3. Development of Interactive Media Based on Artificial Intelligence (AI) to Facilitate Arabic Language Learning .pdf

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Development of Interactive Media Based on Artificial Intelligence (AI) to Facilitate Arabic Language Learning

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Article History	ABSTRACT
Received 22-11-2024: Accepted: 27-11-2024: Published: 09-12-2024:	**Background:** Educational technology plays a significant role in the teaching and learning process, particularly in addressing various challenges educators and students face. In this digital era, innovative learning technologies, such as artificial intelligence (AI), were increasingly applied, especially in school Arabic language instruction. **Purpose:** This study aimed to develop AI-based interactive media to facilitate Arabic language learning at Madrasah Tsanawiyah Al-Muhajirin Parungi. **Methods:** This research utilized the Research and Development (R&D) process. **Results and Discussion:** The findings indicated that teachers and students required practical learning media for Arabic language acquisition. Following the analysis, interactive press was developed, featuring engaging designs, audio-visual integration, and leveraging AI-based applications such as text-to-speech (TTS) and background image erasers. This media product was validated by experts, achieving a score of 90%, which indicated high feasibility. The media was then implemented with students and teachers, receiving positive feedback, with 88% of teachers and 86% of students affirming that the media was highly suitable for use. **Conclusion and Implication:** This study successfully developed AI-based interactive media that proved to be highly effective, showing significant improvements in students' Arabic language learning outcomes. Statistic tests revealed a p-value smaller than 0.05 and an N Gain Score of 67.92%, indicating the effectiveness of the media in enhancing students' Arabic language skills. This innovation was expected to positively impact learning at Madrasah Tsanawiyah Al-Muhajirin Parungi.
Keywords:	*Development, Interactive Media, Artificial Intelligence (AI), Arabic Language.*
	ABSTRAK
	Latar Belakang: Teknologi pendidikan berperan penting dalam proses belajar mengajar, terutama dalam mengatasi berbagai tantangan yang dihadapi. Di era digital ini, teknologi pembelajaran yang inovatif, seperti kecerdasan buatan (AI), semakin sering diterapkan, terutama dalam pembelajaran bahasa Arab di sekolah-sekolah. **Tujuan:** Penelitian ini bertujuan mengembangkan media interaktif berbasis AI untuk memudahkan pembelajaran bahasa Arab di Madrasah Tsanawiyah Al-Muhajirin Parungi. **Metode:** Penelitian ini menggunakan metode Research and Development (R&D).)

Hasil dan Pembahasan: Hasil penelitian menunjukkan bahwa baik guru maupun siswa membutuhkan media pembelajaran yang praktis untuk belajar bahasa Arab. Setelah analisis, media interaktif dikembangkan dengan desain yang menarik, integrasi audio-visual, dan memanfaatkan aplikasi berbasis AI seperti text to speech (TTS) dan penghapus latar belakang gambar. Produk media ini divalidasi oleh para ahli dengan hasil 90% yang menunjukkan kelayakan tinggi. Media ini kemudian diterapkan kepada siswa dan guru, mendapatkan respons positif dengan 88% dari guru dan 86% dari siswa menyatakan media ini sangat layak digunakan.

Kesimpulan dan Implikasi: enelitian ini berhasil mengembangkan media interaktif berbasis AI yang terbukti sangat efek dengan peningkatan signifikan dalam hasil belajar bahasa Arab siswa. Uji statistik menunjukkan p-value yang lebih kecil dari 0.05 dan N Gain Score sebesar 67.92%, menandakan bahwa media ini efektif dalam meningkatkan kemampuan bahasa Arab siswa. Inovasi ini diharapkan dapat memberikan dampak positif dalam pembelajaran di Madrasah Tsanawiyah Al-Muhajirin Parungi.

Kata Kunci   *Pengembangan, Media Interaktif, Artificial Intelegence (AI), Bahasa Arab.*

INTRODUCTION

Learning media is very important for a learning process. There are various kinds of media or tools that can be used by educators to convey information in the form of documents to students, including the utilisation of existing technology so as to develop new learning tools.[1], [2]

The use of interactive media in learning will make students motivated and excited to take part in learning activities in class because the material is presented in an interactive way.[3], [4] Artificial intelligence, also known as AI, is a field of science that then has the ability to force machines to perform certain tasks or desires that are the same as the ability of a human.[5] Artificial intelligence (AI) symbolises the arrival of the industrial revolution 4.0 era which is expected to provide convenience for its users, both in the government and industrial sectors. With the help of artificial intelligence (AI), one can easily connect every device without having to be present at the location or shape certain events or conditions by using artificial intelligence (AI).

Artificial intelligence (AI) is intelligence added to a system or in other words the ability of a system to correctly interpret external data, manage that data, and use the processed results for specific purposes.[6]

Artificial Intelligence (AI) is one of the technological developments that is currently being discussed in various sides of human life.[7], [8], [9], [10] AI is widely used by humans to help humans simplify and complete their tasks in everyday life. AI can also be utilised in education. Following the times and the development of technology and information, Artificial Intelligence can be utilised to develop teaching media. AI is a new technical science to study material, develop material by utilising technological development in an application. AI is useful for simulating, expanding human artificial intelligence [11], [12] The progress of science and technology goes hand in hand with the rapid development of the world of informatics. Language as a means of information plays an important role in recording and transferring various events both that have occurred and are happening. Language, especially Arabic, which is widely used in this world, is the language of religious unity, the language of unity of Muslims, which unites their souls, despite different nationalities, homelands, and different native languages.[13] Therefore, where Islam develops, that is where the Arabic language develops too.

The importance of learning Arabic is that it is necessary to make various approaches so that students better understand and master Arabic.[14], [15] The purpose of learning Arabic in schools

and madrasas is so that students are able to understand the language of the Qur'an and Hadith properly and correctly. Because of its close relationship with ama, it is necessary to have an approach that makes students feel pleasure with Arabic so that it can have a positive impact on students in understanding their religion.

Based on the results of observations and interviews at the Al-Muhajirin Parungi Madrasah Tsanawiyah school with the seventh grade Arabic teacher, several observation conclusions were obtained, namely; 1) The learning resources used by teachers are still very few. The learning resources used by teachers are still very few and are only sourced from books provided by the government; 2) There is no modern and interactive learning media that teachers can use to make it easier for students to understand Arabic lessons. 3) Students often find it difficult to understand Arabic subject matter so that sometimes students can only imagine what the teacher says but cannot see it directly. Some of these problems make students quickly bored and feel busy when learning Arabic. In addition, the level of understanding of each student is different so that student learning outcomes are not optimal. Therefore, it is necessary to develop interactive and interesting Arabic learning media that can help students learn independently and understand Arabic lessons in accordance with the expected learning competencies.

In this case, educational technology has a function in learning, which is to overcome problems and facilitate the learning process based on the characteristics and conditions technology application.[16] The availability of the latest technology today has occupied an important role in the teaching and learning process. Various renewable learning technologies have begun to be applied in the learning process at school, especially in Arabic language learning. One of the technologies that is currently viral or often developed is artificial intelligence technology or what is often called (AI) technology.

In addition, having educational materials can increase student learning motivation. The significance of this research is to provide solutions to the constraints of monotonous Arabic language learning with book and paper media and replaced with interactive Artificial Intelligence (AI) based.

LITERATURE REVIEW

Arabic language learning faces various challenges, especially for non-native speakers. The use of technology, particularly AI-based interactive media, offers innovative solutions to improve the effectiveness and efficiency of learning. Interactive media refers to devices or applications that allow two-way interaction between the user and the content. According to Mayer (2009), interactive media can enhance comprehension by combining text, audio and visuals. In the context of language learning, interactive media can include mobile applications, e-learning platforms, and educational games.[17], [18]

The Role of Artificial Intelligence in Learning

AI has the potential to personalise the learning experience. Studies show that AI can analyse student progress and tailor learning materials to individual needs.[19] For example, AI-based chatbots can provide immediate feedback to students, correct mistakes, and answer questions. Several studies have demonstrated the successful use of AI in Arabic language teaching. For example, an adaptive learning system that uses algorithms to assess students' abilities and provide appropriate material based on their progress. This helps students learn in a more effective and enjoyable way.[20]

A number of studies have explored the use of AI-based interactive media in Arabic language learning. Al-Fraihat et al. found that AI-based adaptive learning systems can tailor materials to students' abilities in real-time, which contributes to improved motivation and learning

outcomes.[21] Meanwhile, Abdullah examined the impact of AI applications at Al-Azhar University, which showed significant improvements in students' speaking and listening skills, as well as positive feedback from teachers regarding the effectiveness of the programme.

Another study by Kukulska-Hulme highlights the role of mobile technology and AI in creating a more personalised and contextualised learning experience. The results show that interactive media can increase student engagement. On the other hand, Heffernan & Heffernan showed that AI-based automated feedback can accelerate students' language acquisition, providing better results than traditional methods.[19]

In addition, research by Al-Shammari revealed that AI technology can be applied in Arabic language teaching for children by using educational games, which serve to increase their interest and language ability.[20] Zhang et al. also found that the use of chatbots in language learning can increase student interaction and create a more dynamic learning experience. Overall, these studies show the great potential of AI-based interactive media in enhancing the effectiveness of Arabic language learning.[22]

METHOD

This type of research is research and development or commonly known as Research and Development (R&D)[23], [24] which is a research method used to produce certain products and test the effectiveness of those products. The same thing is also expressed by Nana in his book who says that research and development (R&D) is a process or steps to develop an existing product, which can be taken into consideration. In the aspect of developing AI-based interactive media, researchers use the ADDIE development model. This model is the ADDIE (Analysis, Design, Development, Implementation, Evaluation) instructional design and development model, which represent the stages of use in a systematic (organised) and systematic way to achieve the desired results. The main purpose of this development model is to use it to design and develop efficient and effective products.[25], [26]

RESULT AND DISCUSSION

This research produces Artificial Intelligence (AI)-based interactive media development products to facilitate Arabic language learning used for Class VII students at Madrasah Tsanawiyah al-Muhajirin Parungi. This research was conducted from 21 March to 19 June 2024. As for the development of AI-based interactive media, it was carried out before field trials at school, namely from 1 March to 20 March 2024. The discussion of the results of the development of this initial product refers to the stages of the ADDIE model development with the following results:

1. Analyze

Analyze or Analysis is carried out in the early stages of research and development. [27], [28] In this stage the researchers conducted an analysis at MTS al-Muhajirin with three ways of analysis, namely the analysis of the needs of Arabic language learning, the analysis of the material used in the media and the analysis of the literature to find out the various media needs according to development standards.

2. Design

The second stage carried out by researchers is the design of AI-based interactive media. The design process is quite easy because researchers utilise the development of today's technology, namely artificial intelligence technology or shortened to AI. The only challenging thing in this stage is the process of selecting media characters and themes that require high creativity.
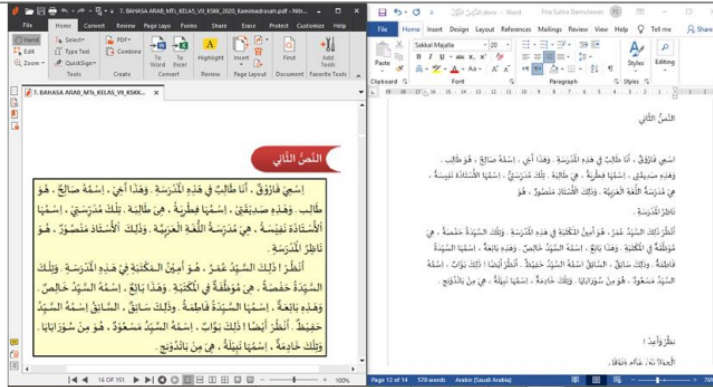
Picture 1 Preparation of Arabic materials
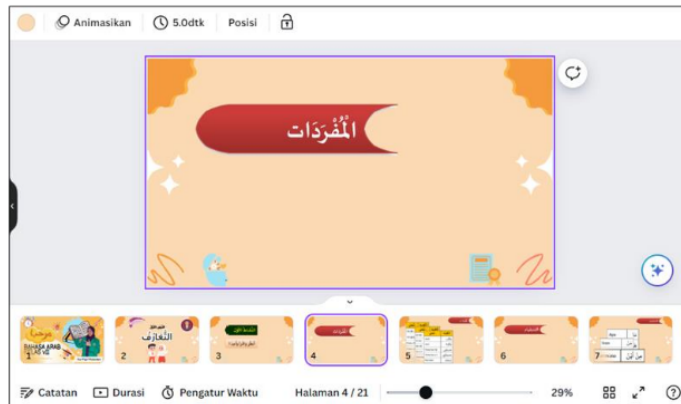
Picture 2 AI-based interactive media template creation
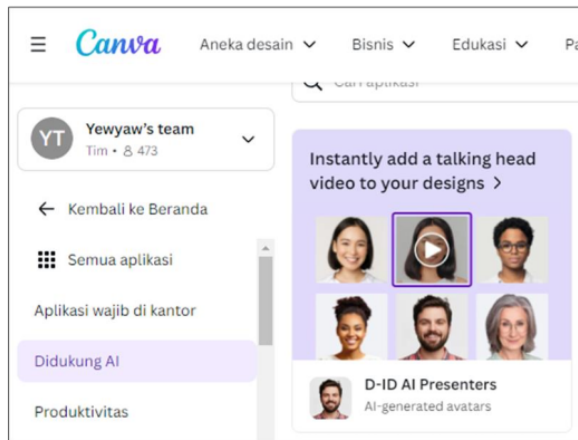
Picture 4 A view of the paid version of the Canva app with AI technology plugins
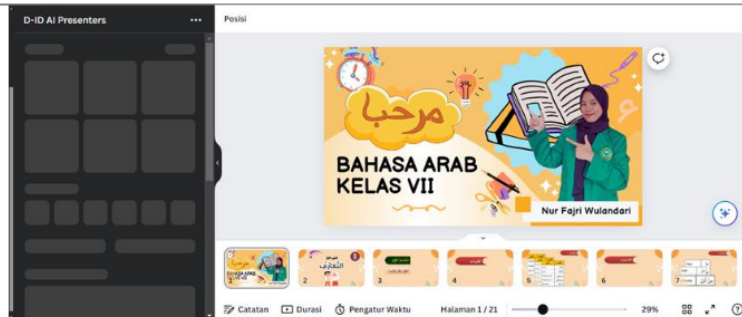
Picture 5 AI-based audio media input in the canva application
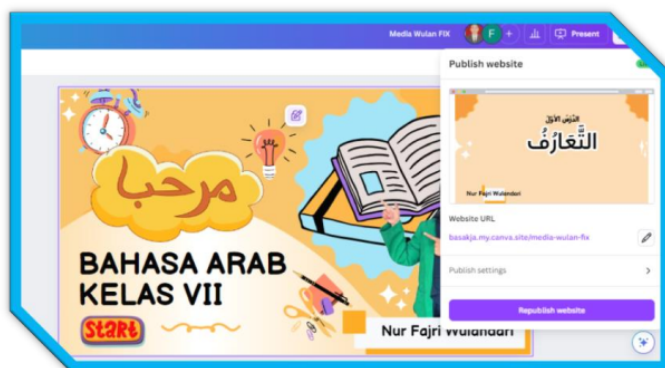
Picture 6 The process of saving a design in the paid version of the Canva app

3. Development

After going through the anlayze and design stages, research and development goes to the development process.[29], [30] In this study, development is discussed at the point of product

trial results. This consideration was applied by researchers based on FITK IAIN Sultan Amai Gorontalo research guidelines and through a process of revision and guidance.

Products that have been developed must go through the media feasibility test stage in terms of the media developed, the material used and the language contained in the product. The feasibility test of interactive media products using Artificial Intelligence (AI) technology is validated by media, material and language experts, all of whom 34 lecturers at IAIN Sultan Amai Gorontalo and are in sync with their respective scientific fields. This validation stage is carried out so that the product developed reaches the quality standards 46 quality of learning media so that it becomes appropriate and feasible for students to use in Arabic language learning.

This validation process is carried out by giving a validation instrument sheet to the validator. The instrument contains standard media quality criteria, material content and language that can be said to be suitable for use in Arabic language learning. The following is described in more detail about the validity assessment of media, material and language as described in the data below.

a. Media Validation by Media Experts

Learning media development products using AI are validated by one media expert who works as a lecturer at IAIN Sultan Amai Gorontalo, namely Moh. Zulkifli Paputungan, M.Pd.I. The media expert is a lecturer and expert in making and developing in technology and learning media. This assessment uses a measurement scale questionnaire using a modified Likert scale with the following categories: The measurement scale uses a modified Likert scale assessment, namely Very Decent (SL) with a value of 5, Decent (L) with a value of 4, Fair (C) with 35 value of 3, Less Decent (KL) with a value of 2, and Very Less Decent (SKL) with a value of 1. The results of the media expert assessment on the display 9 pect, the integration of the content of the material and the aspect of media usage are presented in the table below:

Table 1 Media expert validation results based on indicators

No	Indicators	Percentage %	Categories
Display Aspect			
1	The media has an attractive appearance	100%	Very Feasible
2	isplay of images and videos presented	100%	Very Feasible
3	Harmony of colour selection	100%	Very Feasible
4	Layout arrangement	100%	Very Feasible
5	Selection of word types and font sizes used line spacing settings, (letters. characters)	100%	Very Feasible
	Average	**100%**	**Very Feasible**
Aspects of Integration of Material Content			
6	Media is in accordance with the objectives	80%	Feasible

7	The media allows students to understand the material easily	100%	Very Feasible
	Average	**90%**	**Very Feasible**
Aspects of Media Usage			
8	Clarity of instructions for using the media	80%	Appropriate
9	Level of media durability	80%	Feasible
10	Media safety for students	100%	Very Feasible
11	Ease of media in teaching and learning practices	80%	Feasible
12	The ability of the media to repeat what is learnt	80%	Feasible
	Average	**90%**	**Very Decent**

b. Media Validation by Material Experts

The material validation assessment on the product the use of Artificial Intelligence (AI) technology in the development of interactive media for Arabic language learning for Class VII students at Madrasah Tsanawiyah al-Muhajirin Parungi was carried out by an expert lecturer and Arabic language expert from IAIN Metro Lampung, namely Dr. M. Kholis Amrullah, M.Pd.I. The results of the material expert validation assessment on the aspects of learning, curriculum, material content and aspects of readability and communicativeness on media products are described in the table below:

Table 2 Material expert validation results based on indicators

No	Indicator	Percentage %	Category
Learning Aspect			
1	Suitability of material with learning	80%	Feasible
2	The suitability of the examples given for explaining the learning material	100%	Very Feasible
3	Suitability of audio, video and images with learning material	100%	Very Feasible
4	Media can be used by teachers and students	100%	Very Feasible
	Average	**95%**	**Very Decent**
Curriculum Aspect			
5	Suitability with the material learning objectives of class VII theme التعارف	100%	Very Feasible

6	Media and materials are related to each other.	80%	Feasible
7	In accordance with the assessment in learning	100%	Very Feasible
8	In accordance with student criteria	100%	Very Feasible
	Average	**80%**	**Feasible**
Aspects of Material Content			
9	Clarity of material content	80%	Feasible
10	Suitability of exercise questions with material	80%	Feasible
11	Completeness of learning material	80%	Feasible
	Average	**80%**	**Feasible**
Readability and communicativeness			
12	Sentence length is appropriate to the learners' level of understanding	100%	Very Appropriate
13	Sentence structure appropriate to the learners' level of understanding	80%	Appropriate
14	Paragraph construction is appropriate for learners' understanding	80%	Appropriate
15	Language used Semi-formal language (everyday language in the classroom)	100%	Very Appropriate
16	Consistent use of symbols or icons and navigation	100%	Very Appropriate
17	Appropriateness to the intellectual development of grade VII learners	80%	Appropriate
	Average	**90%**	**Very Appropriate**

c. Media Validation by Linguist

In this assessment, the validator assesses the language aspects used in the learning media application that has been developed. The validation of linguists was assessed by a expert lecturer and Head of PBA Department from IAIN Kediri, Dr H. Ahmad Rifa'I, M.Pd.. The results of the assessment of linguists on learning media development products are presented in table 4.5 as follows.

Table 3 Arabic language expert validation results per indicator

No	Indicator	Percentage %	Category
Structure Aspect			
1	The Arabic sentence structure used in the media is the right sentence structure.	80%	Appropriate
2	The language used in the media is effective Arabic.	80%	Appropriate
3	The terms used in the learning media are standardised terms.	100%	Very Appropriate

	Communicative and interactive aspects		
4	Understanding of the message or information on the media	80%	Appropriate
5	This media can motivate students in learning Arabic.	100%	Very Appropriate
6	The language used is in accordance with the intellectual development of learners	100%	Very Appropriate
	Grammar Aspect		
7	The language of the material presentation is easy to understand	100%	Very Appropriate
8	The language used is in accordance with the level of emotional development of students	100%	Very Appropriate
9	The language used is appropriate	80%	Appropriate
10	The Arabic spelling used is appropriate	80%	Appropriate
	Average	**90%**	**Very Appropriate**

4. Implementation
   a. Teacher Response

The results of the teacher group trial for artificial intelligence (AI)-based interactive media to facilitate Arabic language learning at Madrasah Tsanawiyah al-Muhajirin Parungi are presented in table 4.7 as follows:

Table 4 of Arabic teacher response results per assessment indicator

No	Indicator	Percentage %	Category
	Display Aspect		
1	The suitability of the material presented in the media with basic competencies and learning indicators	90%	Very Feasible
2	The suitability of the material presented in the media with student needs	100%	Very Feasible
3	The suitability of the material presented in the media with teaching materials	100%	Very Feasible
4	The suitability of the material presented in the media with student characteristics	90%	Very Feasible
5	Clarity of information in the media	80%	Feasible
6	The language used in the media	80%	Feasible
7	Ease of understanding the concept	80%	Feasible

No	Indicator	Percentage	Category
8	Student learning motivation after taking part in learning by using the media	80%	Feasible
9	Clarity of learning topics	100%	Very Feasible
10	Scope of material contained in the media	90%	Very Feasible
11	The use of clear font types and sizes in learning media	80%	Feasible
12	The accuracy of the layout and layout owned by the media	80%	Feasible
13	Availability of attractive illustrations, graphics, images, and photos	100%	Very Feasible
14	Attractive media-owned display	90%	Very Feasible
15	Efficient media is safe and comfortable to use	80%	Feasible
	Average	**88%**	**Very Feasible**

b. Student Response

The feasibility trial or student response was conducted on 31 students of Class VII at Madrasah Tsanawiyah al-Muhajirin. The trial was conducted by conducting observations, interviews and distributing questionnaires to students. The questionnaire contains 16 questions related to the aspects of attractiveness and effectiveness of interactive media based on Artificial Intelligence (AI). Before conducting the student response test, the researcher first uploaded the media product file to Google Drive and the link was shared through the WhatsApp group and installed on each student's smartphone. The results obtained are in the form of student responses and assessments of Arabic learning media using Artificial Intelligence (AI) technology. Details of the results of student responses are presented in the table below:

Table 5 of Arabic teacher response results per assessment indicator

No	Indicator	Percentage %	Category
	Aspects of Attractiveness and Effectiveness		
1	The instructions for using this media are easy for me to understand	86%	Very Feasible
2	The navigation buttons (buttons leading to specific pages) in the media are easy for me to use.	85%	Very Feasible
3	Learning materials in learning media are easy to understand.	83%	Very Feasible
4	This interactive media increases motivation to learn Arabic	87%	Very Feasible

5	Learning using this interactive media can be used for learning at home or during learning at school.	86%	Very Feasible
6	I can understand Arabic learning materials after learning by using interactive media	86%	Very Feasible
7	Can remember Arabic lessons for a longer time	87%	Very Feasible
8	Feel more interested in learning Arabic using interactive media than using printed books.	90%	Very Feasible
9	The display on the learning media is interesting	91%	Sangat Layak
10	Animation on learning media is interesting	88%	Very Feasible
11	The writing on the interactive media is interesting	85%	Very Feasible
12	Learning Arabic has never been more fun.	82%	Very Feasible
13	Feeling more serious about learning by using learning media.	86%	Very Feasible
14	Make an effort to work on the questions in the interactive media.	83%	Very Feasible
15	This interactive media interests me to learn Arabic.	85%	Very Feasible
16	This interactive media makes it easier for me to learn Arabic.	86%	Very Feasible
	Average	**86%**	**Very Feasible**

5. Evaluation

After obtaining data on students' Pretest and Posttest scores, the data analysis process continues at the Normality and Homogeneity test stage as a prerequisite for further data analysis.

a. Analysis Prerequisite Test

1) Normality Test

In the normality test in this study, researchers used the results of the calculation of data normality according to the Kolmogorov Smirnov column because the number of samples exceeded 30 data samples, namely 31 data from 31 students. The following are the results of data output from SPSS version 26 on the data normality test.

Table 6 Kolmogoro-smirnov Normality Test with SPSS 26

Tests of Normality					
	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Pretest	.191	31	.005	.931	31	.047
Posttest	.175	31	.017	.943	31	.103
a. Lilliefors Significance Correction						

From the data in table 4.11 where N = 31 data, it can be seen that the pretest significance value in the KolmogorovSmirnov table is 0.005 and the post test significance

value is 0.017, which means that both data are normally distributed because the value is smaller than 0.05.

2) Homogeneity Test

The homogeneity test was used on the sample desired by the researcher, the sample was in class VII MTs al-Muhajirin Parungi. This test is conducted to determine whether the sample used in this study is in a homogeneous category or not, if this test is fulfilled, then the researcher can conduct further tests, namely the t-test. The data used in this homogeneity test is the data of students' pretest and post-test results. A distribution is said to be homogeneous if the significance level > 0.05, while the significance level < 0.05 then the distribution is said to be inhomogeneous by referring to the criteria based on mean or based on average.

The homogeneity test of the pretest and post-test scores was carried out with the calculation assisted by the SPSS version 26 application. The results of the SPSS output are shown in the following table:

Table 7 Homogeneity Test of data based on mean with SPSS 26

Test of Homogeneity of Variances

		Levene Statistic	df1	df2	Sig.
Data Pretest Posttest	Based on Mean	4.835	1	60	.032
	Based on Median	2.374	1	60	.129
	Based on Median and with adjusted df	2.374	1	54.256	.129
	Based on trimmed mean	4.643	1	60	.035

Judging from the table above, it can be concluded that the results of the homogeneity test based on the value of Based on Mean on the Pretest and Posttest data are 0.05 so that it is equal to the level (0.05 = 0.05) alpha (a) = 0.05, so it can be said that the Pretest and Posttest variable data are said to be homogeneous and hypothesis testing using the One Group Pretest Posttest design can be done.

3) Hypothesis Test

Hypothesis testing is carried out after the normality test is fulfilled. Hypothesis testing uses parametric statistics which are used for normally distributed data. This hypothesis test uses a one sample t test (t-test) with the help of the SPSS 26 for Windows programme.

Hypothesis testing in this study was used to determine whether or not there was an increase in the difference in understanding of students in class VII MTs al-Muhajirin Parungi about Arabic learning material after using or applying Arabic interactive media based on artificial intelligence (AI).

Table 8 Descriptive analysis results paired sample t-test with spss

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Pretest	54.0000	31	11.02724	1.98055
	Posttest	85.9355	31	8.16062	1.46569

Table 9 output results of paired samples t-test with spss

Paired Samples Test

		Paired Differences						t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference					
					Lower	Upper				
Pair 1	Pretest - Posttest	-31.93	13.25	2.38	-36.79	-27.07		-13.41	30	.000

The results of the data analysis above show that the p-value = 0.000 so that the hypothesis H0 is rejected and H1 is accepted, so the interpretation is that there is a significant difference in the pretest and posttest results. This explains the conclusion of this effectiveness test that there is a significant increase in the understanding of Arabic language of seventh grade students of MTs al-Muhajirin Parungi after the application of interactive learning media based on artificial intelligence (AI).

4) Effectiveness Test

At this stage, the effectiveness test was carried out using the calculation of N Gain Score to measure the success rate of using the media in Arabic language learning. In this effectiveness test, researchers used the One Groups Pretest Posttest experimental design, which is an experimental design that only uses 1 class as an experimental class. The data sample is Class VII students at Madrasah Tsanawiyah al-Muhajirin Parungi. The data of Pretest and Posttest results are explained in the table below:

Table 10 of students' pretest and posttest scores and percentage increase based on N Gain Score calculation

No.	Name of Students	Pretest	Postest	Post - Pre	Ideal Score 100-pre	N Gain Score	N Gain Score (%)
1	1st student	40	90	50	60	0.83	83
2	2nd student	65	80	15	35	0.43	43
3	3rd student	45	99	54	55	0.98	98
4	4th student	30	76	46	70	0.66	66
5	5th student	50	70	20	50	0.40	40
6	6th student	37	95	58	63	0.92	92
7	7th student	68	85	17	32	0.53	53
8	8th student	69	79	10	31	0.32	32
9	9th student	59	90	31	41	0.76	76
10	10th student	50	95	45	50	0.90	90
11	11th student	60	89	29	40	0.73	73
12	12th student	49	75	26	51	0.51	51
13	13th student	45	70	25	55	0.45	45
14	14th student	37	90	53	63	0.84	84

15	15th student	59	94	35	41	0.85	85
16	16th student	67	92	25	33	0.76	76
17	17th student	50	80	30	50	0.60	60
18	18th student	40	80	40	60	0.67	67
19	19th student	59	84	25	41	0.61	61
20	20th student	60	95	35	40	0.88	88
21	21st student	60	90	30	40	0.75	75
22	22nd student	50	90	40	50	0.80	80
23	23rd student	45	80	35	55	0.64	64
24	24th student	55	85	30	45	0.67	67
25	25th student	65	72	7	35	0.20	20
26	26th student	67	90	23	33	0.70	70
27	27th student	65	92	27	35	0.77	77
28	28th student	60	98	38	40	0.95	95
29	29th student	68	87	19	32	0.59	59
30	30th student	60	80	20	40	0.50	50
31	31st student	40	92	52	60	0.87	87
	Average	**54.00**	**85.94**	**31.94**	**46.00**	**0.7**	**67.92**

6. Product Revision

Product revisions are based on input and suggestions from media, material and language experts on interactive learning media products using Artificial Intelligence (AI) technology for Grade VII Arabic language learning at Madrasah Tsanawiyah al-Muhajirin Parungi. The following describes the input data and suggestions from the validation process by experts:

Table 11: Expert feedback and suggestions for improvement.

No	Error Type	Suggestions for Improvement
Media expert suggestions and comments		
1	Add Indonesian sentences at some points	Adding translated sentences on some video scans
2	There are mispronunciations of Arabic words	Audio or mispronunciations are corrected
3	Arabic voice sounds not so clear	Audio is set to use a louder volume
Material expert's suggestions and comments		
1	No revision	No revision

Arabic expert suggestions and comments		
1	Lafadz unzur reads andzur	Correct the text and audio of the word in question.
2	Lafadz min aina the pause is too long because it is one kalimah	Fix the time pause on the sound in question.
3	Part al-hiwar baina azam wa naufal has not yet come out of the voice	Improve the audio / sound of azam and naufal conversation
4	For students in grade 7 MTs, the tempo should be slowed down	a little Slowing down the tempo of the audio / sound in the media

Based on the points above, the researchers made improvements in accordance with the input and suggestions from the media, material and language experts. The improvements are shown in the picture below:

Table 12 Media revisions based on expert validator suggestions

No	Before Revision	After Revision
1.	Lafadz undzur reads andzur	The word undzur has been corrected
2.	Lafadz min aina has too long a pause because it is one sentence.	The phrase min aina has been corrected.
3.	The al-hiwar baina azam wa naufal section has not yet come out.	The al-hiwar baina azam wa naufal section has added audio of the conversation

4.

For students in grade 7 MTs, the tempo should be slowed down a little.	The audio tempo has been slowed down

CONCLUSION AND IMPLICATIONS

The conclusion of the research and development of interactive media using Artificial Intelligence (AI) technology for Arabic language learning at Madrasah Tsanawiyah Al-Muhajirin Parungi can be summarised in several important points. First, the analysis stage identified the need for interactive learning media that can facilitate teachers and students in understanding Arabic language materials. Based on the results of material and literature analysis, this media refers to the At-ta'aruf sub-material in the KMA 183 book. Second, in the design stage, AI technology is applied in making media using applications such as D-DI Presents, Canva Pro, and Microsoft Word. The developed media is equipped with audio explanations, images, and navigation buttons to facilitate its use. Furthermore, at the development stage, the media that has been made is validated by media, material, and language experts, with the results showing that this product is very suitable for use. The implementation stage involved a field trial, with excellent results from teachers and students, as well as an effectiveness analysis that showed a significant difference in student understanding between the pretest and posttest. This shows that AI-based learning media has a positive impact on Arabic language learning.

Finally, at the evaluation stage, feedback and improvements were made to enhance the media, such as audio improvements and the addition of sentences in some parts of the video. Suggestions for product utilisation suggest that this media be used by students as a means of independent learning and by teachers as an innovation in teaching Arabic. Further development can be done by adding other learning materials so that this media can be used more comprehensively. Overall, the development of this AI-based interactive learning media has successfully improved the quality of Arabic language learning and has the potential to be further developed, both for students and for other learning applications.

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