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# Utilization of Memrise Application to Improve Arabic Speaking Skill

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#### Abstract

This study aims to conduct a pilot study on the utilization of Memrise application to improve student's Arabic speaking skill at MAN 2 Yogyakarta. Through the Single Subject Research (SSR) method, with the Multiple Baseline Design Across Subject model, this study seeks to reveal the functional relationship between the treatment in the form of utilizing the Memrise application and student's Arabic speaking skill. This study involved 3 subjects with learning difficulties. Data collection in the form of the level of Arabic speaking skill is carried out through the oral test method which is carried out repeatedly starting from the base line phase to the intervention phase. The measurement data were then analyzed through visual analysis within conditions and between conditions. Through the analysis process, it is known that the data trend of the three subject's Arabic speaking skill has increased after the intervention. The results of this study become an important basis for lesson planning that targets the achievement of certain Arabic speaking skills by utilizing technology-based media. The selection of media supporting Arabic speaking skills should facilitate learners to practice oral communication continuously.

**Keywords :** memrise, technology based media, ai-based language learning, arabic speaking skill

#### A. Introduction

Some research results reveal that the achievement of Arabic language learning in the aspect of maharah kalam at the state Aliyah madrasah has not shown maximum results. This is as revealed in the research at MAN 2 Medan that students in the madrasah have not been able to speak Arabic actively.<sup>1</sup> Research by Safni et al. Mentioned that MAN 2 Tanah Datar students had difficulty applying maharah kalam due to various factors, one of which was embarrassed to speak Arabic.<sup>2</sup> In addition, in the previous few years, there was also a study involving 77 teachers of Madrasah Aliyah Negeri in Jakarta which revealed various problems in the implementation of maharah kalam learning.<sup>3</sup> This is reinforced by a survey involving 160 female Arabic teachers who revealed that the obstacles in the effort to teach Arabic speaking skills are problems of self-confidence and the lack of situations that encourage students to speak fusha Arabic interactively.<sup>4</sup> These problems result in less than optimal Arabic speaking skills achieved by students. This shows that Arabic language learning has not led students to the skill of using Arabic as a means of communication.

In line with the above problems, based on the results of the author's interview with the Arabic teacher of MAN 2 Yogyakarta on December 8, 2024, it is known that the achievement of maharah kalam of students in the madrasa generally cannot be maximized mainly because of the difficulty of building a language environment in a state madrasa. This obstacle especially occurs for students with learning difficulties either because they have never studied Arabic before or because of their low ability to remember Arabic vocabulary. In addition to the diverse abilities of students, the limited Arabic learning time also makes the continuity of Arabic language practice not run continuously. Meanwhile, the Arabic language learning curriculum of MAN 2 Yogyakarta adheres to the regulations contained in the Decree of the Director General of Islamic Education Number 3211 of 2022 concerning Learning Outcomes of PAI and Arabic Independent Curriculum in Madrasahs which includes achievement targets in four language skills including speaking skills. This curriculum is ideally a continuation of the Arabic language learning curriculum at the previous level, namely madrasah tsanawiyah. Thus, students who come from educational institutions that do not teach Arabic are likely to find it difficult to follow classroom learning if there is no effort to increase the learning process outside the classroom.

At MAN 2 Yogyakarta, the modality of student's Arabic language ability is quite diverse. In each class there are at least 10%-15% of students who have low Arabic modality. This is generally because these students come from schools that

<sup>&</sup>lt;sup>1</sup> Suryadi Nasution, "Problematika Pembelajaran Bahasa Arab Di Madrasah Aliyah Negeri 2 Model Medan," Studi Arab 12, no. 2 (December 28, 2021), https://doi.org/10.35891/sa.v12i2.2587.

<sup>&</sup>lt;sup>2</sup> Safni Maidarlis et al., "Analisis Faktor Kesulitan Pembelajaran Maharah Kalam Pada Siswa MAN 2 Tanah Datar (Prespektif B.F Skinner)," *Muhadasah: Jurnal Pendidikan Bahasa Arab* 5, no. 2 (December 3, 2023): 195–214, https://doi.org/10.51339/muhad.v5i2.1499.

<sup>&</sup>lt;sup>3</sup> Nur Hizbullah and Zaqiatul Mardiah, "Masalah Pengajaran Bahasa Arab Di Madrasah Aliyah Di Jakarta," Jurnal Al-Azhar Indonesia Seri Humaniora 2, no. 3 (2015): 189–98.

ذ نجلاء بنت خالد بن عبد الله العتيبي، "صعوبات تدريس مهارات التحدث باللغة العربية الفُصحى في المرحلة الثانوية من وجهة نظر معلمات اللغة العربية والحلول المقترحة لها"، Journal of Arts, Literature, Humanities and Social Sciences, no. 117 (February 10, 2025): 40–58, https://doi.org/10.33193/JALHSS.117.2025.1335.

do not teach Arabic or some others who have actually learned Arabic but still experience difficulties due to other factors. Students with these criteria need to have more effort than other friends who have already learned Arabic to be able to follow the flow of learning in the classroom. a study revealed that one of the problems of learning Arabic at the high school/equivalent level is the difference in students' different educational backgrounds.<sup>5</sup> The problem of the educational background of Arabic learners is a problem that has the potential to cause various further obstacles in the learning process so that it requires special strategies involving teachers and students themselves to overcome it.<sup>6</sup>

Among the most important goals of learning Arabic to non-Arabic speakers is achieving the ability to communicate with the language.<sup>7</sup> It is also said that one of the most important goals of teaching a foreign language using the audio-linguistic method is the improvement of speaking habits.<sup>8</sup> Yunus in his book explains that in order to develop proficiency in understanding and using spoken language, learners must first master many basic elements that precede this ability. The main elements include sound, word, context, and meaning.<sup>9</sup> Thus, to develop the ability to speak Arabic orally, learners need an initial modality in the form of mastery of mufradat and expressions both in memorization and meaning as well as the right situation to say them. For students who have studied Arabic before, some of these elements must already exist in their memory treasury regardless of whether they are still remembered strongly or have been somewhat forgotten. On the other hand, for students who have never studied Arabic, to be able to lead to the development of mastery of this skill, they must take a longer path, namely first equipping themselves with some of these elements before then practicing oral language exercises continuously. Therefore, more effort is needed from both students and teachers to support the achievement of oral Arabic language skills in students with these criteria.

Building Arabic speaking skills cannot be achieved merely by learning vocabulary and grammar. It must be followed by oral and interactive practice as an application of the theory that has been learned.<sup>10</sup> To be able to improve Arabic speaking skills, learners need to increase the practice of question and answer practice with the language either through face-to-face directly with the

<sup>1</sup>يونس and الشيخ, ١٦٧.

<sup>&</sup>lt;sup>5</sup> Aris Junaedi Abdilah and Mohamad Zaka Al Farisi, "Systematic Literature Review: Problematika Pembelajaran Bahasa Arab Di Sekolah," *Ukazh: Journal of Arabic Studies* 4, no. 1 (June 28, 2023): 39–51, https://doi.org/10.37274/ukazh.v4i1.744.

<sup>&</sup>lt;sup>6</sup> Anisah Satus Sehra, "PROBLEMATIKA LATAR BELAKANG PENDIDIKAN MAHASISWA DAN IMPLIKASINYA DALAM PEMBELAJARAN BAHASA ARAB INTENSIF: Problematika Latarbelakang Pendidikan," *El-Tsaqafah: Jurnal Jurusan PBA* 20, no. 2 (2021): 209–24, https://doi.org/10.20414/tsaqafah.v20i2.3827.

<sup>&</sup>lt;sup>٧</sup>إسلام فراج، أحمد محمد علي رشوان، وعبد الوهاب هاشم سيد عامر، "استخدام الألعاب اللغوية الإلكترونية لتنمية مهارات التحدث الوظيفي لدى دارسي اللغة العربية الناطقين بغير ها، "مجلة كلية التربية (أسيوط) ٤ January ، no. 1.2 ( ا, 2025): 20–62, https://doi.org/10.21608/mfes.2025.419468.

أفتحى على يونس and محد عبد الرؤوف الشيخ، المرجع تعليم اللغة العربية للأجانب (من الظرية إلى التطبيق) (القاهرة: مكتبة وهبة, ٢٠٠٣)، ١١٠.

<sup>&</sup>lt;sup>10</sup> Nur Izzatul Islam et al., "The Muhadatsah Program with Communicative and Contextual Approaches in Enhancing Students' Speaking Skills (Kalam) at Ma'had Tahfidz Al-Qur'an Al-Amien Madura," Borneo Journal of Language and Education 5, no. 1 (March 22, 2025): 45–62, https://doi.org/10.21093/benjole.v5i1.9523.

interlocutor or by utilizing technology-based learning media that provides oral question and answer features.<sup>11</sup> Various language learning applications have been specifically designed to facilitate anyone who wants to learn a foreign language including Arabic.<sup>12</sup> Some of the most popular include Duolingo, Mondly, Eggbun and Memrise. Among these apps, two that feature free chatbot-based conversation practice are Mondly and Memrise. These chatbot-based conversations are necessary to facilitate students with conversation practice exercises that resemble real-world conversations and can be used flexibly anywhere and anytime. Chatbots enable language learners to engage in conversational speaking practice, which can be perceived as less threatening than face-to-face interactions with native speakers.<sup>13</sup>

Al-integrated Arabic language learning is known to deliver learning environments that are adaptive to students' learning styles and preferences and has led to significant improvements in vocabulary acquisition and conversational proficiency among learners using Al-integrated platforms.<sup>14</sup> Currently, the trend of developing Al technology involving NLP (Natural Language Processing) systems continues to be developed despite the challenges it still faces.<sup>15</sup> This NLP technology allows features that accommodate voice detection so that it can be utilized as a medium for oral foreign language question and answer training as already available in the chatbot-based conversation features in the Memris and Mondly applications.

Researchers have conducted a comparison of the Memrise and Mondly applications, especially for the chatbot feature. Memrise application has a chatbot feature that most resembles a natural conversation because users can respond to questions from the system openly and freely. If the response from the user is meaningfully captured by the system then the system will respond with a followup question. In addition, when the user gives a response that is grammatically incorrect, the system can present a correction with a more precise arrangement. The chatbot feature in the Mondly application allows users to deliver spoken utterances that are limited by the available response options. If the response given is outside of the available options, the system will respond by saying that the utterance is not understood and instructing to repeat the utterance with the exact same sentence as stated in the options because otherwise the utterance will be read wrong or not understood by the system even though it actually has the same meaning as the existing options.

أمريم دلول and أمال فلفول، "التعلم المدمج وأثره في تنمية مهارة التحدث باللغة العربية لغير الناطقين بها،" ج*امعـــةامماي 193 فقالمــــــة*, ٢٠٢٤. <sup>٢</sup>انتركي عبد العزيز الملحم وتركي، "واقع استخدام تطبيقات الهواتف الذكية في تعليم اللغة العربية للناطقين بلغات أخرى في معهد

تعليم اللغة العربية العربي الناطقين بها بالجامعة الإسلاميةمن وجهة نظر المعلمين،" *مجلة كلية التربية (أسيوط)* ٣٧–39 (2021) no. 2 (2021) , no. 2 (2021) . 108, https://doi.org/10.21608/mfes.2021.154276.

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<sup>&</sup>lt;sup>13</sup> Antonie Alm and Larian M. Nkomo, "Chatbot Experiences of Informal Language Learners: A Sentiment Analysis," International Journal of Computer-Assisted Language Learning and Teaching 10, no. 4 (n.d.): 51–65, https://doi.org/10.4018/IJCALLT.2020100104.

<sup>&</sup>lt;sup>14</sup> Dedi Mulyanto et al., "استخدام الذكاء الأصطناعي لتطوير مهارات اللغة العربية في تعلمها" An-Nidzam: Jurnal Manajemen Pendidikan Dan Studi Islam 11, no. 1 (June 29, 2024): 18–32, https://doi.org/10.33507/annidzam.v11i1.1940.

<sup>&</sup>lt;sup>15</sup> Mardi Hadi and Hendri Abdul Qohar, "Peran Artificial Intelligence Dalam Meningkatkan Pembelajaran Interaktif Bahasa Arab," *Ranah Research: Journal of Multidisciplinary Research and Development* 6, no. 6 (August 30, 2024): 3010–23, https://doi.org/10.38035/rrj.v6i6.1543.

With this comparison, the researcher considers that the chatbot feature in Memrise application will support the practice of Arabic speaking practice because it is more flexible and focuses on achieving meaning in communication rather than grammatical structure. In addition, Memrise also allows teachers or facilitators to present self-generated and customized materials before students practice speaking exercises if the materials available on the app are not suitable. Memrise is a foreign language learning platform that offers 16 languages. The app has more than 70 million users. Memrise provides various language learning features ranging from vocabulary recognition, pronunciation exercises, to conversation practice. This app is an attractive facility for different learning styles and learning preferences.<sup>16</sup>

Several studies have been conducted to determine the effectiveness of using the Memrise application as a medium to help improve foreign language speaking skills. A classroom action research conducted by Roni Subhan, Nur Syariatin, Rodiyal Ihsan, Andi Musdalifah, and Yaredi Waruwu found that the use of Memrise as a technology-based learning medium is effective in increasing student motivation, developing speaking skills, and increasing active participation in the learning process. The platform provides an interactive environment that supports independent and collaborative speaking practice. The results of this study have important implications for the design of learning strategies that focus on the development of speaking skills through the utilization of technology.<sup>17</sup> Specifically in Arabic language learning, Memrise has also been utilized as a medium to support interactive vocabulary acquisition that is able to attract students' interest as revealed in the research of Firsa Afra Yuslizar, Ahmad Zahruddin, Susanti Lathifa Ulfi, and Danial Hilmi in 2023.<sup>18</sup>

Seeing the importance of efforts to overcome the learning difficulties of a number of students at MAN 2 Yogyakarta and seeing the advantages of the Memrise application as described above, this study aims to pilot the use of the Memrise application as a supporting medium to improve the Arabic speaking skills of students with Arabic learning difficulties at MAN 2 Yogyakarta.

#### B. Method

This research is a Single Subject Research (SSR) study with the Multiple Baseline Design Across Subjects model which aims to see in detail the effect and development of Arabic speaking skills of students with learning difficulties after the treatment or intervention process in the form of utilizing the Memrise application. Single Subject Research (SSR) is an experimental research method characterized by repeated assessments of certain phenomena (often behavior) over time and is generally used to evaluate interventions on a single subject or

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<sup>&</sup>lt;sup>16</sup> Mohamed Essafi, Latifa Belfakir, and Mohammed Moubtassime, "Investigating Mobile-Assisted Language Learning Apps: Babbel, Memrise, and Duolingo as a Case Study," *Journal of Curriculum and Teaching* 13, no. 2 (May 15, 2024): 197, https://doi.org/10.5430/jct.v13n2p197.

<sup>&</sup>lt;sup>17</sup> Roni Subhan et al., "Using Memrise as a Technology-Based Learning Media in Improving Students' Speaking Skills," *Journal International of Lingua and Technology* 3, no. 2 (August 14, 2024): 441–52, https://doi.org/10.55849/jiltech.v3i2.674.

<sup>&</sup>lt;sup>18</sup> Firsa Afra Yuslizar et al., "Implementasi Aplikasi Memrise dalam Pembelajaran Bahasa Arab Interaktif di Bimbingan Belajar (Bimbel) Adz-Dzakaa' Malang," *Shaut al Arabiyyah* 11, no. 1 (July 28, 2023): 179–94, https://doi.org/10.24252/saa.v11i1.38644.

individual.<sup>19</sup> The Multiple Baseline Design Across Subject model is a design that aims to change one behavior with one intervention on two or more subjects.<sup>20</sup> This model begins by collecting measurements at baseline conditions on all subjects simultaneously. Intervention is given to the first subject when the baseline condition has shown stable data while maintaining baseline conditions in other subjects. When the first subject has shown the effect in the form of development as expected from the intervention, then the next intervention is carried out on the second subject and so on.<sup>21</sup>

What is meant by baseline conditions in this study are natural conditions before the intervention is carried out. While the intervention condition is the condition in which the intervention/treatment is carried out.<sup>22</sup> In this study, the target behavior or dependent variable that seeks to be improved is the Arabic speaking skills of students with learning difficulties. The independent variable or intervention in this study is the utilization of Memrise application to learn to speak Arabic. The series of data collection processes covering the 2 conditions were carried out on February 10, 2025 - March 11, 2025 with a total of 11 sessions.

This research was conducted at MAN 2 Yogyakarta by taking 3 students as research participants/subjects. The determination of participants was carried out through purposive sampling method with the criteria of students who have difficulty learning Arabic, especially in maharah kalam, either because they have never learned Arabic before or have learned Arabic but are constrained by weak mastery of mufradat. The selection of these participants is based on input from the Arabic language teacher who teaches these students as well as a personal approach to the candidates regarding their learning difficulties and their willingness to take part in all series of treatments. From this selection, 3 participants were chosen with the initials HS, SA, and NH who are class X students of MAN 2 Yogyakarta. These 3 research subjects consciously conveyed their difficulties in following Arabic language learning, especially for the kalam aspect and volunteered to be participants following the treatment in this study. HS expressed his difficulty in following the flow of Arabic learning in class even though he had learned Arabic from elementary school. Meanwhile, SA and NH revealed that their learning difficulties were due to the fact that they did not receive Arabic language learning at the previous education level.

Data collection in this study was carried out through the oral test method (to measure Arabic speaking skills) conducted during the baseline phase and after each intervention. The oral test was conducted a total of 11 times using 3 versions of the test items with an equivalent level of difficulty. Each test package consisted of 25 questions that had to be answered orally. The scoring process assessed four aspects for each question, each with different weightings. These four aspects included response accuracy, grammar (*qawaid*), fluency (*thallaqah*), and *fasahah* (clarity and eloquence). The oral test blueprint used in this study is presented in Table 1.

<sup>&</sup>lt;sup>19</sup> Rully Charitas Indra Prahmana, Single Subject Research Teori Dan Implementasinya: Suatu Pengantar (Yogyakarta: UAD Press, 2021), 9.

<sup>&</sup>lt;sup>20</sup> Marlina, Single Subject Research (Penelitian Subjek Tunggal) (Depok: Rajawali Press, 2021), 140.

<sup>&</sup>lt;sup>21</sup> Prahmana, Single Subject Research Teori Dan Implementasinya: Suatu Pengantar, 21.

<sup>&</sup>lt;sup>22</sup> Prahmana, 12.

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Learning Outcom es	Objectives	No	Test Version 1	Test Version 2	Test Version 3
Students are able to build interactio n using complex texts about greeting and self- introducti on	Building interaction with complex texts on greeting and self-introduction	1 2 3 4 5	السلام عليكم. نحارك سعيد اسمي رشيدة. ماسمك بالكامل؟ كيف حالك اليوم يا؟ من أين جئت؟ هل أنت جاويّ؟ هذا رائع. أنا سعيد بلقائك وبتحدث معك. أراك لاحقا	السلام عليكم. مساء الخير ماسمك يا أخى؟ كيف حالك اليوم؟ ما عنوانك؟ هذا رائع. أنا مسرور بلقائك وبتحدث معك. أراك لاحقا	السلام عليكم. نحارك سعيد ماسمك يا أخى؟ كيف حالك اليوم يا؟ ما عنوان مدرستك؟ هذا رائع. أنا سعيد بلقائك وبتحدث معك. أراك قريبا
	Using grammatical structures تقسیم الکلمة، الأرقام ۱۰۰ – ۱ as a means of communication	6	ما عمرك؟ وفي أي تاريخ ميلادك؟	ما رقم جوالك؟	ما رقم بیتك؟
	Building	7 8	أين تسكن؟ هل لديك إخوة وأخوات؟ ماسمه/ها؟	هل تسكن في البيت أو في المعهد؟ كم عدد إخوتك؟	أين تسكن؟ كم عمر أخيك/أختك؟
Students are able to build interactio n using complex texts about family and home	complex texts on family and home	9 10	ماذا تفعل معهم عادة؟ في أي غرفة تصلي في البيت عادة؟	ماذا تفعل مع أسرتك في البيت ليلا؟ في أي غرفة تعمل الواجبات المنزلية في البيت عادة؟	ماذا تفعل مع أسرتك في يوم السبت والأحد؟ كم عدد الغرف في بيتك؟ اذكر منها!
	Using grammatical structures (المنصل as a means of communication	11	هل تسكن مع أبيك وأمك؟	ماسم أمك؟ أما أبيك؟	ماسم أستاذتك في درس اللغة العربية؟
Students are able to build interactio	Building interaction with complex texts on school and its	12 13	هل أنت طالب؟ ماذا تعمل هنا؟ في أي فصل تدرس؟	هل تعرف أستاذة يوني فاتماواتي؟ من هي؟ في أي يوم تدرس اللغة العربية؟	هل تعرف عدد الطلاب في فصلك؟ كم عددهم؟ في أي مكان تصلي في هذه المدرسة؟
n using complex texts about school	environment	14 15	ماذا تدرس هنا؟ هل لديك درس مفضلة؟ ما هو؟	هل لهذه المدرسة مكتبة؟ ماذا تعمل في المكتبة؟	هل في هذه المدرسة مقصف؟ متى تذهب إلى المقصف؟
and its environm ent	Using grammatical structures الضمير (المفرد والمثنى والجمع) as a means of	16	هل تستطيع أن تذكر بعض مرافق العامة في هذه المدرسة؟	هل تستطيع أن تذكر بعض أدوات المدرسية في كل فصل هنا؟	هل تستطيع أن تذكر بعض غرف في هذه المدرسة؟

## Table 1. Blueprint of the Oral Test for Maharah Kalam (Speaking Skills)

	communication				
Students are able to build interactio n using complex	Building interaction with complex texts on daily life	17 18 19 20 21	في أي ساعة عادة تصل إلى هذه المدرسة كل يوم؟ هل تتأخر أحيانا؟ لأن لا تتأخر في وصولك إلى المدرسة، ففي أي ساعة تستيقظ وتستحم وتتناول الفطور؟ ماذا تفعل في الساعة السابعة ليلا؟ هل بعد ذلك تنام مباشرة أو تفعل شيئا آخر؟	في أي ساعة عادة تذهب إلى المدرسة كل يوم؟ هل أنت متأخر هذ اليوم؟ متى تتناول الغداء؟ وأين تتناول الغداء عادة؟ ماذا تفعل بعد أن ترجع من المدرسة؟ هل تصلي المغرب جماعة في المسجد أو في البيت مع	في أي ساعة تصلي الصبح؟ هل تصلي الصبح في وقتها؟ هل تذاكر الدروس بعد أن ترجع من المدرسة؟ في أي ساعة تذاكر الدروس؟ ماذا تفعل قبل النوم في اليل؟ ماذا تفعل في وقت الفراغ؟
texts about daily life		22 23	هل تساعد أمك في البيت؟	هل تساعد أباك في البيت؟ ماذا تساعد؟	هل تلعب مع أخيك وأختك كل يوم؟ ماذا تلعب معهم؟
			ماذا تساعد؟		
	Using grammatical structures أقسام الفعل – المذكر	24	ماذا تعمل أخوك/أختك؟	ماذا تعمل أبوك/أمك؟	في أي ساعة ترجع من المدرسة في يوم الجمعة عادة؟
	والمؤنث as a means of communication	25	على فكرة، كم الساعة الأن؟	على فكرة، كم الساعة الأن؟	على فكرة، كم الساعة الأن؟

The scoring guideline for the speaking skill (*maharah kalam*) test in this study is presented in Table 2.

Table 2. Scoring Guideline	for the Oral Test of	Speaking Skill (Maharah	Kalam)
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No	Assess ment	Weigh	Score and Indicator				
	Aspect	Ŧ	1	2	3	4	5
1	Respon se Accurac y	30%	Does not understa nd the meaning of the questi- on	Responds to the question with an inappropri ate expressio n/ gives a correct answer but in Indonesia n	Responds to the question appropriate- ly but very briefly	Responds to the question appropriately with a longer expression or with minor errors	Responds to the question appropriate-ly with a longer expression, with few or no errors, and includes an additional expression or follow-up question
2	Gramm ar (القواعد)	35%	Gives no respon- se	Express-es ideas without applying	Expresses ideas with some grammatical	Expresses ideas with minor grammatical	Expresses ideas using accurate grammatical structures

				grammatic al rules	errors	errors	without errors
3	Fluency (الطلاقة)	20%	Gives no respon- se	Responds slowly and with lack of fluency to the given question	Responds somewhat slowly and with limited fluency to the given question	Responds quickly but with limited fluency to the given question	Responds quickly and fluently to the given question
4	Eloquen ce (الفصاحة)	15%	Speech is inaudib- le/no respon- se given	Speech is clear but ignores vowel length and distinction s between similar letters	Speech is clear and distinctions between letters are evident, but vowel length is disregarded	Speech is clear, with evident distinctions between letters and accurate vowel length, but with inappropriate intonation	Speech is clear, with distinct letter articulation, accurate vowel length, and appropriate intonation

The speaking skill assessment instrument (*maharah kalam*) used in this study is presented in Table 3.

Table 3. Speaking Skill Assessment Instrument (Maharah Kalam)

		Sessi	on 1				
Tost Itom	Itom No	As	sessmei	nt Aspe	cts	Total	'n.
restitem	item no.	1	2	3	4	Total	ssio
	1						se:
	2						11 <sup>th</sup>
	3						he
	4						ilt
	5						nut
	Dst.						u
Total							ŝ
Weight							р
Total x Weight							Ā
Converted to 1–1	oo scale						

The data from the measurement of Arabic speaking skills were then analyzed through the visual analysis method which includes 2 parts, namely analysis within conditions and analysis between conditions. The in-condition analysis includes condition length, directional tendency, stability level, rate of change, data trace, and range. The analysis between conditions includes the number of variables changed, changes in directional trends and effects, changes in stability, changes in data levels, and overlapping data.

## C. Findings and Discussion

The results of the measurement of Arabic speaking ability carried out by researchers on 3 participants for 11 sessions are summarized in tables 1-3. There are 2 phases in this series of measurements, namely the baseline phase (before intervention) and the treatment phase (after intervention). Measurements in the baseline phase on the three subjects began at the same time. The first treatment

or intervention was carried out on subject 1/HS in the 4th session precisely after the data in the baseline phase of subject 1 had stabilized.

	Arabic Speaking Skills Score	Session	Baseline
	34,3	1	10/2/2025
	34,3	2	12/2/2025
(S	29,9	3	14/2/2025
G	Arabic Speaking Skills Score	Session	Treatment
er	39,4	4	18/2/2025
ang	49,8	5	21/2/2025
çe o	39,5	6	24/2/2025
9-10	44,5	7	27/2/2025
<u>)</u>	49,0	8	4/3/2025
	49,8	9	7/3/2025
	47,2	10	12/3/2025
]	60,7	11	13/3/2025

Table 4. Speaking Skill Score of Subject 1/HS

Treatment on subject 2/SA was carried out after subject 1/HS showed the development of data as expected after getting the intervention. Thus subject 2/SA began to get treatment/intervention in the 6th session because subject 1/HS had shown a significant increase in scores in the 5th session.

Baseline	Session	Arabic Speaking Skills Score	
10/2/2025	1	28,3	
13/2/2025	2	31,7	
14/2/2025	3	30,2	(S
18/2/2025	4	32,4	Cor
20/2/2025	5	34,9	e r
Treatment	Session	Arabic Speaking Skills Score	ang
27/2/2025	6	32,6	Je o
1/3/2025	7	38,2	-10
4/3/2025	8	44,6	°)
16/3/2025	9	52,3	
	10*	-	
	11*	-	

Table 5. Speaking Skill Score of Subject 2/SA

\*Subject 2/SA carried out measurements with a total of only 9 sessions due to unavoidable personal constraints

Treatment on subject 3/NH began in session 8 after subject 2/SA showed a significant increase in scores in session 7.

Table 6. Speaking Skill Score of Subject 3/NH

Baseline	Session	Arabic Speaking Skills Score	
10/2/2025	1	25,4	Sc
13/2/2025	2	29,4	ore
14/2/2025	3	26,1	

18/2/2025	4	27,9
20/2/2025	5	29,9
25/2/2025	6	29,5
27/2/2025	7	31,5
Treatment	Session	Arabic Speaking Skills Score
5/3/2025	8	34,8
8/3/2025	9	36,6
11/3/2025	10	37,4
14/3/2025	11	45.5

The acquisition of the Arabic language proficiency scores of the three subjects from the baseline phase to the intervention phase for 11 sessions is summarized in the graph presented in Figure 1.



Session

# Figure 1. Data graphs of the baseline phase and intervention phase of the three subjects

From the graph above it can be seen that in the three subjects the score of Arabic speaking skills in the baseline phase was still very low. The measurement

uses an assessment range of 1-100 where the scores of subject 1/HS and subject 2/SA are all in the range below 40 while subject 3/NH is in the range below 35. Furthermore, it can be seen that entering the treatment or intervention phase the tendency of the direction of the graph on the three subjects shows a clearly visible increasing trend. Furthermore, as the single subject research analysis procedure, the data obtained is analyzed through two kinds of visual analysis, namely analysis within conditions and analysis between conditions.

## Data analysis of subject 1/HS

#### a. In-condition analysis

A summary of all components of in-condition data analysis on subject 1/HS is presented in Table 7.

No	Component	Baseline	Intervention
1	Condition Length	3	8
2	Directional Trend		
3	Stability Trend	Stable (100%)	Variable (63%)
4	Data Trace or Trend Trace		
		(-)	(+)
5	Stability Level and the	Stabil	Variabel
	Range	R: 29,9-34,3	R: 39,4-60,7
6	Level of Change	- 4,4	+ 21,3

#### Table 7. Summary of Visual Analysis Results Within the Condition of Subject 1/HS

From the results of the analysis in the conditions above, it is known that the data of subject 1/HS has shown stability before the intervention is carried out. The direction of the data tends to decrease before the intervention and move up/improve after the intervention is carried out or in other words the data only moves up when the intervention is carried out. Thus, the increase in data in the intervention phase can be believed to be the effect of the treatment carried out.

#### b. Analysis between conditions

A summary of all components of data analysis between conditions on subject 1/HS is presented in Table 8.

No	Component	<b>Baseline: Intervention</b>
1	Number of Variables	1
2	Change in Trend of Direction and Effect	(-) (+)
3	Change in Trend of Stability	Stable to Variable
4	Level of Change	(29,9 - 39,4) (+) 9,5
5	Percentage of Overlap	0%

Table 8. Summary of visual analysis results between conditions of subject 1/HS

From the results of the analysis between the conditions above, it is known that the data shows an upward trend after entering the intervention phase and leaving traces of increasing / improving data. With a level of change of 9,5 with an upward direction and reinforced by a 0% overlap percentage, it can be ascertained

that there is a significant data movement. These findings support the conclusion that the use of the Memrise application is effective in enhancing speaking skills in participant 1/HS.

## Data analysis of subject 2/SA

#### a. In-condition analysis

A summary of all components of in-condition data analysis on subject 2/SA is presented in Table 9.

No	Component	Baseline	Intervention
1	Condition Length	5	4
2	Directional Trend		
3	Stability Trend	Stable (100%)	Variable (50%)
4	Data Trace or Trend		
	Trace	(+)	(+)
5	Stability Level and the	Stable	Variable
	Range	R: 28,3 – 34,9	R: 32,6 – 52,3
6	Level of Change	+ 6,6	+ 19,7

Table 9. Summary of visual analysis results in conditions on subject
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From the results of the analysis in the conditions above, it is known that 100% of the data of subject 2 / SA in the baseline phase were within the stability range. In this phase, the data demonstrated quantitative stability, although there was a slight upward trend prior to the initiation of the intervention. This is a note about the possibility of other influential factors. However, in the intervention phase, the trend of data direction increased with a fairly sharp slope. This suggests that the intervention had an influence on the movement of data in the intervention phase.

#### b. Analysis between conditions

A summary of all components of data analysis between conditions on subject 2/SA is presented in Table 10.

Table 10. Summar	y of the results of	the analysis between	conditions of subject 2/SA
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No	Component	Baseline: Intervention
1	Number of Variables	1
2	Change in Trend of Direction and Effect	(+) (+)
3	Change in Trend of Stability	Stable to Variabel
4	Level of Change	(34,8 – 32,6) (-) 2,2
5	Percentage of Overlap	25%

Based on the results of the study conducted on participant 2/SA, there was an improvement in Arabic speaking skills with the use of the Memrise application. These changes can be observed in the graphs and tables, which include visual analysis, within-phase analysis, and between-phase analysis. These findings support the conclusion that the use of the Memrise application is effective in improving the speaking skills of participant 2/SA, although there is a possibility of other influencing factors.

## Data analysis of subject 3/NH

#### a. In-condition analysis

A summary of all components of in-condition data analysis on subject 3/NH is presented in Table 11.

No	Component	Baseline	Intervention
1	Condition Length	7	4
2	Directional Trend		
3	Stability Trend	Stable (100%)	Variabel (75%)
4	Data Trace or Trend Trace	(+)	(+)
5	Stability Level and the Range	Stable	Variabel
		R: 25,4 – 31,5	R: 34,8 – 45,5
6	Level of Change	+ 6,1	+ 10,7

Table 11. Summary of visual analysis results in the condition of subject 3/NH

From the results of the analysis in the conditions above, it is known that 100% of the data of subject 3 / NH in the baseline phase were within the stability range. In this phase, the data demonstrated quantitative stability, although there was a slight upward trend prior to the initiation of the intervention. This is a note about the possibility of other influential factors. However, in the intervention phase, the trend of data direction increased with a fairly sharp slope. This is similar to what happened to subject 2's data movement and so it is also a note about the possibility of other influential factors. However, in the intervention phase, the trend of data direction increased with a sharper slope than the baseline phase. This shows that the intervention carried out has an influence on the movement of data in the intervention phase.

#### b. Analysis between conditions

A summary of all components of data analysis between conditions on subject 3/NH can be seen in Table 12.

Table 12. Summary of the results of the analysis between
conditions of subject 3/NH

No	Component	<b>Baseline: Intervention</b>
1	Number of Variables	1
2	Change in Trend of Direction and Effect	(+) (+)
3	Change in Trend of Stability	Stable to Variabel
4	Level of Change	(31,5 – 34,8) (+) 3,3
5	Percentage of Overlap	0%

Based on the results of the study conducted on participant 3/NH, there was an improvement in Arabic speaking skills through the use of the Memrise application. These changes can be observed in the graphs and tables, which include visual analysis, within-phase analysis, and between-phase analysis. These findings support the conclusion that the use of the Memrise application is effective in enhancing the speaking skills of participant 3/NH, although there is a possibility that other factors may have also influenced the results.

#### Discussion

#### **Baseline Phase**

During the baseline phase, participants' Arabic speaking skills were assessed through oral tests in the form of dialogues or two-way question-and-answer sessions, which commenced simultaneously and were administered every two days. As is commonly practiced in multiple baseline design procedures, measurements continued throughout the baseline phase until the data demonstrated stability. The intervention was introduced only to the first participant once stability was confirmed, while baseline measurements continued for the second and third participants. The intervention was applied to the second participant only after the first participant exhibited the expected effect or behavioral change due to the intervention, and subsequently to the third participant as well.<sup>23</sup> Therefore, the initiation time of the intervention phase varied across the three participants, resulting in differing numbers of sessions in the baseline phase for each. The number of baseline sessions was three for Participant 1 (HS), five for Participant 2 (SA), and seven for Participant 3 (NH).

During the baseline phase, Participant 1 (HS) demonstrated a relatively low level of Arabic speaking proficiency, with a mean score of 32.8 and a data range between 29.9 and 34.3. The first and second sessions yielded similar scores of 34.33 and 34.29, respectively, but the score decreased to 29.9 in the third session. This indicates a downward trend with a decreasing slope of 4.4. However, based on the calculation of trend stability, a stability range of 5.1 was obtained, with an upper limit of 39.4 and a lower limit of 29.1. It was found that 100% of the baseline data fell within the stability range. In other words, the data were deemed stable, thus permitting the implementation of the intervention thereafter.

During the baseline phase, from sessions 1 to 3, approximately 70–80% of the dialogue questions were answered by Participant 1 (HS) with the expression "  $\Im$  ." This indicates that the participant either did not understand the intent of the question (based on the response criteria established by the researcher during the assessment), understood the question but responded in Indonesian, or provided an inappropriate answer. The accuracy and completeness of responses are assessed under the dimensions of comprehension and linguistic appropriateness, which carry the highest weighting in evaluation. When responses are inappropriate or absent, the aspects of fluency—namely smoothness and coherence—are automatically rated at the minimum level. On the other hand, the few appropriate and correct responses received very good scores in the remaining three aspects. This small portion of acceptable responses generally appeared in the sections of the test dealing with greetings, introductions, and basic identity.

During the baseline phase, Participant 2 (SA) demonstrated a low level of Arabic speaking ability, with a mean score of 31.5 and a data range between 28.3 and 34.9. In sessions 1 to 3, the scores fluctuated, but in sessions 4 and 5, a gradual

<sup>&</sup>lt;sup>23</sup> Prahmana, 21.

increase was observed. This reflects a slight upward trend or a relatively flat pattern with potential for increase, particularly in session 5, in which the intervention had not yet been administered. This may be attributed to adaptation factors caused by repeated exposure to the same test questions. This finding aligns with what Marlina stated in her book, namely that adaptation is one of the potential factors and a threat to internal validity in single-subject research.<sup>24</sup> This observation was subsequently recorded by the researcher as a specific note related to Participant 2 (SA) and acknowledged as a limitation in this study.

In the calculation of trend stability, a stability range of 4.7 was obtained, with an upper limit of 36.4 and a lower limit of 26.9, indicating that all data recorded during the baseline phase fell within the stability range. This suggests that the data were numerically stable. Nevertheless, a slight upward trend was observed prior to the intervention, which weakens the internal validity of the data. This indicates the possibility of other influencing factors that contributed to the improvement in the speaking skills of the second participant, which was noted as a specific observation in this study.

Similar to Participant HS, during the baseline phase, Participant SA provided approximately 80% of inappropriate responses to dialogue questions or did not understand the intent of the questions. When inappropriate answers are given, the evaluation of fluency, smoothness, and coherence is automatically minimal, since comprehension and accuracy of expression are the first two aspects assessed before the others. The few questions that were answered appropriately generally related to topics such as greetings, introductions, and basic identity.

During the baseline phase, Participant 3 (NH) exhibited a low level of Arabic speaking proficiency, with a mean score of 28.5 and a data range between 25.4 and 31.5. Over the course of seven baseline sessions, all data consistently fell within the score range of 20 to 35. The calculation of data stability showed that 100% of the data fell within the stability range of 4.4, indicating that the data in this phase were numerically stable. However, visual inspection of the data during the baseline phase revealed a slight upward trend prior to the intervention. This potential increase in the data over time during the baseline phase may have resulted from an adaptation effect due to repeated exposure to the same test questions. This was recorded by the researcher as a specific observation concerning Participant 3 (NH)'s data and is considered a limitation of this study.

In terms of Arabic speaking performance, during the baseline phase, Participant 3 (NH) demonstrated performance similar to that of Participants 1 and 2, namely by responding to most dialogue questions with inappropriate answers and failing to understand the intent of the questions. As a result, the aspects of fluency, smoothness, and coherence were at a minimal level. This reflects what 'Audallah has stated—that in order to engage in effective oral communication, one must first comprehend what is heard, then formulate ideas in response, and finally exert effort to express those ideas verbally.<sup>25</sup> Therefore, if the initial process is not successfully completed, the individual cannot proceed to the stage of

<sup>&</sup>lt;sup>24</sup> Marlina, Single Subject Research (Penelitian Subjek Tunggal), 189.

أثر استراتيجيتي تدريس الأقران " Osama Omar Mahmoud Odallah and Abdullah Azzam Al-Jarrah, " أثر استراتيجيتي تدريس الأقران " Dirasat أثر استراتيجيتي تدريس الأقران " Dirasat أثر استرافية المستديرة المتزامنة في تنمية مهارات التحدث في مبحث اللغة العربية لدى طلبة الصف السابع الأساسي في الأردن " Dirasat ( والطاولة المستديرة المتزامنة في تنمية مهارات التحدث في مبحث اللغة العربية لدى طلبة الصف السابع الأساسي في الأردن " Dirasat ( والطاولة المستديرة المتزامنة في تنمية مهارات التحدث في مبحث اللغة العربية لدى طلبة الصف السابع الأساسي في الأردن ( Burational Sciences 50, no. 2 ( June 19, 2023): 413–27, https://doi.org/10.35516/edu.v50i2.640.

delivering a spoken response. This indicates that oral communication is a process involving auditory comprehension, idea generation for response, and the subsequent effort to express it orally.

#### **Intervention Phase**

In accordance with the procedures of the multiple baseline design, the intervention phase begins once the baseline data demonstrate stability. Participant 1 (HS) entered the intervention phase in session four, following confirmation that the baseline data had stabilized (with a stability rate of 100%). In session four, during the first treatment period, the score increased significantly to 39.4, and this upward trend continued during the second treatment, with the score reaching 49.8. In session six, there was a noticeable decrease in the score, but overall, the trend during the intervention phase showed a consistent increase over time. The speaking performance of Participant 1 (HS) during the intervention phase improved in comparison to their performance during the baseline phase. Some of the questions that were previously misunderstood or answered inappropriately began to be answered correctly and more fluently during the intervention, although a number of responses were still brief. Nevertheless, the scores continued to rise over time, with the final session reaching a score of 60.7 on a scale of 1 to 100.

Based on the comparison between the baseline and intervention phases, a level change of 9.5 points was observed, with a trend toward improvement. The percentage of overlap between the two phases was 0%, indicating that not a single data point from the intervention phase fell within the range of the baseline data. This suggests a substantial change in the target behavior. The smaller the percentage of overlap, the stronger the evidence for change in the target behavior or dependent variable.<sup>26</sup> Therefore, it can be concluded that the intervention had a positive impact on improving Arabic speaking skills in Participant 1 (HS). Additionally, according to the Arabic language teacher, the change observed in Participant 1 (HS) following participation in the intervention was quite apparent, particularly in terms of increased confidence and willingness to express opinions or actively participate in Arabic language learning in the classroom. Hence, it can be concluded that the use of the Memrise application was effective in enhancing speaking skills in Participant 1 (HS). This also reinforces the findings of Putri and Degeng (2024), who reported that the implementation of Mobile-Assisted Language Learning (MALL), including Memrise, plays a significant role in reducing students' anxiety about speaking foreign languages. Similarly, the findings of Dewi et al. (2022) demonstrated that the use of chatbot features in the Memrise platform can enhance students' abilities and readiness to communicate in foreign languages due to its practical and interactive approach.<sup>27</sup>

The intervention phase for Participant 2 (SA) began in session six, which coincided with the point at which Participant 1 (HS) exhibited changes consistent with the intervention goals. In the first intervention session, Participant 2 (SA)

<sup>&</sup>lt;sup>26</sup> Prahmana, Single Subject Research Teori Dan Implementasinya: Suatu Pengantar, 30.

<sup>&</sup>lt;sup>27</sup> Diah Fitriana Dewi, Siti Nur'Aini, and T. Sri Suwarti, "STUDENTS' PERCEPTION ON THE USE OF CHATBOT FROM MEMRISE SITE AND THEIR WILLINGNESS TO COMMUNICATE IN ENGLISH," *Linguistics and Education Journal* 2, no. 1 (March 15, 2024), https://doi.org/10.26877/lej.v2i1.18092.

recorded a score slightly lower than the final score from the baseline phase. However, in subsequent intervention sessions, the data showed a steady increase over time, culminating in the final session—session nine—with a score of 52.3 out of a 1–100 scale. In terms of performance, Participant 2 (SA)'s ability to respond accurately to dialogue questions gradually improved. Questions that had previously been misunderstood were generally better comprehended, and some were answered using more complete and fluent sentences. Unlike Participants 1 and 3, Participant 2 (SA) was only able to take part in a total of nine sessions in this research due to unavoidable personal limitations.

Nevertheless, with the available number of sessions, the data trend during the intervention phase was clearly observable, indicating a marked upward trajectory. Based on the analysis between conditions, the percentage of overlap between the baseline and intervention phases was 25%, indicating that one data point from the intervention phase fell within the baseline range—specifically, the first data point of the intervention phase as previously described. Despite this, the percentage is still relatively low, and thus, the score increases observed during the intervention phase remain clearly distinguishable. Accordingly, it can be concluded that the intervention had a positive impact on improving Arabic speaking skills for Participant 2 (SA). The data demonstrate a more pronounced upward trend during the intervention phase compared to the baseline phase, suggesting the effectiveness of the Memrise application in enhancing speaking skills, while also acknowledging the potential influence of external factors.

The intervention phase for Participant 3 (NH) began in session eight, following the observation of changes in Participant 2 (SA) that were aligned with the intervention goals. In the first intervention session, there was an increase in score compared to the previous session, although it was not substantial. However, in subsequent sessions, the scores continued to rise over time, with the final session—session eleven—showing a score of 45.5 out of a possible range of 1–100. In terms of performance, Participant 3 (NH)'s scores during the intervention phase increased compared to those in the baseline phase. Dialogue questions that were previously left unanswered began to be answered, albeit briefly. Questions that were previously misunderstood became increasingly comprehensible and answerable, although some responses—particularly in the initial stages—were still delivered in Indonesian.

Based on within-condition analysis, the intervention phase showed an upward trend, even though the slope was relatively shallow. Nevertheless, the data pattern indicated improvement, and it is reasonable to assume that the upward trend would continue if the intervention were to be prolonged. The upward trajectory of Participant 3 (NH)'s performance suggests that achieving a more optimal level of Arabic speaking proficiency would likely require an extended duration of treatment using the Memrise application.

Regarding the between-condition analysis, although the level change was relatively small—only 3.3 points—the direction of the trend was increasing, and the percentage of overlap between the baseline and intervention phases was 0%. This indicates that the observed positive change in the target behavior occurred following the intervention. These findings support the conclusion that the use of the Memrise application was effective in improving the speaking skills of

Participant 3 (NH), although the possibility of other influencing factors cannot be entirely ruled out.

All three participants demonstrated an upward trend in their Arabic speaking skills during their respective intervention phases through the use of the Memrise application. Although the degree of change and improvement varied among them, all three participants showed increasing data patterns, indicating the potential for continued improvement if the intervention were to be extended. This finding aligns with that of Jaidah, who reported that the use of artificial intelligence-based technology leads to moderate improvement in Arabic speaking proficiency.<sup>28</sup> The observed improvement in Arabic speaking skills among the three participants also reflects the assertion made by Tang (2025), who emphasized that achieving proficiency in spoken Arabic requires at least three strategic efforts: enhancing vocabulary acquisition, increasing the frequency of speaking practice, and utilizing technology.<sup>29</sup> This suggests that technology-based media capable of equipping learners with language vocabulary and providing accessible opportunities for practicing oral communication serves as a highly effective alternative. Such media has the potential to address the challenges associated with the limited availability of language-rich environments in public religious schools.

#### **D.** Conclusion

The use of the Memrise application has proven effective in improving Arabic speaking skills among three participants with learning difficulties. This is evidenced by the increase in data following the intervention and the low degree of overlap, despite the potential influence of other factors in Participants 2 and 3 due to a slight upward trend observed prior to the intervention. These findings serve as an important reference for planning speaking skills instruction supported by technology, with an emphasis on the importance of selecting instructional media that promote the continuous application of vocabulary and practice in oral communication.

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<sup>&</sup>lt;sup>۲۸</sup>سناء زكريا عبد المجيد المجايدة، "أثر استخدام الذكاء الاصطناعي في تحسين مهارات اللغة العربية،" مجلة جامعة القدس

https://doi.org/10.33977/0507-000-066-011. (no. 66 (January 31, 2025) (مالك المفتوحة الإنسانية والاجتماعية ٧) <sup>29</sup> Ambo Tang, Jumadi, and Ariani, "Problematika Pembelajaran Ta'bir Syafawi Pada Mahasiswa PAI Ma'had Bilal Bin Rabah Angkatan 2022-2023," Jurnal Pendidikan Agama Islam 4, no. 1 (February 28, 2025): 476–89, https://doi.org/10.36232/jurnalpaida.v4i1.223.

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