Development of a Codular-Based Instructional Media for Grade 10 *Vocabulary* Material at Lampung's Senior High School

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Abstract	This research aims to develop, validate, and measure the effectiveness of the Quadolar-based Arabic language teaching method in teaching vocabulary to tenth-grade students. The study adopts the Hannafin and Peck research model, which consists of needs analysis, design, development, and implementation phases. Involving subject matter experts and method experts as assessors, this study uses pre-test and post-test data analyzed with a t-test. The research results indicate the successful development of the Quadolar-based teaching method, with excellent quality according to subject matter and method experts. Individual trials, small-group, and large-group experiments also indicate a positive level of acceptance of this method. Its effectiveness is evidenced by a learning outcome difference of 38.75, with t-test results showing a high level of significance (t-score 62.5 vs. t-table 2.093). Therefore, this research concludes that the Quadolar-based Arabic language teaching method is a worthwhile and effective approach to teaching Arabic in this environment.
Keywords	Arabic; Kodular; Learning Media; Vocabulary

INTRODUCTION

The diversity of human languages has significantly contributed to creating a rich and diverse global linguistic landscape. Among various existing languages, Arabic plays a significant role in this context. With over 280 million native speakers, primarily spread across the Middle East and North Africa, Arabic serves as the official language in 25 countries and holds a central position in Islam due to its usage in the Quran (Maltepe, 2016; Ridlo, 2022; Syaifullah & Izzah, 2019). Each language has unique characteristics that can also be found in other languages. The fundamental components shaping a language include syntax, morphology, semantics, phonology, and phonetics. Understanding foreign languages, such as Arabic, aims to develop learners' skills (Shaalan, 2014). Language skills *(Mahārāt al-Lugah)* are vital in the world of education. In the context of Arabic, language proficiency encompasses four skills: listening *(Mahārah al-Istimā')*, speaking *(Mahārah al-Kalām),* reading *(Mahārah al-Qirāah),* and writing *(Mahārah al-Kitābah)* (Hijriyah, Aridan, et al., 2022; Larabi Marie-Sainte et al., 2019; Ramlan et al., 2023).

In Indonesia, Arabic takes center stage, especially in Islamic-based educational institutions like Madrasah Ibtidaiyah (MI), Madrasah Tsanawiyah (MTs), Madrasah Aliyah (MA), and State Islamic Religious Colleges (PTKIN). Arabic continues to evolve as an international language in this global era. Arabic falls under the Semitic language group (used by communities around the Tigris and Euphrates rivers, the Syrian plateau, and the Arabian Peninsula in the Middle East). Arabic's uniqueness lies in its 28 letters, each with distinct articulation points not found in other languages. Furthermore, the concepts of i'rab and word changes in the sciences of grammar and morphology are also characteristic of Arabic (Grugni et al., 2012; Muassomah et al., 2023; Nasidze et al., 2008; Pikri, 2022).

For an educator, particularly in teaching Arabic, communicating effectively and conveying learning material is crucial. This involves selecting suitable approaches, techniques, and media to facilitate efficient and effective learning. The term 'media' originates from Latin and refers to an 'intermediary' or 'conduit,' serving as a bridge between the message sender and receiver. Thus, instructional media plays a crucial role in effectively delivering educational messages. The concept of effectiveness encompasses the level of success or efficacy. In an educational context, effectiveness relates to the extent to which achieved outcomes align with set objectives (Abdul Ghani et al., 2022; Hijriyah, Zulhannan, et al., 2022; Khaira, 2021; Mulyani & Sholeh, 2023).

The advancement of technology, particularly in the information age, has significantly impacted the evolution of instructional media. Smartphones, a prime example of modern technology, have made their mark. While many embrace their utility, some have yet to grasp their potential fully. In education, some learners tend to misuse smartphones during the teaching and learning process (KBM). Moreover, the diverse features of smartphones, such as internet access, video calls, and gaming, often divert learners' attention from the learning process (Abdul Ghani et al., 2022; Koderi et al., 2020; Osman et al., 2022; Yanti et al., 2023).

Inappropriate technology use can be counterproductive and detrimental to education. Most smartphone users, especially on Android platforms, use these devices solely for social media interaction and entertainment, occasionally accessing negative content. However, communication technology facilitating Android or Kodular-based instructional media development holds the potential for innovative solutions. Such instructional media provide flexible access, allowing learners to study at their own pace and schedule, as expressed by Pawar et al., 'with this Kodular application, students can learn at their own pace and time (Ferdiansyah et al., 2022; Mutholib et al., 2020). Educators should harness these developments to design engaging and effective instructional media in line with information technology advancements. This aids in enhancing learners' interest and achievements in teaching and learning. The selection of media as a learning tool significantly impacts the Arabic learning experience (Mutholib et al., 2020; Norkhafifah & Syahabuddin, 2022).

Findings from an interview with Arabic language teachers at MA Ma'arif Katibung in South Lampung indicate current instructional media usage remains conventional, using tools like chalkboards and books. Through the development of Kodular-based media, there is hope that many learners who already possess smartphones can optimally serve as learning tools. This aligns with questionnaire results showing that around 65% of 10th-grade students find it challenging to comprehend and memorize Arabic lessons due to a lack of engagement in the teaching methods.

On January 8, 2022, at MA Ma'arif Katibung, observations revealed some students bring smartphones to school for entertainment or gaming. The development of Kodular-based instructional media is expected to optimize smartphone utilization for learners in Arabic learning, particularly in mastering vocabulary or 'mufrodat.' Mufrodat, interpreted as a lexicon or vocabulary, is a critical element in foreign language learning, including Arabic. Introducing and mastering mufrodat are crucial steps in Arabic communication and writing (Koderi et al., 2020; Ma'arif, 2019).

The vocabulary introduction process at MA Ma'arif Katibung has largely adhered to conventional methods like books and chalkboards. This learning model tends to be passive, with teachers dominating content delivery and students merely listening and taking notes. This method often fails to stimulate students' interest in effectively learning and memorizing voacbulary. In addressing this challenge, using diverse instructional media becomes paramount. The lack of diverse instructional media options is a primary reason for students' difficulties understanding and mastering vocabulary.

This study also analyzes the Arabic language subject semester examination data for 10th-grade students in the 2021-2022 academic year at MA Ma'arif Katibung. The data indicates low achievement scores in Arabic language learning, with 35% of students scoring 55–58, 5% scoring 59–62, 15% scoring 63–66, 30% scoring 67–70, 5% scoring 71–74, and 10% scoring 75–78.

To enhance learning outcomes, this study focuses on developing Kodular-based instructional media. This media offers opportunities for learners to study independently, with flexible schedules and access anytime, anywhere. Therefore, this research will explore Toward Effective Arabic Language Learning: Development of a Codular-Based Instructional Media for Grade 10 Vocabulary Material at MA Ma'arif Katibung South Lampung.

METHOD

This research aims to develop an Arabic language learning media using Kodular based on the vocabulary material for the 10th-grade students at MA Ma'arif Katibung South Lampung, which will result in an apk file accessible on Android OS smartphones. Additionally, the research aims to determine the feasibility of the developed learning media. The collected instruments include tests, interviews, observation, and documentation sheets. The model utilized in this study is the Hannafin and Peck model, which consists of three phases: the needs analysis phase, the design phase, and the development and implementation phase. Subsequently, the researcher adapts the Hannafin and Peck model to the development of Kodular-based learning media, as planned in the study. Below is a modified illustration of the Hannafin and Peck model.

Figure 1. Modification of the Hannafin and Peck Development Model
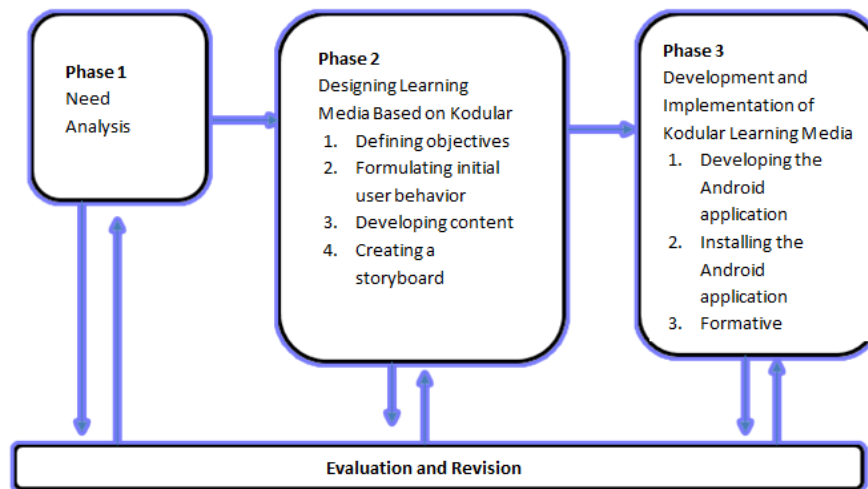
FINDINGS AND DISCUSSION

Findings

The research findings encompass the exposition of the preliminary research process, design and development process, validation, product evaluation, and revision, as well as the implementation of the developed product.

Analysis

This preliminary study aims to identify the need for developing Kodular-based learning media. The research methods include observations, interviews, and questionnaire distribution at Ma'arif Katibung Islamic High School in South Lampung. An interview was conducted with the Arabic language teacher, Riyansyah, to understand media use in teaching. Additionally, observations were made regarding the learning media used in the school. The combined results of interviews and observations yielded several key findings: 1) Arabic language teaching at Ma'arif Katibung Islamic High School follows the 2013 curriculum, 2) Almost all students own Android-based smartphones, 3) Learning media includes whiteboards, textbooks, and internet usage for translation purposes. Despite the positive potential of modern technology such as smartphones in education, its utilization in Arabic language learning remains limited. Students use smartphones only for social media and entertainment, even accessing negative content. Therefore, integrating Android technology as an innovative learning tool becomes highly important in this context.

Table 1. Students' Responses to the Use of Arabic Language Learning Media

in Their Learning Process

No	Statement	Percentage	Criteria
1	Teachers have used learning media in the teaching process	100%	Strongly Agree
2	The learning media used by teachers in the teaching process have been helpful and supportive in the teaching process	65%	Agree
3	The learning media used by teachers have been able to motivate the teaching process	60%	Disagree
4	Students find it easier to understand learning materials when using learning media	90%	Strongly Agree
5	Students agree that lessons accompanied by audio and video are more enjoyable	95%	Strongly Agree
6	Teachers have used Arabic language learning media based on Kodular or similar platforms	40%	Disagree
7	Students agree that Arabic language learning media based on Kodular, accessed through smartphones/digital devices, can be opened anywhere and anytime	100%	Strongly Agree
8	Arabic language learning media using audio, video, and interactive quizzes can help improve your learning motivation and should be developed	100%	Strongly Agree

Table 1 depicts students' responses to the use of Arabic language learning media. The results indicate that most students have a positive outlook toward using learning media, particularly audio, video, and interactive quizzes. Although some students have reservations about using Kodular-based media, there is strong agreement regarding the accessibility of Kodular-based Arabic language learning media through smartphones.

From the interview, observations, and questionnaire results at Ma'arif Katibung Islamic High School in South Lampung, it can be concluded that the development of Kodular-based Arabic language learning media is highly needed as an innovative step in modern education, utilizing the potential of smartphone technology.

Design and Development

In developing Arabic language-based applications using Kodular, the first step is to find solutions to the existing problems. After that, a general application design is created with three main stages: Draft Model 1, Draft Model 2, and Final Draft.

Draft Model 1 discusses the design of Arabic language learning that adopts core competencies, basic competencies, indicators, and learning objectives from the MA Ma'arif Katibung Lampung Selatan textbook. This model outlines the steps of layout design involving Adobe Photoshop CS3 software for design, Microsoft Word 2013 for text, and images from the internet.

Once the design is completed, the application development stage uses Kodular, by embedding images, sounds, and commands.

Draft Model 2 introduces a storyboard for visualizing Arabic language learning based on Kodular. This includes core competencies, basic competencies, indicators, learning objectives, materials, and questions. Storyboard development continues with steps such as configuring recommended hardware and software, developing the Android application with Kodular, embedding images and audio, providing commands, and exporting the application as a .apk file.

The Final Draft explains the operation and functions of buttons within the application. This application has various buttons such as sound, information, close, developer information menu, developer objectives menu, learning material menu, and user instruction menu. This Final Draft is the end stage after going through Draft Models 1 and 2. Therefore, developing Arabic language-based applications using Kodular involves systematic design, creation, and operation stages focused on learning objectives.
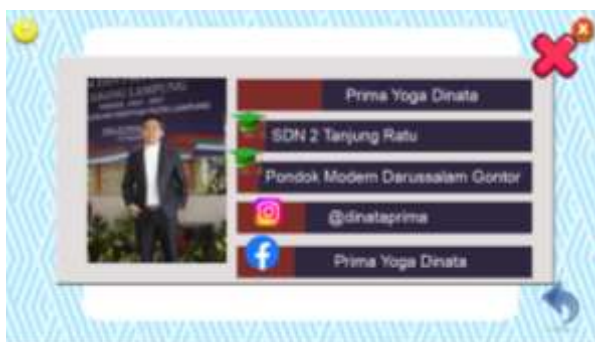
Figure 2. (a) Initial Display of the Application, (b) Material Display, (c) Application Developer's Display, (d) Exercise Display within the Application.
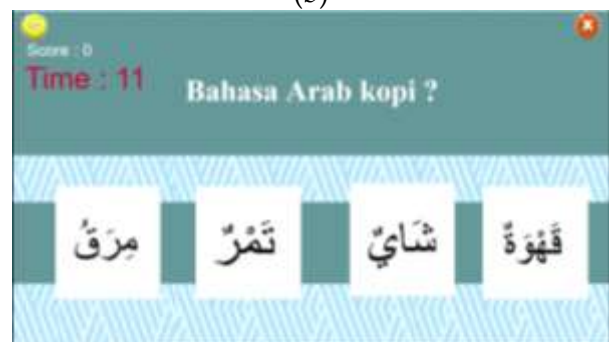

(a)

(b)

(c)

(d)

The evaluation of an individual test model (one-to-one expert) by learning material experts is a researcher's effort to assess the suitability of learning materials developed using a Kodular-based

instructional media. The feasibility indicators for the one-to-one expert test by learning material experts are as follows:

Table 2. Feasibility Indicators for One-to-One Expert Test by Learning Material Experts

No	Indicator	Description
1	Material Completeness	The presented material aligns with Competency Standards (CS) and Basic Competencies (BC).
2	Material Breadth	The material reflects detailed explanations supporting the achievement of all BCs (listening, speaking, reading, and writing).
3	Material Depth	The presented material corresponds to the educational level of the learners.
4	Terminology Accuracy	The terminology and diction used align with Arabic language terms.
5	Image and Illustration Appropriateness	Images, photos, and illustrations displayed correspond to the main theme and are easily understandable by learners.
6	Alignment with Arabic Language Development	The presented material is in line with Arabic language development.
7	Interactive Presentation	Material presentation requires students to engage actively, such as repeating or listening to the presented material.
8	Fostering Questioning Ability	Material presentation motivates learners to ask teachers, parents, or others questions about what they are learning.
9	Encouraging Self-Learning	Material presentation employs examples/illustrations, enabling self-learning by learners.
10	Evaluation	Presentation of evaluations aimed at assessing learners' proficiency in the taught material.

The learning material experts in this research are Prof. Dr. Sulthan Syahril, M.A and Dr. Zulhannan, M.A, both from the Faculty of Tarbiyah and Teaching at UIN Raden Intan Lampung. The individual test evaluation by learning material experts was conducted on November 24, 2022. The results of the evaluation are presented in Table 3.

Table 3. Results of Feasibility Test by Learning Material Experts

No	Assessment Indicator	Validator I	Validator II	Score (%)	Category
1	Material Completeness	5	5	100%	Excellent
2	Material Breadth	5	4	90%	Excellent
3	Material Depth	5	4	90%	Excellent
4	Terminology Accuracy	5	5	100%	Excellent
5	Image and Illustration Appropriateness	4	5	90%	Excellent
6	Alignment with Arabic Language Development	4	5	90%	Excellent
7	Interactive Presentation	5	5	100%	Excellent
8	Fostering Questioning Ability	4	4	80%	Good
9	Encouraging Self-Learning	5	5	100%	Excellent
10	Evaluation	5	4	90%	Excellent
Total	-	47	46	93.0%	
Average	-	4.7	4.6	93.0%	Excellent

Based on the results in Table 3, the validation outcomes from both learning material experts indicate the feasibility scores for each indicator of the istima'-based Kodular learning media. The assessment shows that material completeness achieved 100%, material breadth achieved 90%, material depth achieved 90%, terminology accuracy achieved 100%, image and illustration appropriateness achieved 90%, alignment with Arabic language development achieved 90%, interactive presentation achieved 100%, fostering questioning ability achieved 80%, encouraging self-learning achieved 100%, and evaluation achieved 90%. Consequently, the overall average assessment for all indicators in the Arabic language learning material using the Kodular-based istima' approach is 93%, categorizing it as excellent.

Based on these findings, the Final Draft of the Kodular-based instructional media for Arabic language learning is deemed highly suitable. It can proceed to field testing to determine its effectiveness in enhancing Arabic language learning outcomes. Before conducting field tests, it is recommended that the material be enriched with sentence examples using istima' and incorporate an improved evaluation model to enhance the Kodular-based instructional media.

The evaluation of the individual testing model (one-to-one expert) by learning media specialists represents a researcher's effort to assess the suitability of Kodular-based instructional applications. The feasibility indicators for the one-to-one expert test by learning media specialists are as follows:

Table 4. Feasibility Indicators for One-to-One Expert Test by Learning Media Specialists

No	Indicator	Description
1	Simple App Interface	The app is presented with simplicity.
2	Attractive App Design	The app is presented appealingly.
3	Appropriate Contrast and Readable Content	The color contrast is appropriate, and the content is readable.
4	Functional Navigation Buttons	Navigation buttons function properly.
5	Proper Audio Functionality	Audio operates effectively.
6	User-Friendly App	Users encounter no difficulties while using the app.
7	No System Interruptions in the App	The app runs smoothly without system disruptions.
8	App Stability	The app does not crash or experience sudden stops.

In this study, the learning media specialists involved are Dr. Eti Hadiati, M.Pd, and Dr. Zulhannan, M.A, both from the Faculty of Tarbiyah and Teaching at UIN Raden Intan Lampung. The individual test evaluation by learning media specialists was conducted on November 24, 2022. The results of the evaluation are summarized in Table 5.

Table 5. Results of Feasibility Test by Learning Media Specialists

No	Assessment Indicator	Validator I	Validator II	Score (%)	Category
1	Simple App Interface	5	5	100%	Excellent
2	Attractive App Design	5	5	100%	Excellent
3	Appropriate Contrast and Readable Content	4	5	90%	Excellent
4	Functional Navigation Buttons	5	5	100%	Excellent
5	Proper Audio Functionality	5	5	100%	Excellent
6	User-Friendly App	4	4	80%	Good
7	No System Interruptions in the App	5	5	100%	Excellent
8	App Stability	5	5	100%	Excellent
Total	-	38	39	96.25%	
Average	-	4.75	4.87	96.25%	Excellent

Based on the findings in Table 5, validation results from both learning media specialists indicate the feasibility scores for each indicator of the Kodular-based istima' learning media. The assessment reveals that the simple app interface received a 100% score, attractive app design received a 100% score, appropriate contrast and readable content received a 90% score, functional navigation buttons received a 100% score, proper audio functionality received a 100% score, the user-friendly app received an 80% score, no system interruptions in the app received a 100% score, and app stability received a 100% score. As a result, the overall average assessment for all indicators in the Arabic language learning media using the Kodular-based istima' approach is 96.25%, categorizing it as excellent.

Based on these results, the final draft of the Kodular-based instructional media for Arabic language learning is considered highly suitable for use. It can proceed to field testing to determine its effectiveness in improving Arabic language learning outcomes. However, before field testing, revisions or adjustments to font sizes within each material should be considered based on input from instructional design specialists to enhance the Kodular-based instructional media further.

Implementation

This study evaluates the effectiveness of a Kodular-based Arabic language learning tool through expert validation, field testing, and user feedback. The field trials aimed to determine the tool's efficacy in teaching the Arabic language at MA Ma'arif Katibung, Lampung Selatan. User responses provided insights into the product's performance.

The evaluation process comprised three stages:

1. Individual Testing (One to One Learner)

In the individual testing phase, three ninth-grade students from MA Ma'arif Katibung, Lampung Selatan, were selected, each representing varying proficiency levels: one with low proficiency, one with moderate proficiency, and one with high proficiency. This diverse selection ensured that students of different skill levels could effectively utilize the Kodular-based Arabic language learning tool. This phase aimed to gather specific responses and feedback from students regarding the Kodular-based tool's efficacy in Arabic language learning.

The evaluation criteria for the individual testing included indicators such as visual attractiveness, motivation enhancement, alleviation of learning monotony, support for language mastery, aids for memorization, ease of content comprehension, presence of evaluative assessments, provision of illustrative materials, simplicity and understandability of language, and readability of text.

The results of the individual testing were presented visually through a graph, showcasing participant responses as follows: 1) Visual Attractiveness: 100% positive response; 2) Motivation Enhancement: 100% positive response; 3) Avoiding Learning Monotony: 100% positive response; 4) Support for Language Mastery: 100% positive response; 5) Memorization Aids: 100% positive response; 5) Content Comprehension: 67% positive response; 6) Evaluative Assessments: 100% positive response; 7) Illustrative Materials: 100% positive response; 8) Language Simplicity: 67% positive response; 9) Readability: 100% positive response.

Overall, the average response from the three participants in the individual testing was 93%, indicating the suitability of the Kodular-based Arabic language learning tool for instruction at MA Ma'arif Katibung, Lampung Selatan, even when dealing with varied student proficiency levels. While the individual testing results highlighted the tool's strong efficacy for Arabic language instruction, valuable feedback from participants provided insightful suggestions for enhancement. Specifically, participants recommended that the background sound within the application be slightly reduced, and they also requested the inclusion of a back button within the evaluation materials. The development team acknowledged and acted upon these suggestions, further improving the quality of the product.

2. Small Group Testing

The small group testing phase involved 9 MA Ma'arif Katibung, Lampung Selatan students. These students had varying proficiency levels: three with low proficiency, three with moderate

proficiency, and three with high proficiency. The aim was to assess the efficacy of the Kodular-based Arabic language learning tool across different proficiency levels. This testing phase sought to gather feedback on the tool's performance. The evaluation criteria for small group testing included visual appeal, motivation enhancement, engagement, support for language mastery, memorization aids, content comprehension, evaluative assessments, illustrative materials, language simplicity, and readability.

The small group testing results were presented through a graph depicting participant responses. Feedback revealed the following: 1) Visual Appeal: 100% positive response; 2) Motivation Enhancement: 67% positive response; 3) Avoiding Boredom: 89% positive response; 4) Support for Language Mastery: 89% positive response; 5) Memorization Aids: 100% positive response; 6) Content Comprehension: 56% positive response; 7) Evaluative Assessments: 100% positive response; 8) Illustrative Materials: 67% positive response; 9) Language Simplicity: 89% positive response; 10) Readability: 100% positive response.

The overall average response from the 9 participants in the small group testing was 86%. This indicates that the Kodular-based Arabic language learning tool is suitable for teaching Arabic at MA Ma'arif Katibung, Lampung Selatan, despite varying proficiency levels. The small group testing phase demonstrated the tool's effectiveness in teaching Arabic at MA Ma'arif Katibung, Lampung Selatan. However, participants provided valuable suggestions for further improvement. A suggestion was made to mute background audio when playing instructional material. This suggestion has been acknowledged and implemented by the development team to enhance the quality of the product.

3. Field Trial Testing

A large-scale field trial was conducted with 20 Grade X students from MA Ma'arif Katibung Lampung Selatan, possessing diverse proficiency levels. The trial aimed to ensure effective utilization of the Kodular-based Arabic language learning tool across varying proficiency ranges, encompassing low, moderate, and high levels. This phase sought participant feedback to gauge responses to the Kodular-based Arabic language learning tool. Ten trial indicators included: (1) Visual Appeal: 100% positive response; (2) Enhanced Motivation: 100% positive response, (3) Alleviated Monotony: 90% positive response, (4) Language Mastery Support: 90% positive response; 5) Memorization Aids: 90% positive response; 6) Content Comprehension: 90% positive response; 7) Evaluative Assessments: 100% positive response; 8) Illustrative Materials: 80% positive response; 9)

Language Simplicity: 85% positive response; 10) Readability: 90% positive response.

Overall, the aggregate feedback from the 20 participants in the large-scale field trial yielded an average score of 18.3, or 92%. This suggests a strong reception of the Kodular-based Arabic language learning tool. From the large-scale field trial outcomes, it can be inferred that the developed tool is suitable for Arabic language instruction at MA Ma'arif Katibung Lampung Selatan, accommodating various student proficiency levels. The large-scale field trial results indicate the effectiveness of the Kodular-based Arabic language learning tool for teaching at MA Ma'arif Katibung Lampung Selatan. Remarkably, participants' responses primarily motivated further improvements, showcasing their enthusiasm. This underscores the tool's robustness and suitability for Arabic language education, affirming its quality and appropriateness for instructional use.

4. Product Effectiveness

The final stage in the research and development process is product implementation. Product implementation is carried out to measure the effectiveness of the Kodular-based Arabic language learning media on the Arabic language learning outcomes of the students, particularly focusing on the "*mufrodat*" topic. The researcher employed pre-test and post-test data collection techniques using multiple-choice question types. Data analysis was performed through a paired samples t-test. Before the t-test analysis, normality and homogeneity tests were conducted as prerequisites. The normality test was conducted using the Liliefors test, with the null hypothesis indicating that the data followed a normal distribution.

The pre-test data exhibited a normal distribution with a mean value of 48.75 and a standard deviation 7.926. The normality test indicated that the pre-test data followed a normal distribution ($L_0 = 0.18193 < L_{table} = 0.190$). Test Results The post-test data also showed a normal distribution with a mean value of 87.5 and a standard deviation 5.735. The normality test indicated that the post-test data followed a normal distribution ($L_0 = 0.16854 < L_{table} = 0.190$). Homogeneity testing showed that the pre-test and post-test data had homogeneous distributions ($F_{calculated} = 1.878 < F_{table} = 2.168$). A paired samples t-test was employed to analyze the learning media's effectiveness. The statistical hypothesis indicated that Kodular-based learning media effectively improved the students' Arabic language learning outcomes. The calculated t-value (t_0) was 62.5, greater than the tabulated t-value (t tabulated = 2.093) at a significance level of $\alpha = 0.05$. As a result, the null hypothesis was rejected, and the alternative hypothesis was accepted.

The product implementation involving pre-test and post-test assessments on 20 students found that the average pre-test score was 48.75, while the average post-test score was 87.5, indicating an improvement of 38.75. Therefore, it can be concluded that the "Kodular-based Arabic language learning media is effective in enhancing the learning outcomes of students at MA Ma'arif Katibung South Lampung.

Discussion

The study focuses on developing a Kodular-based Arabic language learning tool for Android systems. This innovative tool empowers learners with anytime, anywhere access to Arabic language lessons via smartphones. The approach aligns with modern learning paradigms that emphasize individualized pace and convenience. Pawar et al. emphasized that "with this kodular application, students could learn at their speed and anytime." This pedagogical approach resonates with Lehner et al.'s observation that mobile learning offers "anytime, anywhere learning and teaching while doing."

The Kodular application serves three roles in learning, as defined by Majid, cited by Azmi: supplementary, complementary, and substitution. It's a supplement when learners use it, a compliment when integrated with classroom teachings, and a substitution when it entirely replaces traditional methods.

The research methodology follows the Hannafin and Peck model, involving analysis of needs, design, development, and implementation phases. The needs analysis demonstrated that the Kodular-based Android application addressed low motivation and learning outcomes in Arabic language education at MA Ma'arif Katibung Lampung Selatan. The design phase translated needs into objectives and materials, followed by expert validation. The development phase saw the creation of the Android application using Kodular and Website 2 Apk Builder.

During implementation, the tool's effectiveness was assessed through pre-tests and post-tests using paired t-tests, requiring normality and homogeneity checks. Results showed a significant improvement, as t_0 (62.5) exceeded the t-table (2.093) value. This indicated that the Kodular-based tool led to substantial learning outcomes in Arabic language proficiency. These findings align with the effectiveness of similar Kodular-based tools, as demonstrated by (Ferdiansyah et al., 2022; Galiatsatos et al., 2016; Koderi et al., 2020).

Overall, the Kodular-based Arabic language learning tool offers a flexible, efficient, and effective approach to language acquisition. It caters to individual pacing, motivates learners through

engaging multimedia, and enhances learning retention. Its success lies in adapting to diverse learning contexts and improving learning outcomes.

CONCLUSION

The findings of this study indicate the successful development of Arabic language learning media based on Kodular for 10th-grade students at MA Ma'arif Katibung South Lampung. The process of developing this media involved utilizing Kodular software and implementing the Hannafin and Peck development model, consisting of the phases of needs analysis, design and development, and evaluation. The validation results from experts demonstrate the high feasibility of this learning media, with material experts giving a validation score of 93%, media experts scoring 96.25%, and pedagogical experts scoring 93.3%. The positive student response to this media also indicates its high appeal, with a response rate of 86% for small groups and 92% for larger groups. Furthermore, the Arabic language learning media based on Kodular has proven effective in enhancing learning outcomes. The average pre-test score was 48.75, and the average post-test score was 87.5, indicating an improvement of 38.75 points.

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