through relevant and contextual interactive media, rather than simply memorizing texts. Meanwhile, in terms of teachers, the questionnaire revealed that limited ability to design and operate digital media remains a major challenge, compounded by a lack of facilities such as projectors, active speakers, and stable internet connections. Teachers also showed a high level of interest in training on creating interactive media and assistance in implementing learning technology. The findings from this questionnaire reinforce the need for a digital learning media development strategy that is not only in line with student characteristics and the curriculum, but also realistic to implement based on the conditions and readiness of teachers in the field.

2. Design Stage

In the design stage, researchers design the concept and framework of interactive digital learning media to be developed. This stage includes designing the material flow, compiling visual and audio elements, and designing evaluation instruments to measure students' vocabulary mastery. All designs are made by considering the characteristics of the students, learning objectives, and instructional design principles so that the media developed can be effective, interesting, and interactive.

The following table presents the learning elements and indicators of each of the designed media:

No	Media	Element	Learning Indicators
1	PowerPoint	Vocabulary material slides	1. Students are able to recognize new vocabulary (mufradat) visually. 2. Students understand the meaning of vocabulary through pictures and text. 3. Students connect vocabulary to everyday contexts.
2	PowerPoint	Animation and audio	1. Students can pronounce vocabulary correctly. 2. Students understand the use of vocabulary in simple sentences.
3	Educational videos	Short educational videos	1. Students understand vocabulary in the context of a story.

			2. Students can imitate the pronunciation of vocabulary from native speakers. 3. Students show active engagement while watching the video.
4	Kahoot	Interactive quiz	1. Students answer questions based on the vocabulary they have learned. 2. Students can choose the correct answer based on context. 3. Students take quizzes actively and on time. 4. Students show an increase in scores as an indicator of vocabulary mastery.
5	Kahoot	Visual elements and timer	1. Students are able to distinguish vocabulary through visuals. 2. Students improve their focus and quick response to questions. 3. Students show motivation to learn through scores and fun competitions.

This indicator table outlines the learning objectives for each media element. It serves as a guide and tool for measuring the media's effectiveness in improving students' Arabic vocabulary interactively and enjoyably.

1. Development Stage

Validation by subject-matter experts is conducted by experts competent in the Indonesian language. The assessment by subject matter experts focuses on several important aspects, namely the relevance of the content to the intended competencies, the accuracy of the material in the context of Arabic language learning, the ease of understanding for students, the suitability of the material to the characteristics of MI students, as well as communicative and educational language.

Validation by media experts is conducted who are competent in evaluating the feasibility of learning media at the elementary school level. The aspects assessed include the feasibility of the material in digital format, the mastery and accessibility of the media by users (teachers and students), the visual appearance and application interface, the clarity of language, and the program structure that supports the learning flow.

Meanwhile, validation by teacher practitioners was carried out by third-grade teachers at Sedayu Public Elementary School who have professional experience in teaching lower and upper grades. Teacher practitioners assessed the suitability of the media from the aspects of the benefits of the media in the teaching and learning process, the ease of use of the media by teachers and students, the use of language appropriate to the cognitive development level of students, and the suitability of the content to the needs of Arabic language learning in the classroom. These three validation processes were carried out to ensure that the learning media developed were not only attractive and interactive, but also pedagogically relevant, functionally effective, and optimally applicable in Arabic language learning at Madrasah Ibtidaiyah.

Table 2. Results of Content Expert Validation

No	Aspect	Percentage	Criteria
	Relevance	91.2	Very Good
2	Accuracy	98.5%	Very Good
3	Comprehension	97.8%	Very Good
4	Alignment with Learning	89.7	Very Good
5	Language	96.4%	Very Good
	Average Score	**94.72**	
	Average Score	**94.72**	

Table 3. Media Expert Validation Results

No	Aspect	Percentage	Criteria
1	Content	92.5%	Very Good
2	User Mastery	97.1	Very Good
3	Application Display	94.6	Very Good
4	Language	89.3%	Very Good
5	Program	91.7%	Very Good
	Average Score	**93.04**	
	Average Score	**93.04**	

Table 4. Practitioner Teacher Validation Results

No	Aspect	Percentage	Criteria
1	Alignment with Learning	86.5	Very Good
2	Media Benefits	99.3	Very Good
3	User Mastery	92.8	Very Good
4	Language	98.6%	Very Good
	Average Score	**94.3**	**Very Good**
	Average Score	**94.3**	**Very Good**

Based on the validation results conducted by three parties—subject matter experts, media experts, and practicing teachers—it can be concluded that the interactive Arabic language learning media developed is highly suitable for use. Validation by subject matter experts resulted in an average score of 95.31% in the "Very Good" category, indicating that the aspects of relevance, accuracy of material, ease of understanding, suitability for learning objectives, and use of language have been optimally fulfilled. Validation by media experts yielded an average score of 92.64%, covering assessments of content, user control, application interface, language, and programming, indicating that the media is designed to be attractive and user-friendly for elementary school students. Validation by practicing teachers yielded an average score of 94.44%, confirming that the media is useful, appropriate for learning needs, and has good user control and language quality.

Following the validation process, revisions were made in response to the validators' feedback to improve the media quality. Improvements included

enhancing the visual appearance to improve attractiveness, reorganizing material flow to improve systematization, adjusting text to improve student comprehension, and strengthening interactive elements such as navigation buttons, animations, and audio. These revisions ensure that the media is more effective, enjoyable, and appropriate for the context of Arabic language learning in Madrasah Ibtidaiyah, while also addressing the reviewers' questions regarding the post-validation improvement process.

2. Implementation Stage

As supporting evidence of the implementation stage, documentation in the form of Genially-based interactive learning media displays and their use in the classroom is presented in the figure.

Table 5. PowerPoint Elements

No	Element	Description
1		An eye-catching image element to add to PowerPoint slides.
2		A play button element that, when clicked, directly links to a specific URL.
3		Game button elements that, when clicked, take you directly to a game link.

Table 6. Video Tutorial Elements

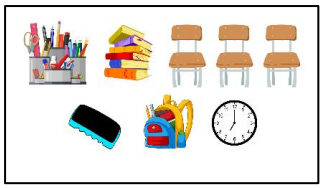
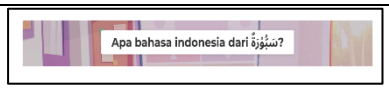
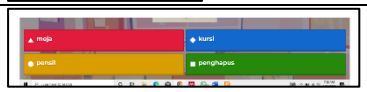
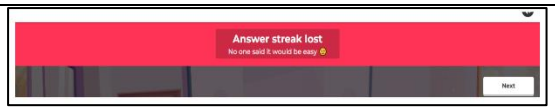
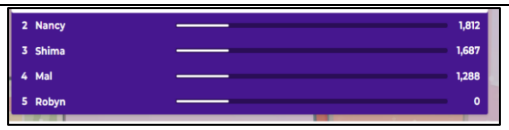
No	Element	Description
1		Elements that provide a concrete description of the vocabulary being studied, in the form of pictures of objects found in the classroom.
2.		Supporting elements contain explanations of each scene in the video.
3.		The teacher acts as the presenter in the learning video, explaining Arabic vocabulary to students.

Table 7. Kahoot Elements

No	Element	Description
1.		This element displays the question items presented in the Kahoot game.
2.		This section shows an example of a question with an image.
3.		This element contains *the* answer *options* for the question that was previously presented.
4.		This element will appear if the option selected by the student contains the correct answer.
5.		This element will appear if the option selected by the student contains an incorrect answer.
6.		This element displays a timer that shows the remaining time to complete the question.
7.		This element shows the button to go to the next question.
8.		This element shows the scores of each participant in the game. This element is optional, meaning it can be used or not.

The development of interactive Arabic learning media at Madrasah Ibtidaiyah was carried out using the ADDIE approach, which includes the stages of *Analysis, Design, Development, Implementation,* and *Evaluation*. During the implementation stage, the media developed using the Genially platform was tested in two stages, namely small group and large group trials. The small group trial involved 10 students out of a total of 30 fifth-grade students to see the initial effectiveness of the media on student understanding. After making improvements based on the observation results, the trial continued with a large group involving all fifth-grade students.

In both trials, students were given a pretest and a posttest to measure their improvement in understanding Arabic material, particularly in terms of vocabulary

comprehension in texts. The results showed an increase in the average score from the pretest to the posttest, indicating that the use of Genially-based interactive learning media was effective in helping students understand Arabic material at the Madrasah Ibtidaiyah level. This media was also considered interesting, interactive, and suitable for elementary school students.

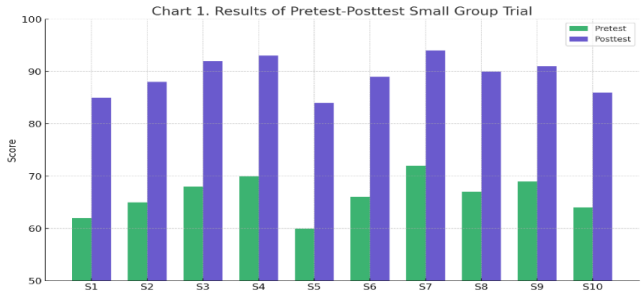


Figure 1. Results of Pretest-Posttest Small Group Trial

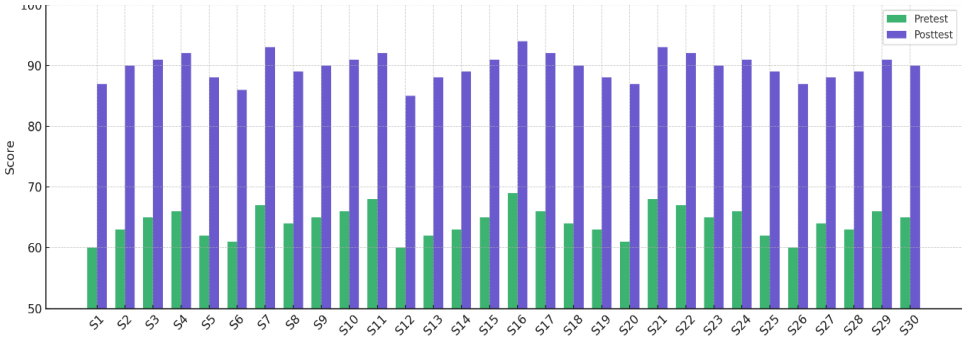


Figure 2. Results of Pretest-Posttest Large Group TrialChart

The results of testing interactive Arabic learning media developed using the ADDIE approach showed a significant increase in the reading comprehension of fifth-grade Madrasah Ibtidaiyah students. The testing was conducted in two stages, namely, small groups and large groups. In the small group trial involving 10 students, there was an increase in the average score from 65.0 on the pretest to 89.0 on the posttest. Meanwhile, in the large group trial involving 30 students, the average pretest score increased from 63.7 to 91.0 on the posttest. The graph shows that all students experienced an increase in scores, with most achieving scores above the passing criteria.

Statistical analysis using the t-test shows that the increase in student learning outcomes is significantly different between before and after the use of interactive media ($p < 0.05$). In addition, N-Gain calculations show that the effectiveness of the media is moderate to high, with an average N-Gain value of around 0.75 in large groups. This indicates that the interactive media developed is capable of having a positive impact on improving reading comprehension skills in Arabic.

Thus, the interactive Arabic learning media based on the ADDIE approach has been proven effective in improving students' reading comprehension. The

application of this media supports active student involvement in the learning process, facilitates understanding of the material, and helps achieve learning objectives. Therefore, this media is worthy of wider implementation in Madrasah Ibtidaiyah environments.

Table 8. Results of Average Pretest-Posttest Small Group Trial

No	The Test	Average	Average Difference
1	Pretest	66.5	22.5
2	Posttest	89.0	

Table 9. Results of Average Pretest-Posttest Large Group Trial

No	The Test	Average	Average Difference
1	Pretest	63.7	27.3
2	Posttest	91.0	

Table 10. Results of Paired Sample T-test

No	The Test	Average	Average Difference
1	Pretest	0.002	Significant Changes
2	Posttest	0.000	

Based on the results of the trial, there was a significant increase in pretest and posttest scores in both small and large groups. The average pretest score for the small group was 66.5, increasing to 89.0 with a difference of 22.5 points, while the large group rose from 63.7 to 91.0 with a difference of 27.3 points. Statistical tests showed significance values of 0.002 (small group) and 0.000 (large group), which means that there was a significant difference between the pretest and posttest. This proves that interactive Arabic learning media based on the ADDIE approach is effective in improving student learning outcomes.

Table 11. Results of the N-Gain Test

No	Test Type	Average N-Gain Percentage	Category
1.	Small Group Trial	61.25	Fairly Effective
2	Large Group Trial	69.80	Fairly Effective

The N-Gain test shows an increase in students' ability to understand Arabic reading. The average N-Gain score in the small group trial was 61.25%, while in the large group trial it was 69.80%. These results indicate a significant improvement in the reading comprehension of fifth-grade students. From the results of the large group trial, 12 out of 30 students (40%) were in the "high" category, and the other 18 students (60%) were in the "medium" category. Thus, it can be concluded that the use of interactive Arabic learning media developed through the ADDIE approach is quite effective in improving students' reading comprehension skills in Madrasah Ibtidaiyah.

In addition to the N-Gain test, another evaluation instrument used in this study was a user response questionnaire, which was given to fifth-grade teachers and students after participating in learning using the interactive Arabic learning media. This questionnaire was compiled using a Likert scale to measure ten indicators, which were divided into two groups of respondents. The teacher questionnaire assessed aspects such as student engagement, ease of use of the media, impact on material comprehension, support for teaching skills, and flexibility of media use. Meanwhile, the student questionnaire covered aspects such as engagement in learning, ease of use of the media, improvement in reading comprehension skills, interest and motivation to learn, and media display quality.

The results of the questionnaire analysis show that both teachers and students responded positively to the use of the developed media. Teachers stated that the media greatly helped to increase student engagement and understanding during the Arabic language learning process. Students also felt that the media used was interesting, easy to operate, and helped them to understand Arabic texts in a more enjoyable way. These findings reinforce the results of the previous N-Gain test, which showed a significant improvement in reading comprehension skills.

Thus, it can be concluded that interactive Arabic learning media developed through the ADDIE approach is not only effective in terms of learning outcomes, but also receives very good acceptance and response from users (teachers and students), which is an indicator of success in the implementation of learning media in Madrasah Ibtidaiyah.

Table 12. Results of the Response Questionnaire

No	Respondents	Average	Category
1	Teacher	98.75	Very Effective
2	Students	86.4	Fairly Effective

The results of the response questionnaire analysis show that teachers gave an average score of 98.75, which is classified as highly effective, for the use of the interactive Arabic learning media that was developed. Meanwhile, the questionnaire given to 30 students obtained an average score of 86.40, which is classified as quite effective. This shows that the media developed through the ADDIE approach not only has an impact on improving student learning outcomes but also receives positive acceptance from users, both teachers and students.

Thus, it can be concluded that interactive Arabic learning media developed through the ADDIE approach is not only effective in terms of learning outcomes, but also receives very good responses from users, reflecting the suitability of the media to the needs of fifth-grade Madrasah Ibtidaiyah students. The high acceptance rate from users is one indicator of the success of the media

implementation, while also showing that this media is worthy of further development in other materials in order to support the improvement of students' Arabic literacy and language skills.

3. Evaluation Stage

The evaluation stage is the final stage in the ADDIE approach, which aims to assess the effectiveness of the learning media that has been developed, both in terms of learning outcomes and user response. The evaluation is carried out through two main approaches, namely quantitative evaluation based on *pretest-posttest* results and *N-Gain* analysis, and qualitative evaluation through teacher and student response questionnaires.

The test results showed a significant improvement in students' comprehension skills. In the small group test (10 students), the average score increased from 66.5 to 89.0, a difference of 22.5 points. Meanwhile, in the large group (30 students), the average score increased from 63.7 to 91.0, a difference of 27.3 points. The *paired sample t-test* analysis showed a significance value of < 0.05, which means that there was a significant difference between before and after the use of the media. Furthermore, the *N-Gain* analysis showed an average increase of 61.25% in the small group and 69.80% in the large group, which was categorized as quite effective. The majority of students were in the moderate to high category in terms of learning outcome improvement.

In addition, an evaluation was also conducted by distributing response questionnaires to teachers and students. The average score given by teachers was 98.75 (very effective category), while students gave an average score of 86.4 (fairly effective category). The questionnaire covered aspects of student engagement, ease of use of the media, improvement in understanding, and quality of media display. These findings indicate that the learning media is not only effective in terms of learning outcomes, but also positively received by users. Thus, it can be concluded that the interactive Arabic learning media developed through the ADDIE approach is proven to be effective, feasible to implement, and has the potential to be further developed in supporting Arabic language learning in Madrasah Ibtidaiyah.

DISCUSSION

The results of this study indicate that the development of interactive Arabic learning media using the ADDIE approach has successfully improved learning effectiveness, particularly in vocabulary material at the Madrasah Ibtidaiyah level. During the analysis stage, it was found that the characteristics of second-grade students, who are in the concrete cognitive development stage, require learning media that is visual, active, and enjoyable. In addition, teachers' limited mastery of technology and lack of facilities are challenges that must be addressed through the

development of adaptive and easy-to-implement media. These findings are in line with opinions that emphasize the importance of adjusting media to the learning styles of elementary school students (Anggraini et al., 2025; Basilotta-Gómez-Pablos et al., 2022; Ibnu Rawandhy N. Hula et al., 2024).

Media development at the design stage produced three main products, namely interactive PowerPoint, instructional videos, and Kahoot educational games, which were designed to complement each other in creating interactive and contextual Arabic language learning. After validation by subject matter experts, media experts, and teaching practitioners, feedback was obtained for content refinement, visual display, and ease of use. The improvements made included adjustments to vocabulary illustrations, refinement of animations and audio, and optimization of navigation between media elements. The results of these revisions show that the media developed meet the necessary pedagogical and technical standards and have the potential to improve students' Arabic vocabulary mastery through the presentation of material that is interesting, interactive, and in line with the cognitive development characteristics of elementary school children.

During the implementation and evaluation stages, the *pretest* and *posttest* results showed a significant increase in average scores, reinforced by the results of *the paired sample t-test* ($p < 0.05$) and N-Gain calculations, which indicated moderate to high effectiveness. Additionally, the positive responses from teachers and students toward the developed media prove that this media is not only beneficial in improving learning outcomes but also enhances student motivation and engagement. These findings reinforce the studies (Jamil & Agung, 2022)and (Gusti Ayu Putu Widiastari & Dwi Puspita, 2024; WIDIASTARI & PUSPITA, 2024) which show that technology-based interactive media can address the challenges of learning Arabic at the elementary level. Therefore, it can be concluded that interactive Arabic language learning media based on ADDIE is an innovative and applicable solution that is worthy of wider implementation in Madrasah Ibtidaiyah.

CONCLUSION

This study concludes that the development of interactive Arabic learning media using the ADDIE approach has proven to be effective and feasible for application in vocabulary learning at Madrasah Ibtidaiyah. The media developed, namely interactive PowerPoint, learning videos, and Kahoot digital quizzes, have been adapted to the cognitive characteristics of second-grade students who require a visual, active, and enjoyable approach. Validation by subject matter experts, media experts, and practicing teachers shows that this media is of excellent quality in terms of content, appearance, ease of use, and relevance to learning.

The results of the implementation of learning media show a significant increase in students' Arabic vocabulary mastery, as evidenced by pre-test and post-

test analysis, t-tests, and N-Gain calculations. Teachers' and students' responses to this media were also positive, covering aspects of engagement, ease of use, and influence on material comprehension. These findings indicate that interactive learning media are not only effective in increasing student motivation and learning outcomes, but also provide an alternative teaching approach that is innovative, applicable, and contextual. Thus, the development of this media has practical implications for teachers in designing more interesting learning that is tailored to the characteristics of students, as well as the potential for wider application in Arabic language learning at the Madrasah Ibtidaiyah level.

REFERENCES

Alibakhshi, G., Zarei, M. A., & Labbafi, A. (2025). Digital video games and Language Learners' Vocabulary learning, motivation and engagement: Teachers' perceptions of types and effectiveness. *CALL-EJ*, *26*(1), 94–113. https://doi.org/10.54855/callej.252616

Anggraini, F. N., Nur, M., Maksum, R., Azani, M. Z., Azzahrowaini, L., Jihad, F. A., & Fauzan, S. (2025). *Teacher Readiness and Strategy in the Implementation of Digital Pedagogy in 21st Century Education* *3*(1). https://prosiding.utp.ac.id/index.php/ICEETE

Babazade, Y. (2024). The Impact of Digital Tools on Vocabulary Development in Second Language Learning. *Journal of Azerbaijan Language and Education Studies*, *1*(1), 35–41. https://doi.org/10.69760/jales.2024.00103

Aprilia, N. F. (2025). Mengenalkan Bahasa Arab Melalui Media Lagu Pada Siswa Tapos Sekartaji Ketawang. *Alzam: Journal of Islamic Early Childhood Education*, *5*(1), 1-6. https://ejournal.iainutuban.ac.id/index.php/alzam/article/download/1075/591

Azizah, F. N., & Batubara, H. H. (2021). Pengembangan Aplikasi Edukasi Kuis Bahasa Arab sebagai Alternatif Media Belajar Siswa Kelas I Madrasah Ibtidaiyah. *Alsina: Journal of Arabic Studies*, *3*(2), 219–240. https://doi.org/10.21580/alsina.3.2.8432

Basilotta-Gómez-Pablos, V., Matarranz, M., Casado-Aranda, L. A., & Otto, A. (2022). Teachers' digital competencies in higher education: a systematic literature review. In *International Journal of Educational Technology in Higher Education* (Vol. 19, Issue 1). Springer Science and Business Media Deutschland GmbH. https://doi.org/10.1186/s41239-021-00312-8

Branch, R. M., & Varank, İ. (2009). *Instructional design: The ADDIE approach*. New York: Springer. https://link.springer.com/book/10.1007/978-0-387-09506-6

Chowdhury, M., Dixon, L. Q., Kuo, L. J., Donaldson, J. P., Eslami, Z., Viruru, R., & Luo, W. (2024). Digital game-based language learning for vocabulary development. *Computers and Education Open*, *6*. https://doi.org/10.1016/j.caeo.2024.100160

Çoban Sural, Ü., & Yaşar Sağlık, Z. (2024). Next-generation learning experience: The effect of technology-assisted and printed context-based vocabulary activities on vocabulary knowledge and learning motivation. *Education and Information Technologies*, *29*(16), 20823–20853. https://doi.org/10.1007/s10639-024-12688-x

Day, S. L., Hwang, J. K., Arner, T., McNamara, D. S., & Connor, C. M. (2025). Choose Your Own Adventure: Interactive E-Books to Improve Word Knowledge and Comprehension Skills. *Journal of Computer Assisted Learning*, *41*(2), e70023. https://arxiv.org/pdf/2403.02496

Firdaus, F. M., & Aziz, M. T. (2024). Pemanfaatan Aplikasi Pembelajaran Bahasa Arab: Mengubah Cara Belajar di Era Digital. *Journal of Practice Learning and Educational Development*, *4*(4), 273-278. https://doi.org/10.58737/jpled.v4i4.312

WidiastarI, N. G. A. P., & Puspita, R. D. (2024). Penggunaan media pembelajaran digital dalam mengembangkan motivasi belajar siswa kelas IV SD Inpres 2 Nambaru. *ELEMENTARY: Jurnal Inovasi Pendidikan Dasar*, *4*(4), 215-222. https://www.jurnalp4i.com/index.php/elementary/article/download/3519/2912

Humayro, A. H., Zuraidah, Z., & Khoiriyah, Z. (2022). Pengenalan bahasa Arab menggunakan media kartu mufrodat bergambar di TPQ Al-Faqih. *BUDIMAS: Jurnal Pengabdian Masyarakat*, *4*(2), 451-456. https://www.jurnal.stie-aas.ac.id/index.php/JAIM/article/download/6614/2623

Hasriadi, H. (2022). Metode Pembelajaran Inovatif di Era Digitalisasi. *Jurnal Sinestesia*, *12*(1), 136–151. https://sinestesia.pustaka.my.id/index.php/journal/article/download/161/53

Hristov, M., Yada, T., Fagerlund, J., Näykki, P., & Häkkinen, P. (2026). Understanding the relationships among ICT use, self-efficacy, and achievement in PISA 2022: A multigroup analysis featuring gender and immigrant status. *Computers & Education*, *244*, 105539. https://doi.org/10.1016/j.compedu.2025.105539

Ibnu Rawandhy N. Hula, Loni, J., & Suharia Sarif. (2024). Development of Android-Based Learning Media Using iSpring Suite to Improve Arabic Vocabulary Mastery Among Students. *Edulab : Majalah Ilmiah Laboratorium Pendidikan*, *9*(2), 222–239. https://doi.org/10.14421/edulab.2024.92.04

Ika Aprianti, B., Mustika Azzahra, H., & Ummah, Atul. (2024). JES (4) (2024), E-ISSN 3031-4232 JES Journal of Educational Studies Improving Vocabulary

Acquisition: Technology-Integrated, Gamified, and Contextualized Approaches in EFL Learning. In *JES* (Issue 4). https://ejournal.baleliterasi.org/index.php/JEs

Indriyani, S., & Yulianto, S. (2025). Pengembangan Media Pembelajaran Candyo Berbasis Educandy dan Video Animasi untuk Meningkatkan Kosakata Bahasa Inggris Siswa Sekolah Dasar. *Jurnal Ilmiah Pendidikan Citra Bakti*, *12*(3), 889–900. https://doi.org/10.38048/jipcb.v12i3.5490

Jamil, H., & Agung, N. (2022). Tantangan Pembelajaran Bahasa Arab Di Era Society 5.0: Analisis Pembelajaran Bahasa Arab Berbasis Aplikasi Interaktif. *Alibbaa': Jurnal Pendidikan Bahasa Arab*, *3*(1), 38–51. https://doi.org/10.19105/ajpba.v3i1.5536

Molenda, M. (2001). Histories of instructional technology and ID. Again, not a single mention. In *Next, the textbooks on ID*. Heinich, Molenda. http://www.nwlink.com/~donclark/hrd/sat1.html#model.

Okumuş Dağdeler, K. (2023). A systematic review of Mobile-Assisted Vocabulary Learning research. In *Smart Learning Environments* (Vol. 10, Issue 1). Springer. https://doi.org/10.1186/s40561-023-00235-z

Polakova, P., & Klimova, B. (2022). Vocabulary Mobile Learning Application in Blended English Language Learning. *Frontiers in Psychology*, *13*. https://doi.org/10.3389/fpsyg.2022.869055

Taufiqurrahman, M. (2022). Penerapan Teknologi dalam Pendidikan Inklusif: Tantangan dan Solusi. *PROGRESSA: Journal of Islamic Religious Instruction*, *6*(1), 1-15. https://jurnal.stitradenwijaya.ac.id/index.php/pgr/article/download/454/147

Vargo, A., Yamaguchi, K., Iwata, M., & Kise, K. (2024). A Context-Based Multimedia Vocabulary Learning System for Mobile Users. *Informatics*, *11*(1), 1. https://doi.org/10.3390/informatics11010001

Wahab, I., & Astri, Z. (2025). Using Digital Learning Method as An Integration of Technology to Expand EFL Students' Vocabulary: A Systematic Research Review. *Research and Innovation in Language Learning*, *8*(3), 32–45. https://doi.org/10.33603/rill.v8i3

Widiastari, N. G. A. P., & Puspita, R. D. (2024). Penggunaan Media Pembelajaran Digital Dalam Mengembangkan Motivasi Belajar Siswa Kelas Iv Sd Inpres 2 Nambaru. *ELEMENTARY: Jurnal Inovasi Pendidikan Dasar*, *4*(4), 215–222. https://doi.org/10.51878/elementary.v4i4.3519

Widodo, H. (2021). Strategi Pembelajaran Efektif di Era Digital. *Jurnal Pendidikan Modern*, *6*(1), 66–74.

Xu, Q., Richardson, J. C., Zhang, Z., Cheng, Z., & Guo, F. (2025). Using a Mobile Vocabulary Application to Enhance L2 Learners' Vocabulary Acquisition: Possibilities and Challenges. *Online Learning Journal*, *29*(3), 66–102. https://doi.org/10.24059/olj.v29i3.4918

Zaharani, H. (2023). Penerapan Word Wall Untuk Meningkatkan Kemampuan Siswa Dalam Memperbanyak Kosa Kata Bahasa Inggris. *Mejuajua: Jurnal Pengabdian Pada Masyarakat*, *2*(3), 30–33. https://doi.org/10.52622/mejuajuajabdimas.v2i3.81

Zhang, S., & Hasim, Z. (2023). Gamification in EFL/ESL instruction: A systematic review of empirical research. In *Frontiers in Psychology* (Vol. 13). Frontiers Media S.A. https://doi.org/10.3389/fpsyg.2022.1030790