

## **The Effect of Applying Syllable Puzzles on Improving Arabic Reading and Writing Skills Among Students at an Islamic Junior High School**

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### ***Abstract***

This study examines the effect of using syllable puzzle games on improving Arabic reading and writing skills among junior secondary school students. The research is grounded in the ongoing challenges students face in developing Arabic literacy, which are partly due to the lack of engaging and interactive learning media. To address this issue, a quasi-experimental design with a quantitative approach was applied. The participants were eighth-grade students divided into an experimental group and a control group. Both groups completed a pretest as an initial assessment, after which the experimental group received instruction using syllable puzzle games, while the control group continued with traditional teaching methods. A posttest was then administered to measure learning outcomes. The statistical analysis revealed a significant difference between the two groups ( $p < 0.05$ ), indicating that students taught with syllable puzzle games achieved greater improvements in reading and writing

abilities. The findings offer practical implications for educators, suggesting that syllable puzzle games can serve as an effective, easy-to-apply, and motivating instructional tool to enhance students' Arabic literacy and classroom engagement.

**Keywords:** *syllable puzzle, reading skills, writing skills, Arabic language learning*

### ملخص

تهدف هذه الدراسة إلى تحليل تأثير استخدام لعبة أحجية المقاطع في تحسين مهارتي القراءة والكتابة باللغة العربية لدى طلاب المرحلة المتوسطة. تنطلق هذه الدراسة من مشكلة انخفاض مستوى الوعي القرائي والكتابي باللغة العربية عند الطلاب، والذي يرجع جزئياً إلى نقص الوسائل التعليمية الجاذبة والتفاعلية. وللتعامل مع هذه المشكلة، اعتمدت الباحثة على تصميم شبه تجريبي باستخدام المنهج الكمي. وتكونت عينة الدراسة من طلاب الصف الثامن الذين قُسموا إلى مجموعتين: تجريبية وضابطة. خضعت المجموعتان لاختبار قبلي بوصفه تقويماً أولياً، ثم تلقت المجموعة التجريبية تعليماً باستخدام لعبة أحجية المقاطع، بينما واصلت المجموعة الضابطة التعلم بالطرق التقليدية. وبعد ذلك أُجري اختبار بعدي لقياس نتائج التعلم. أظهرت نتائج التحليل الإحصائي وجود فروق ذات دلالة بين المجموعتين ( $p < 0.05$ ) مما يشير إلى أن الطلاب الذين تعلموا باستخدام أحجية المقاطع حققوا تحسناً أكبر في مهارات القراءة والكتابة باللغة العربية. وتقدم هذه النتائج دلالات عملية للمعلمين، إذ تبين أن لعبة أحجية المقاطع يمكن أن تكون وسيلة تعليمية فعالة وسهلة التطبيق، كما تسهم في زيادة دافعية الطلاب وتفاعليهم أثناء تعلم اللغة العربية.

الكلمات المفتاحية: *أحجية المقاطع، مهارات القراءة، مهارات الكتابة، تعلم اللغة العربية*

### Abstrak

Penelitian ini mengkaji pengaruh penggunaan permainan puzzle suku kata terhadap peningkatan keterampilan membaca dan menulis bahasa Arab pada siswa tingkat sekolah menengah pertama. Kajian ini berangkat dari permasalahan rendahnya literasi bahasa Arab siswa, yang antara lain disebabkan oleh kurangnya media pembelajaran yang menarik dan interaktif. Untuk menjawab permasalahan tersebut, penelitian ini menggunakan desain kuasi-eksperimen dengan pendekatan kuantitatif. Peserta penelitian adalah siswa kelas VIII yang dibagi menjadi kelompok eksperimen dan kelompok kontrol. Kedua kelompok terlebih

dahulu diberikan pretest sebagai asesmen awal. Selanjutnya, kelompok eksperimen mendapatkan pembelajaran menggunakan permainan puzzle suku kata, sedangkan kelompok kontrol tetap menggunakan metode konvensional. Setelah itu, posttest diberikan untuk mengukur hasil belajar. Hasil analisis statistik menunjukkan adanya perbedaan yang signifikan antara kedua kelompok ( $p < 0.05$ ), yang mengindikasikan bahwa siswa yang belajar menggunakan puzzle suku kata mengalami peningkatan yang lebih besar dalam kemampuan membaca dan menulis bahasa Arab. Temuan ini memberikan implikasi praktis bagi pendidik bahwa permainan puzzle suku kata dapat menjadi media pembelajaran yang efektif, mudah diterapkan, serta mampu meningkatkan motivasi dan keterlibatan siswa dalam pembelajaran bahasa Arab.

**Kata Kunci:** *puzzle suku kata, keterampilan membaca, keterampilan menulis, pembelajaran bahasa Arab.*

## **A. Introduction**

The study of Arabic constitutes a vital element of the Islamic Junior High School (Madrasah Tsanawiyah) curriculum, serving as an integral aspect of Islamic religious education (Nasrulloh et al. 2020). In learning Arabic, students are required to acquire four fundamental language skills: listening (istimāʿ), speaking (kalām), reading (qirāʾah), and writing (kitābah) (Almelhes 2024). Among these skills, reading (mahārah qirāʾah) and writing (mahārah kitābah) are particularly important, as they serve as the foundation for understanding Arabic texts, both in written and reading forms. However, observations in several Islamic Junior High School (Madrasah Tsanawiyah) indicate that many students encounter difficulties in mastering Arabic reading and writing (Maulia et al. 2020). Several factors contribute to this problem, such as students' limited understanding of Arabic word and sentence structures, the persistence of conventional teaching approaches, and the lack of innovative and engaging learning media. As a result, students often feel bored and lose interest in learning Arabic (Hamdah 2022). Moreover, preliminary observations at the Islamic Junior High School where this research was conducted revealed that most students still encounter significant obstacles in understanding Arabic texts, both in reading and writing. The average scores in reading (qirāʾah) and writing (kitābah) skills remain relatively low. Many students are only able to copy words without truly comprehending their meaning or structure. Arabic language teachers also reported that when asked to construct simple sentences, a large number of students were still confused, preventing the learning process from running effectively. This situation is further exacerbated by students' low learning motivation; they often feel bored, unenthusiastic, and perceive Arabic as a difficult

subject. Such conditions highlight the urgent need for breakthroughs through more interactive, innovative, and enjoyable learning media.

To foster greater student interest in learning, more interactive and enjoyable teaching strategies are required. Educational games, such as syllable puzzle games, can be utilized as a medium of instruction (Heß et al. 2024). This need becomes even more apparent when linked to current curriculum policies. Both the 2013 Curriculum and the Independent Curriculum emphasize the importance of creating learning processes that are active, creative, participatory, and student-centered. Teachers are required to design instruction that enables students to construct understanding through engaging learning experiences. In this regard, the use of syllable puzzle games represents an appropriate alternative medium, as it not only presents learning in the form of a challenging game but also provides opportunities for students to practice both reading and writing skills simultaneously. Through this game, students gain a better understanding of Arabic word structures by arranging syllables into correct words (Zahrotul et al. 2023). The implementation of syllable puzzle games in Arabic language learning is believed to offer numerous benefit (Badruttamam, Kholidah, and Khofifah 2021). Among these are enhancing students' memory, improving their ability to construct words correctly, and fostering greater interest and motivation to learn (Ritonga et al. 2021). This method allows students not only to participate passively in the learning process but also encourages them to be more active and creative in understanding Arabic. The game challenges students to process words in an enjoyable way, so that they do not merely receive the material in a monotonous manner (Bulqis, Mujahidah, and Aprilyanti 2022). In addition, this game enhances students' reading skills, as they are required to comprehend the meaning of the words they construct. At the same time, their writing skills are also refined because students must arrange words correctly and write them according to Arabic language rules. This method not only strengthens theoretical understanding of the language but also improves practical abilities in reading and writing, making the learning process more engaging and meaningful (Benanane, Smail, and Ouahioune 2024).

In terms of novelty, this study differs from previous research. Earlier studies have generally employed puzzle-based media to improve only vocabulary mastery or to focus on a single skill, such as reading (Budiharso et al. 2024). In contrast, the present study aims to develop two language skills simultaneously reading and writing through the use of syllable puzzle games . Thus, this research does not merely replicate what has been done before but expands the utilization of puzzle media to better suit the needs of contemporary Arabic language learning in madrasah. On this basis, the study is considered significant, as it has the potential to introduce a more effective and enjoyable alternative learning strategy. Through the

application of syllable puzzle games, students are expected not only to overcome learning fatigue but also to become more motivated and skillful in comprehending Arabic texts through both reading and writing activities. In addition, the outcomes of this study are anticipated to provide valuable contributions to the advancement of Arabic language teaching in madrasah, while also encouraging educators to develop innovative learning media that correspond to the needs and learning characteristics of contemporary students (Rinandi and Nurhidayati 2022). It can also provide an alternative learning method that is more effective in simultaneously improving Arabic reading and writing skills through engaging and interactive media. This approach is further expected to address students' fatigue with conventional methods and to enhance their motivation in learning Arabic (Dali, Damhuri, and Nur Iman 2023). Therefore, this study is not merely replicative but also expands the use of existing learning media in ways that are more relevant and appropriate for today's madrasah students. This approach is also expected to enhance students' willingness to learn Arabic and to overcome their fatigue with conventional methods (Rahmiati, Sunarko, and Rois 2022). This study contributes to filling an existing research gap by exploring the concurrent development of qirā'ah and kitābah skills through the use of syllable puzzle games, an intervention that has yet to receive empirical attention in Arabic language instruction at the Islamic Junior High School level.

A review of previous research reveals that puzzle-based learning tools have been widely applied to support Arabic language instruction, particularly in vocabulary development. Zelviyah Nur Hajma and colleagues showed that Vocabulary Puzzles significantly strengthened students' mastery of mufradāt and increased their participation during lessons (Nur Hajma and Mariah 2024). Likewise, Anisah Firdausi Nuzula utilized a digital Crossword Puzzle created with the Puzzle Maker application, which successfully boosted students' motivation and vocabulary acquisition at the Islamic Junior High School level (Nuzula 2024). In another study, Apri Wardana Ritonga extended the use of puzzle media beyond vocabulary by employing Crossword Puzzles to enhance reading comprehension, demonstrating their ability to support text interpretation and reinforce key vocabulary (Apri Wardana Ritonga 2020). Although all three studies confirm the pedagogical value of game-based media, they remain limited to vocabulary-focused instruction or the development of a single skill. The present research builds upon these findings by implementing a syllable-based puzzle that targets two productive skills reading and writing addressing an area that has not yet been explored in previous studies.

**Table 1.** Comparison of Previous Studies on Puzzle-Based Learning Media

Researcher	Type of Puzzle / Media	Target Skill	Research Design	Key Findings	Identified Gap
Zelviyah Nur Hajma et al. (2024)	Vocabulary Puzzle (Puzzle Mufradat)	Vocabulary mastery	Pre experimental	Significant improvement in vocabulary; increased enthusiasm and classroom engagement	Focuses only on vocabulary; not applied to productive skills
Anisah Firdausi Nuzula (2024)	Application-based Crossword Puzzle	Vocabulary acquisition	Pre-experimental	Increased motivation and vocabulary retention using technology	Limited to vocabulary; emphasizes technology, not skill integration
Apri Wardana Ritonga (2020)	Crossword Puzzle (text-based)	Reading comprehension	Pre-experimental	Improved qirā'ah ability; puzzles facilitated understanding of reading texts	Focused solely on reading; puzzle not applied to writing
Present Study	Syllable Puzzle Game	Reading and Writing	Quasi-experimental	Improved qirā'ah and kitābah simultaneously	Addresses the gap: dual skill enhancement not studied previously

The body of literature aligns with principles from gamification theory, which posits that game-like elements such as challenge, reward, and interaction can heighten learners' motivation and cognitive engagement. Puzzle activities promote curiosity, require analytical thinking, and support active involvement, all of which contribute to more effective language processing. Additionally, puzzle based learning reflects constructivist theory, which emphasizes that learners develop understanding by actively interacting with content and constructing meaning. By manipulating letters, syllables, or vocabulary items, students participate in hands-on linguistic construction rather than merely receiving information. This study adopts both theoretical viewpoints by implementing a syllable puzzle game that

encourages students to work directly with language units, thereby deepening comprehension and jointly reinforcing reading and writing proficiency.

Taken together, earlier studies consistently demonstrate the benefits of puzzle-based media for Arabic language instruction, yet they primarily concentrate on vocabulary development or a single linguistic skill. The present study advances this line of research by applying a syllable puzzle game aimed at strengthening two productive skills reading and writing at the same time. This approach addresses a key gap in the existing literature and expands the contribution of puzzle-based learning to the broader field of Arabic pedagogy.

## **B. Method**

This research adopted a quantitative method with a quasi-experimental design, specifically utilizing the pretest–posttest control group design. The aim of this design was to examine the impact of the *syllable puzzle game* on students' ability to read and write Arabic words effectively. In this study, the experimental group received treatment using the *syllable puzzle game*, while the control group was taught using conventional learning methods.

The population of this study encompassed all eighth-grade students at State Islamic Junior High School 2 (MTsN 2) Surabaya, consisting of ten classes with a total of 320 students (32 students in each class). From this population, two classes were selected as samples through purposive sampling. One class functioned as the experimental class, and the other as the control class, each comprising 32 students. The selection was made to ensure similar academic characteristics between the two groups.

This study involved two main variables: Independent Variable (X): the implementation of the *syllable puzzle game* as a learning medium. Dependent Variable (Y): students' reading and writing skills in Arabic. The relationship between these two variables was analyzed to determine whether the use of the *syllable puzzle game* significantly improved students' performance compared to traditional learning.

The data were gathered through testing techniques, which included pretests and posttests. Both tests were administered to the experimental and control groups to measure their reading and writing skills before and after the implementation of the *syllable puzzle game*. The pretest served to determine the students' initial proficiency level, while the posttest measured their improvement following the intervention.

The instrument employed in this study was a reading and writing test specifically developed based on the Arabic subject syllabus for grade VIII. The test

items were designed to evaluate students' ability to recognize, combine, and construct Arabic syllables and words accurately. The test consisted of structured questions that reflected the objectives of reading and writing instruction in Arabic language learning.

To ensure the accuracy and reliability of the research instrument, a validity and reliability test was conducted. Content validity was verified through expert judgment from Arabic language educators, while statistical analysis was used to confirm the reliability of the test items. Prior to hypothesis testing, the collected data underwent normality and homogeneity tests to verify that they met the required assumptions for applying parametric statistical tests.

The data were analyzed using quantitative analysis methods. The results of the pretest and posttest were first processed through descriptive statistics to determine the mean scores and percentage of improvement. Subsequently, inferential statistical tests were performed, including the normality test, homogeneity test, and t-test, to examine whether there was a statistically significant difference between the experimental and control groups after the treatment. These analyses aimed to identify the effectiveness of the *syllable puzzle game* in enhancing the Arabic reading and writing skills of Islamic Junior High School students.

Table 2. Research design with nonequivalent control group design model

Experimental Group	Control Group
<ul style="list-style-type: none"> <li>•Pretest</li> <li>•Syllable puzzle game</li> <li>•Posttest</li> </ul>	<ul style="list-style-type: none"> <li>•Pretest</li> <li>•Conventional Method</li> <li>•Posttest</li> </ul>

### C. Results and Discussion

#### Description of Students' Initial Ability (Pretest)

The preliminary analysis revealed that both groups started with low levels of proficiency in reading (*qirā'ah*) and writing (*kitābah*). The control group obtained a pretest mean score of 49.84 (SD = 2.772), while the experimental group recorded a nearly identical mean of 49.72 (SD = 2.810). This minimal difference indicates that both groups possessed comparable initial abilities, ensuring that subsequent differences in learning outcomes can be attributed to the treatment rather than pre-existing disparities.

### **Learning Outcomes After Treatment (Posttest)**

Following the instructional phase, both groups demonstrated improvement. The control group, which continued to use conventional teaching methods, increased its average score to 73.91 (SD = 2.414), reflecting a gain of 24.07 points from the pretest. In contrast, the experimental group—taught using the syllable puzzle game—achieved a significantly higher posttest mean score of 97.97 (SD = 2.159), with a total improvement of 48.25 points. The independent t-test produced a significance value of  $p = 0.000$  ( $p < 0.05$ ), confirming a statistically significant difference between the two groups. These results indicate that the syllable puzzle game had a far more substantial and meaningful effect on students' qirā'ah and kitābah abilities compared to traditional instruction.

### **Observations of Student Activity During Learning**

Observational data further reinforce the quantitative findings. Students in the control group tended to be passive, relying heavily on the teacher's explanations with minimal interaction. Their engagement remained low, and the classroom atmosphere was relatively monotonous. Conversely, students in the experimental group displayed greater enthusiasm and active participation. They were involved in group discussions, arranged syllables into correct word forms, and rewrote the resulting sentences. This created a dynamic, interactive, and collaborative learning environment that contributed to improved focus and motivation.

### **Discussion in Relation to Theory and Previous Studies**

The results of this study confirm that the syllable puzzle game significantly enhances students' reading and writing skills. This aligns with theoretical perspectives that describe qirā'ah and kitābah as mutually reinforcing literacy skills—reading supports comprehension, whereas writing enables structured expression. Baihaqi, Syarifah, and Arif (2025) emphasize that these two skills form the foundation for understanding and producing Arabic texts, which corresponds to the improvements observed in the experimental group (Baihaqi, Syarifah, and Arif 2025). Traditional teacher-centered instruction often leads to monotonous learning experiences and reduced motivation (Umar, Zuhriyah, & Wahyuningsih, 2025). This pattern was clearly reflected in the control group's passive behavior. In contrast, the syllable puzzle game offers a more engaging experience by involving students in hands-on syllable manipulation, collaborative problem-solving, and contextual writing practice.who found that syllable puzzles help students construct words systematically and improve writing accuracy(Putri and Dafit 2023). Moreover, the heightened motivation observed in the experimental group supports (Albab 2024), who states that educational games can reduce boredom and increase learner

engagement. The results also align with the conclusions (Fahrur Rosikh and Nashihin 2020), who argue that contextual and interactive activities make Arabic writing more effective and meaningful. The puzzle-based approach used in this study provides such a contextual experience by helping students understand word structures before forming sentences.

### Complete Statistical Analysis

This section presents the findings of the research concerning the application of the syllable puzzle game in improving Islamic Junior High School students' mahārah qirā'ah and mahārah kitābah. The data analysis was carried out systematically through several stages. Initially, prerequisite tests were administered to assess data normality and homogeneity. Thereafter, hypothesis testing was employed to identify significant differences between the experimental and control groups. The analyzed results are displayed in tabular form and elaborated descriptively, with the aim of providing a comprehensive explanation regarding the effectiveness of the syllable puzzle game as a medium for Arabic language instruction (Fitria and Ulin Nuha 2023).

Normality testing constitutes a statistical procedure aimed at verifying whether the research data conform to a normal distribution. This assumption is regarded as essential in the application of parametric analyses, including the t-test and ANOVA, since the accuracy and reliability of the statistical inferences are contingent upon the data exhibiting a normal distribution pattern (Nuryadi et al. 2017).

The pretest and posttest data from both the experimental and control groups were subjected to normality testing. Parametric tests can be used for further analysis if the data follow a normal distribution; otherwise, nonparametric tests are employed.

**Table 2.** Normality Test Results

Class		Tests of Normality					
		Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Results	Pretest Control	.103	32	.200*	.969	32	.485
	Posttest Control	.120	32	.200*	.950	32	.144

Pretest Experiment	.112	32	.200*	.953	32	.173
Posttest Experiment	.133	32	.159	.958	32	.240

\*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

The results of the normality assessment, conducted through the Kolmogorov-Smirnov and Shapiro-Wilk tests, demonstrated that all datasets—comprising both pretest and posttest scores of the control and experimental groups—yielded significance values exceeding 0.05. These findings confirm that the data are normally distributed, thereby justifying the application of parametric statistical tests, such as the t-test, in subsequent analyses.

Homogeneity testing is a statistical method employed to examine whether the variances of two or more groups of data are equal. This procedure holds particular importance in experimental research, as it constitutes one of the primary assumptions for the valid application of parametric tests, such as the t-test. When the assumption of homogeneity is met, the distribution of score variations across groups is relatively equivalent, allowing differences in outcomes to be attributed with confidence to the treatment effect. Conversely, if the data fail to meet this assumption, it suggests significant variance discrepancies among groups, thereby requiring the use of alternative analytical approaches, such as Welch’s t-test (Sianturi 2022).

Following the confirmation of normal data distribution, a homogeneity test was performed to assess whether the variances of the experimental and control groups were equivalent. Variance homogeneity represents a fundamental prerequisite for the application of parametric analyses, particularly the independent t-test. In this study, the assumption of homogeneity was examined using Levene’s test. Based on the decision rule, the data are categorized as homogeneous when the significance value (Sig.) exceeds 0.05, whereas values equal to or below 0.05 indicate non-homogeneity. The outcomes of this test are presented in Table 3.

**Table 3.** Results of Homogeneity Test

**Test of Homogeneity of Variance**

		Levene Statistic	df1	df2	Sig.
<b>Results</b>	Based on Mean	1.571	3	124	.200

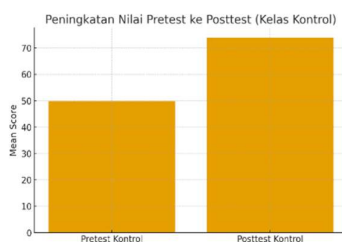
Based on Median	1.530	3	124	.210
Based on Median and with adjusted df	1.530	3	114.444	.210
Based on trimmed mean	1.580	3	124	.198

The results of the homogeneity test conducted through Levene’s Test indicated a significance value of 0.200 (based on the mean). Since this value exceeds the threshold of 0.05, it can be concluded that the data possess homogeneous variance. This finding confirms that the distribution of scores between the control and experimental groups is relatively equivalent, thereby fulfilling the assumption required for the valid application of the independent t-test.

Upon completion of the prerequisite analyses for normality and homogeneity, hypothesis testing was carried out to examine potential differences in learning outcomes between the experimental and control groups. As an initial step, descriptive statistics for each group were presented, encompassing the mean, sample size (N), standard deviation, and standard error. These descriptive measures serve to provide a preliminary illustration of the variation in students’ performance prior to and following the intervention. The results of the descriptive statistical computations are summarized in Table 4.

**Table 4 .Group Control Statistics**

<b>Group Statistics</b>					
	Class	N	Mean	Std. Deviation	Std. Error Mean
<b>Results</b>	Pretest Control	32	49.84	2.772	.490
	Posttest Control	32	73.91	2.414	.427



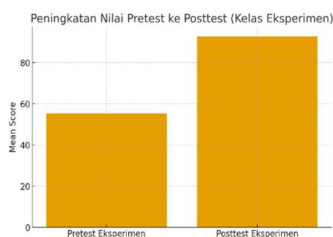
**Image 1.** Diagram of Pre-test to Post-test Score Improvement in the Control Class

Referring to the Group Statistics table, the control group obtained a pretest mean score of 49.84 with a standard deviation of 2.772, while the posttest mean rose to 73.91 with a standard deviation of 2.414. These results reflect an improvement in students' learning outcomes despite the absence of a specific treatment. The mean increase of 24.07 points indicates a notable positive progression, which requires further verification through the application of a paired-sample t-test.

The table displays the results of the independent two-sample t-test, applied to evaluate the differences in mean learning outcomes between the experimental and control groups. Prior to interpreting the t-test results, Levene's Test was conducted to verify the assumption of variance equality across the two groups.

**Table 5.** Group Experimental Statistics

<b>Group Statistics</b>					
	Class	N	Mean	Std. Deviation	Std. Error
<b>Results</b>	Pretest <i>Experimental</i>	32	55.40	2.520	.445
	Posttest <i>Experimental</i>	32	92.85	2.210	.391



**Image 2.** Diagram of Pre-test to Post-test Score Improvement in the Experimental Class

Referring to the Group Statistics table, the experimental group achieved a pretest mean score of 55.40 with a standard deviation of 2.520, while the posttest mean increased substantially to 92.85 with a standard deviation of 2.210. These findings demonstrate a remarkable improvement in students' learning outcomes following the implementation of the treatment. The mean increase of 37.45 points indicates a highly significant positive progression, suggesting strong effectiveness of the instructional intervention. This improvement further necessitates verification through the application of a paired-sample t-test to confirm the statistical significance of the observed enhancement.

The table also presents the results of the independent two-sample t-test, conducted to examine the differences in mean learning outcomes between the experimental and control groups. Prior to interpreting the t-test results, Levene's Test was employed to assess the assumption of homogeneity of variances across both groups. This preliminary step ensures that the subsequent inferential analysis is based on valid statistical assumptions.

**Table 6.** T-Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
<b>Results</b>	Equal variances assumed	.495	.484	-37.027	62	.000	-24.062	.650	-25.362	-22.763
	Equal variances not assumed			-37.027	60.854	.000	-24.062	.650	-25.362	-22.763

The findings of the Independent Samples Test revealed a significance value (Sig. 2-tailed) of 0.000, accompanied by a t-value of -37.027 and degrees of freedom (df) amounting to 62. As the significance level is far below the 0.05 criterion, it can be concluded that a statistically significant difference exists between the posttest scores of the experimental and control groups.

The posttest mean score of the experimental group exceeded that of the control group by 24.062 points. The 95% confidence interval for this difference, ranging from -25.362 to -22.763, confirms the consistency and statistical significance of the observed gap. These findings substantiate the conclusion that the integration of puzzle games into Arabic language instruction exerts a positive influence on students' learning outcomes, particularly in developing reading (qirā'ah) and writing (kitābah) skills. Learners exposed to the puzzle game demonstrated higher levels of activeness, motivation, and engagement in the

learning process, which consequently resulted in greater achievement compared to their peers in the control group who received conventional instruction.

Beyond statistical evidence, the improvement can be explained through several theoretical frameworks:

1. Cognitive Engagement Theory

The puzzle requires breaking words into syllables, rearranging them, and reconstructing meaning. This activates deeper information processing, which strengthens reading decoding skills and supports writing accuracy.

2. Gamification Principles (Almelhes 2024)

Game elements such as challenge, curiosity, and immediate feedback increase intrinsic motivation. Students become more engaged, reducing boredom often associated with Arabic learning.

3. Constructivist Learning (Vygotsky's ZPD)

Puzzle activities encourage collaboration and peer discussion. In solving the puzzle, students negotiate meaning, compare answers, and refine understanding together. These social interactions create a scaffolding process that accelerates skill mastery.

4. Autonomy and Self-Regulation

Unlike passive listening, puzzle work gives students control over learning tasks. Autonomy contributes to higher persistence and task completion, particularly in writing activities where students must generate and reconstruct sentences.

The results of this research affirm that the application of the syllable puzzle game exerts a significant effect in enhancing students' reading and writing competencies. This demonstrates that game-based learning strategies can serve as a solution to address low interest, engagement, and motivation in learning Arabic at the Islamic Junior High School level (Comings 2018). Compared to the study by Zelviyah et al. (2024), which focused on mufradat puzzles, this research offers a broader contribution. While mufradat puzzles proved effective for vocabulary acquisition, they did not target productive skills. In contrast, the syllable puzzle not only enriches vocabulary but also hones students' ability to construct words into sentences, thereby enhancing reading and writing skills in an integrated manner. These results are also consistent with the findings of Apri Wardana Ritonga (2020), who demonstrated the effectiveness of crossword puzzles in training reading skills.

However, this study goes further by incorporating writing skills as part of the learning objectives, providing a more comprehensive view of the benefits of puzzle-based media in Arabic language instruction. In terms of learning motivation, the use of puzzles encourages students to be more active, enthusiastic, and collaborative. This aligns with gamification theory in education (Almelhes, 2024), which emphasizes that game elements can foster intrinsic motivation through enjoyment, challenge, and the desire to complete tasks. Thus, syllable puzzles not only impact cognitive achievement but also positively influence students' affective domain. Furthermore, the improvement observed in the experimental group can be explained through Vygotsky's constructivist theory, which states that knowledge is built through social interaction. In the context of learning with puzzles, students discuss, collaborate, and complement each other while arranging and rewriting words. This collaborative activity creates a zone of proximal development that supports more optimal skill improvement compared to traditional teaching methods.

Practically, this study has several implications:

1. For Arabic teachers, puzzles can serve as an alternative teaching medium that is simple, affordable, and suitable for the characteristics of Islamic Junior High School students.
2. For students, puzzles provide an enjoyable learning experience, thereby reducing boredom in learning Arabic.
3. For madrasahs, these findings can be used as a reference in developing more innovative and varied learning media (Hasibuan, Hasanah, and Nur 2025).

Nevertheless, this study has certain limitations, including being conducted at a single research site with a limited sample size, and focusing only on two skills, namely qirā'ah (reading) and kitābah (writing). For future research, the puzzle media could be applied to other skills such as istimā' (listening) and kalām (speaking), or even combined with digital media to better suit the needs of today's generation (Agustina Wulandari and Ratnawati 2024).

Thus, the findings of this study not only reaffirm the effectiveness of the syllable puzzle media in enhancing students' reading and writing skills, but also open opportunities for the development of more innovative, participatory, and adaptive Arabic language learning strategies that align with the needs of today's learners. Therefore, these results are expected to serve as a valuable reference for educators and educational institutions in designing more creative and sustainable learning media to improve the quality of Arabic language teaching and learning in

madrasah settings, as well as to inspire further pedagogical innovations that support meaningful and engaging learning experiences.

#### **D. Conclusion**

The findings of this study indicate that the application of the syllable puzzle game had a significant positive effect on students' qirā'ah and kitābah abilities. This was reflected in the posttest results, where the experimental group outperformed the control group by 24.062 points. The independent t-test further confirmed the effectiveness of the treatment, producing a significance value of 0.000, which demonstrates that the improvement was directly attributed to the instructional intervention. Moreover, students in the experimental class showed greater enthusiasm, stronger motivation, and more active participation throughout the learning process. These behavioral changes illustrate that the use of syllable puzzles successfully created a more interactive, engaging, and conducive learning environment compared to traditional methods.

This research provides several important contributions to the field of Arabic language education. The syllable puzzle game offers a practical and effective game-based medium that enhances students' literacy skills, particularly in reading and writing. Additionally, this approach supports a more student-centered learning atmosphere, helping to address the monotony often associated with conventional teaching practices. The study also adds empirical evidence to the growing body of research that supports interactive, hands-on pedagogical strategies in Arabic instruction. By integrating activities that connect spelling patterns, word formation, and writing accuracy, this learning medium enriches classroom practices and helps teachers implement more meaningful and engaging learning experiences.

Despite its positive outcomes, this study has several limitations that should be acknowledged. First, the research was conducted in a single Madrasah Tsanawiyah, which restricts the generalizability of the findings to broader populations. Second, the sample size was relatively small, limited to two classes, which may reduce the representativeness of the results. Third, the scope of the study focused solely on two skills—qirā'ah and kitābah—without exploring other essential Arabic language competencies such as listening (istimā') and speaking (kalām). Furthermore, the treatment period was relatively short, making it difficult to determine the long-term impact of implementing the syllable puzzle game in classroom instruction.

### References

- Agustina Wulandari, Santi, and Nurul Ratnawati. 2024. "Development of Puzzle Game Learning Media in Social Sciences Subjects to Improve Student Learning Outcomes." *Jurnal Inovasi Teknologi Pendidikan* 11 (1): 44–56.
- Albab, Ulul. 2024. "Strategi Peningkatan Keterampilan Membaca Bahasa Arab Di Madrasah Aliyah Melalui Pendekatan Tematik" 9 (3): 129–36.
- Almelhes, Sultan A. 2024. "Gamification for Teaching the Arabic Language to Non-Native Speakers: A Systematic Literature Review." *Frontiers in Education* 9 (March): 1–11. doi:10.3389/feduc.2024.1371955.
- Apri Wardana Ritonga. 2020. "Pengaruh Media Crossword Puzzle Dalam Meningkatkan Maharah Qira'ah Siswa SMA Islam Sabilillah Malang Boarding School." *Studi Arab* 11 (2): 73–86. doi:10.35891/sa.v11i2.2354.
- Badruttamam, Choerul Anwar, Dwi Rosyidatul Kholidah, and Khofifah. 2021. "Pengembangan Media Puzzle Mufrodat Untuk Meningkatkan Keterampilan Berbicara Pada Mata Pelajaran Bahasa Arab Kelas 1." *Ibtida' 2* (2): 156–63. doi:10.37850/ibtida.v2i2.227.
- Baihaqi, M, Ainun Syarifah, and Muthahir Arif. 2025. "مَجْرَتَل اِ سْرَامِم حِبِصَت نَأ جْمَانَرِب " ٥٠٣-٤٩٣ : (١) ٨ مِيِيَقْت : يِلَاعِلَا مِيلَعْتَلَا يِف قِيِبِر عِلَا عَغْلَل مَجْرَتَلَا تَارَاهِم زِيِزَعْت " ٥٠٣-٤٩٣ : (١) ٨
- Benanane, Ahmed Yassine, Leila Smail, and Afaf Ouahioune. 2024. "Analysis of the Impact of Serious Games on the Development of Writing Skills in Intermediate-Level Students Learning French as a Foreign Language." *International Journal of Serious Games* 11 (4): 21–40. doi:10.17083/ijsg.v11i3.767.
- Budiharso, Teguh, Imroatus Solikhah, Samsu Armadi, and Rano Wandana. 2024. "Using Bloom's Taxonomy in Rubrics for Assessing Writing and Speaking Skills." *Novitas-ROYAL* 18 (2): 146–59. doi:10.5281/zenodo.13860992.
- Bulqis, Nelly Mujahidah, and Media Aprilyanti. 2022. "Efektivitas Permainan Puzzle Tebak Gambar Terhadap Kemampuan Menghafal Mufrodat Peserta Didik Pada Mata Pelajaran Bahasa Arab." *Armala IAIN Pontianak*, 13–31. <http://e-journal.iainptk.ac.id/index.php/armala/article/view/877>.
- Comings, John. 2018. "Literacy Learning Games for Syrian Refugee Children Assessing the Impact of An Executive Overview of Antura and the Letters and Feed the Monster Impact Evaluations," no. March. [www.allchildrenreading.orgwww.dl4d.org](http://www.allchildrenreading.orgwww.dl4d.org).
- Dali, Zulkifli, Damhuri Damhuri, and Muhammad Nur Iman. 2023. "The Effect of Puzzle Media on Arabic Learning Outcomes of Grade IV Students of Madrasah Ibtidaiyah 2 Limboto." *Al-Kalim: Jurnal Pendidikan Bahasa Arab Dan Kebahasaaraban* 2 (1): 102–18. doi:10.60040/jak.v2i1.20.
- Fahrur Rosikh, and Nashihin. 2020. "Pengajaran Keterampilan Membaca Bahasa Arab Di Madrasah." *Ummu Qura: Jurnal Institut Pesantren Sunan Drajat* 15 (01): 24–34.

- Fitria, Ana Lailatul, and Muhammad Afton Ulin Nuha. 2023. "Utilization of Crosspuzzle Games As Learning Media in the Development of the Maharah Kitabah." *Thariqah Ilmiah: Jurnal Ilmu-Ilmu Kependidikan & Bahasa Arab* 11 (2): 189–205. doi:10.24952/thariqahilmiah.v11i2.8744.
- Hamdah, Laras. 2022. "Problematika Motivasi Belajar Siswa Kelas VIII Dalam Pembelajaran Bahasa Arab SMP IT Yapidh." *Ta'limi | Journal of Arabic Education and Arabic Studies* 1 (1): 1–19. doi:10.53038/tlmi.v1i1.8.
- Hasibuan, Renni, Mamluatul Hasanah, and Siti Nur. 2025. "Team Game Tournament with Crossword Puzzle Media as a Pedagogical Tool for Balaghah Learning in Higher Education" 1 (1): 1–15. doi:10.26811/xxxx.xxxx.xxxx.
- Heß, Janina, Panagiotis Karageorgos, Bettina Müller, Anna Riedmann, Philipp Schaper, Birgit Lugin, and Tobias Richter. 2024. "Improving Word Reading Skills of Low-Skilled Readers: An Intervention Combining a Syllable-Based Approach with Digital Game-Based Features." *Journal of Computer Assisted Learning*, no. May: 2306–24. doi:10.1111/jcal.13021.
- Mafruudloh, Naajihah, Nur Mafissamawati Sholikhah, and Rahima Fitriati. 2023. "Blended Learning Effectiveness: A Quasi-Experimental Study on Students' ESP Achievement." *Edulangue* 5 (2): 216–31. doi:10.20414/edulangue.v5i2.5981.
- Maulia, Lia Nur Asriah, Syafril Ramadhon, Mujahidil Mustaqim, Deri Hendriawan, Rusman, As'Ari Djohar, and Ishak Abdulhak. 2020. "Analysis of Information Processing Learning Model in Improving Arabic Reading Skills." *Journal of Physics: Conference Series* 1477 (4). doi:10.1088/1742-6596/1477/4/042016.
- Muhammadiyah, Universitas, Sumatera Barat, Annindita Hartono Putri, Fira Eka Permatasari, Athiyah Laila Hijriyah, Lailatul Mauludiyah, and Universitas Muhammadiyah Malang. 2021. "2484-7035-5-Pb" 1 (1): 47–54.
- Nasrulloh, Muhammad Farid, Afif Kholisun Nasoih, Wisnu Siwi Satiti, and Septiana Khansa Afifa. 2020. "Mengatasi Problematika Pembelajaran Bahasa Arab Melalui Pelatihan Dan Permainan Bahasa Arab." *Jumat Pendidikan: Jurnal Pengabdian Masyarakat* 1 (1): 28–35. doi:10.32764/abdimaspen.v1i1.1040.
- Nur Hajma, Zelviyah, and Enung Mariah. 2024. "Efektivitas Penggunaan Media Puzzle Mufradat (Kosakata) Terhadap Penguasaan Kosakata Bahasa Arab Siswa Madrasah Tsanawiyah Di Kabupaten Gowa." *Pinisi Jurnal of Art, Humanity & Social Studies* 4 (4): 1–7. <http://creativecommons.org/licenses/by/4.0/>.
- Nuryadi, Tutut Dewi Astuti, Endang Sri Utami, and M. Budiantara. 2017. *Buku Ajar Dasar-Dasar Statistik Penelitian. Sibuku Media*.
- Nuzula, Anisah Firdausi. 2024. "Penerapan Metode Crossword Puzzle Berbasis

- Aplikasi Puzzle Maker Dalam Peningkatan Mufradat Bahasa Arab Siswa." *Al-Lahjah : Jurnal Pendidikan, Bahasa Arab, Dan Kajian Linguistik Arab* 7 (2): 827–37. doi:10.32764/lahjah.v7i2.4661.
- Putri, Syarifadillah, and Febrina Dafit. 2023. "Pengembangan Media Puzzle Suku Kata Untuk Keterampilan Membaca Permulaan Siswa Kelas 1 SDN 182 Pekanbaru" 5 (1): 57–69.
- Rahmiati, Rahmiati, Asep Sunarko, and Ahmad Rois. 2022. "Efektifitas Model Pembelajaran Jigsaw Berbasis Permainan Puzzle Untuk Meningkatkan Kemampuan Qira'ah Di SMP Takhasus Al Qur'an Wonosobo." *Lisanan Arabiya: Jurnal Pendidikan Bahasa Arab* 6 (1): 103–18. doi:10.32699/liar.v6i1.2760.
- Rinandi, Sita, and Nurhidayati Nurhidayati. 2022. "Penggunaan Media Pembelajaran Game Puzzle Untuk Meningkatkan Kemahiran Membaca Kata Bahasa Arab SDN Sambangan." *JoLLA: Journal of Language, Literature, and Arts* 2 (9): 1209–20. doi:10.17977/um064v2i92022p1209-1220.
- Ritonga, Apri Wardana, Mahyudin Ritonga, Vini Wela Septiana, and Mahmud. 2021. "Crossword Puzzle as a Learning Media during the Covid-19 Pandemic: HOTS, MOTS or LOTS?" *Journal of Physics: Conference Series* 1933 (1). doi:10.1088/1742-6596/1933/1/012126.
- Sianturi, Rektor. 2022. "Uji Homogenitas Sebagai Syarat Pengujian Analisis." *Jurnal Pendidikan, Sains Sosial, Dan Agama* 8 (1): 386–97. doi:10.53565/pssa.v8i1.507.
- Umar, Misbah, Nurul Zuhriyah, and Sri Wahyuningsih. 2025. ". Pembelajaran Maharah Qiro'Ah Bahasa Arab Pada Siswa Kelas Xi Ipa 7 Madrasah Aliyah Negeri 2 Kota Bima: Studi Kasus Man 2 Kota Bima." *Jurnal Tarbiyah Islamiyah* 10 (April): 210–23.
- Zahrotul, Aulia, Lillahi Rachman, Laily Maziyah, and Universitas Negeri Malang. 2023. "E-ISSN : 2986-3945."