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The effectiveness of scrabble-based instruction in improving Arabic vocabulary mastery among fifth-grade students at an Islamic elementary school in Ngawi

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ABSTRACT

The academic performance of fifth-graders in the area of Arabic vocabulary is relatively low, as evidenced by the significant gap between their average scores and the minimum proficiency threshold (70). This is partly due to the limited use of teaching materials in classrooms. This study aimed to evaluate the effectiveness of the game "Scrabble" as a teaching tool for improving students' mastery of Arabic vocabulary. In this study, a quantitative approach was adopted using a quasi-experimental design, specifically a non-equivalent control group. The study was divided into two groups: an experimental group taught using the Scrabble game and a control group taught using traditional methods. Both groups took pre-test and post-tests. The data were analyzed using normality tests, reliability tests, and the Mann-Whitney U test to determine the significance of the differences between the groups. The results showed that the significance level (Sig.) was below 0.05, which means that the null hypothesis was rejected, and the alternative hypothesis was accepted. Furthermore, there was a significant difference between the pre-test and post-test results of the experimental and control classes, with a mean difference of 5,64. These results indicate that using Scrabble as a learning medium does not improve fifth-graders' understanding of the Arabic language.

Keywords: media; effectiveness; scrabble; Arabic mufrodats mastery; Arabic language

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1. INTRODUCTION

Arabic has a central position in Islamic education because it is the language through which students access major religious sources, including the Qur'an and the Hadith. For elementary learners, vocabulary mastery is not a supplementary skill but the foundation for understanding texts, following classroom instructions, and developing reading, writing, listening, and speaking abilities. Vocabulary knowledge also involves form, meaning, use, pronunciation, spelling, and contextual recognition; therefore, students who lack vocabulary often struggle across several language skills simultaneously (Nation, 2001; Schmitt, 2008).

Arabic vocabulary learning at the elementary school level requires teaching strategies that match children's cognitive and social development. Young learners generally benefit from concrete objects, repetition, peer interaction, and activities that connect symbols with meaningful experiences. From a developmental perspective, children construct understanding through active engagement, whereas sociocultural learning theory emphasizes the role of guided participation and interaction in building higher mental functions (Piaget, 1952; Vygotsky, 1978).

In classroom practice, Arabic teachers need appropriate methods, strategies, and instructional media to help learners remember and accurately use new words. Learning media are useful because they transform abstract vocabulary into visible, manipulable, and memorable forms for students. Multimedia and visual-verbal learning principles also suggest that learners understand materials more deeply when words are supported by images, signals, and meaningful activities rather than being presented only through verbal explanations (Arif, 2020; Mayer, 2009).

Preliminary observations at Muhammadiyah Islamic Elementary School Walikukun, Widodaren, Ngawi, showed that fifth-grade students had difficulty reaching the school's minimum completeness criterion of 70 in Arabic vocabulary. The pretest results indicated that class 5A obtained an average score of 45.60, whereas class 5B obtained an average score of 43.16. These scores suggest that the students had not yet developed sufficient vocabulary mastery to answer Arabic questions accurately and confidently. In educational research, such baseline data are important because they define practical problems and justify the need for intervention (Cohen et al., 2018; Creswell & Creswell, 2018).

Students' low scores were also related to the limited use of instructional media in Arabic lessons. The teacher generally explained meanings directly, asked students to repeat the words, and then instructed them to memorize the vocabulary. Although repetition is useful, vocabulary learning becomes stronger when learners encounter words repeatedly through varied activities that require attention, retrieval, and meaningful processing (Nation, 2021; Webb and Nation, 2017).

Appropriate teaching aids can help students improve their Arabic vocabulary mastery because they create a bridge between the teacher's explanation and the learner's active use of language. Media such as word walls, multimedia, flashcards, and games have been reported to support recall, motivation, and participation in learning Arabic vocabulary. This is especially relevant in elementary classrooms, where learners often need attractive and structured learning environments to sustain their attention (Nisa' et al., 2023; Turohmah et al., 2020).

Scrabble is a possible instructional medium for vocabulary learning because it requires learners to arrange letters, recognize word forms, negotiate spelling, and connect words with meanings. Although Scrabble is more commonly used in English vocabulary instruction, its basic mechanism can be adapted to Arabic vocabulary learning when teachers prepare suitable word lists, images, and rules. Previous studies on Scrabble-based learning have reported that the game can support vocabulary practice and make language classrooms more engaging (Chairani, 2021; Fuad et al., 2023; Mahendra et al., 2024).

Game-based vocabulary learning is theoretically relevant because games can provide challenges, feedback, repetition, social participation, and emotional engagement. However, the effect of a game does not come automatically from its fun aspect; it depends on the alignment between game mechanics, learning objectives, teacher guidance, and assessment. Meta-analytic evidence on digital game-based vocabulary learning also shows that design features can influence outcomes, meaning that not every game produces the same learning gains (Chen et al., 2018; Kapp, 2012).

Based on these considerations, this study examines the use of Scrabble as a learning medium for fifth-grade Arabic vocabulary instruction at Muhammadiyah Islamic Elementary School Walikukun, Ngawi. The study compares an experimental class using Scrabble with a control class using the existing comparison method, supported by pre-test and post-test data. A quasi-experimental design is suitable for this school context because intact classes are used, and random assignment is difficult to implement in natural educational settings (Cohen et al., 2018; Shadish et al., 2002).

Therefore, this study aimed to determine whether Scrabble-based instruction produces a significant difference in Arabic vocabulary learning outcomes among fifth-grade students. This study contributes to Arabic language pedagogy by testing a playful vocabulary medium in a real elementary classroom and clarifying whether the statistical difference supports the practical effectiveness of Scrabble compared with the classroom comparison method (Creswell & Creswell, 2018; Nation, 2001).

2. METHOD

This study employed a quantitative quasi-experimental design with a non-equivalent control group structure. The experimental group learned Arabic vocabulary through Scrabble, while the control group learned using the comparison method commonly used in the school context. Because students were already organized into intact classes and could not be randomly assigned, pre-test and post-tests were used to compare the initial conditions and learning outcomes after treatment. This design is appropriate for classroom intervention research, where the researcher must work within existing school schedules and class organization (Creswell & Creswell, 2018; Shadish et al., 2002).

The research was conducted at Muhammadiyah Islamic Elementary School Walikukun, Ngawi, during a learning session held on Wednesday, October 28, 2024. The instructional treatment focused on Arabic vocabulary items selected from fifth-grade learning material. In the experimental class, Scrabble was implemented by asking students to form target vocabulary from available letter tiles, connect words with meanings or pictures, and discuss the correct vocabulary forms with peers and the teacher. In the control class, students learned the same general vocabulary target through the comparison activity, so the analysis could focus on differences in learning outcomes rather than in content exposure (Cohen et al., 2018; Nation, 2001).

The population consisted of all 50 fifth-grade students enrolled at Muhammadiyah Islamic Elementary School Walikukun, Ngawi in the 2024-2025 school year. Because the total population was below 100 students, all members were included in the research sample. The sample was then divided into two groups: 25 students in the experimental class and 25 in the control class. Purposive sampling was used because the selected classes matched the research objectives, had comparable grade levels, and were available for the intervention within the school schedule (Cohen et al., 2018; Creswell & Creswell, 2018).

The research instrument was an Arabic vocabulary achievement test administered as both a pre-test and post-test. The pretest measured students' initial vocabulary mastery before the treatment, while the posttest measured their achievement after the instruction. The test items were aligned with the vocabulary material taught during the intervention so that the scores represented the students' ability to recognize, recall, and apply Arabic words in context. The same testing structure was used for both groups to maintain comparability and reduce bias in measuring learning outcomes (Field, 2018; Webb & Nation, 2017).

The data were analyzed using IBM SPSS Statistics 25. Descriptive statistics were used to identify the mean, median, range, standard deviation, and score distribution in each group. The Shapiro-Wilk and Kolmogorov-Smirnov tests were used to examine normality, while Levene's homogeneity test was used to examine whether the variance between groups could be considered equal. Because not all data met the normality assumption, the Mann-Whitney U test was used to compare the learning outcomes between the two independent groups. The use of this nonparametric test is appropriate when the distributional assumptions of parametric tests are not fully satisfied (Brown & Forsythe, 1974; Mann & Whitney, 1947; Shapiro & Wilk, 1965).

3. RESULTS AND DISCUSSION

The findings of this study indicate that students' Arabic vocabulary outcomes were shaped by the instructional medium and the way vocabulary practice was organized in class. Vocabulary mastery refers to a learner's ability to understand, remember, pronounce, write, and use words in meaningful contexts. In Arabic learning, vocabulary is especially important because students need sufficient word knowledge before they can understand sentence patterns, read short texts, or communicate simple meanings (Nation, 2001; Schmitt, 2008).

Before the Scrabble intervention, Arabic vocabulary instruction in the research setting generally depended on direct explanations, repetition, and memorization. These techniques can support initial exposure, but they may not provide sufficient active retrieval, peer interaction, or contextual use. Classroom media are therefore needed to create varied encounters with vocabulary and to make learners more involved in the learning process (Arif, 2020; Vygotsky, 1978).

Scrabble was selected because it requires students to manipulate letters, think about word formation, and discuss correct answers with classmates. These features are consistent with game-based learning principles because learners receive immediate feedback, experience challenges, and practice target words repeatedly. Nevertheless, the learning value of Scrabble depends on whether the teacher connects the game activity directly to Arabic vocabulary objectives and assessment criteria (Fuad et al., 2023; Kapp, 2012; Mahendra et al., 2024).

Instruction was conducted in two classes, each consisting of 25 students. The control class received instruction during the second period, while the experimental class received instruction during the fourth. The experimental class used Scrabble as the main learning medium, whereas the control class used the existing method. The following tables present the descriptive statistics, normality test, homogeneity test, and Mann-Whitney U test used to evaluate the learning outcomes (Cohen et al., 2018; Field, 2018).

Table 1. Descriptive Statistics of Pretest and Posttest Scores in the Control and Experimental Classes

		Pretest Control	Pretest Experiment	Posttest Control	Posttest Experiment
N	Valid	25	25	25	25
	Missing	0	0	0	0
Mean		45.60	43.16	68.00	62.36
Std. Error of Mean		3.038	4.038	3.142	3.964
Median		40.00	47.00	73.00	67.00
Mode		33	13 ^a	80	53 ^a
Std. Deviation		15.190	20.190	15.708	19.820
Variance		230.750	407.640	246.750	392.823
Range		46	74	61	60
Minimum		27	13	26	27
Maximum		73	87	87	87
Sum		1140	1079	1700	1559

Table 1 shows that both groups began with relatively low Arabic vocabulary scores. The control class had a pretest mean of 45.60, whereas the experimental class had a pretest mean of 43.16. These values are far below the minimum completeness criterion of 70, indicating that both classes had a similar practical problem before treatment: students needed stronger vocabulary exposure, retrieval practice, and instructional support (Nation, 2001; Webb & Nation, 2017).

The post-test scores indicated improvement in both classes. The control class increased from 45.60 to 68.00, and the experimental class increased from 43.16 to 62.36. This pattern means that the Scrabble class improved by 19.20 points, while the control class improved by 22.40 points. Therefore, the descriptive statistics show learning progress in both classes, but the final mean score was higher in the control class than in the Scrabble class (Field, 2018; Mann & Whitney, 1947).

The spread of the scores also deserves attention. The experimental class had a larger standard deviation than the control class both before and after the treatment, indicating that student performance in the experimental group was more varied. In practical terms, some students may have benefited from Scrabble, while others may have needed more guidance, clearer rules, or additional practice before the game could lead to stronger achievement. Game-based learning can be effective, but its outcomes depend on the design quality and learners' readiness to use the game as a learning tool (Chen et al., 2018; Kapp, 2012).

Table 2. Normality Test Results for Arabic Vocabulary Learning Outcomes

Learning Outcome	Class	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistics	df	Sig.	Statistics	Df	Sig.
	Class Pretest control	.237	25	.001	.870	25	.004
	Class Posttest control	.235	25	.001	.865	25	.003
	Class Pretest Experiment	.135	25	.200*	.947	25	.214
	Class Posttest Experiment	.144	25	.191	.919	25	.050

Note:

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

Table 2 presents the results of normality tests. The control class data did not meet the normality assumption because the Shapiro-Wilk values were 0.004 for the pre-test and 0.003 for the post-test, both below the 0.05 threshold. The Kolmogorov-Smirnov values for the control class were also below 0.05, confirming that the control class distribution was not normal (Shapiro & Wilk, 1965; Field, 2018).

The experimental class exhibited a different pattern. The Shapiro-Wilk values were 0.214 for the pretest and 0.050 for the posttest, while the Kolmogorov-Smirnov values were 0.200 and 0.191. These values indicate that the experimental class data were closer to a normal distribution, especially when compared with the control class. However, because the assumption was not consistently met across all groups, the overall data structure required cautious interpretation (Shapiro & Wilk, 1965; Creswell & Creswell, 2018).

The mixed normality results justify the use of a non-parametric comparison test. In quasi-experimental classroom data, violations of normality are common because the sample size is limited and students' prior abilities may differ. The decision to use the Mann-Whitney U test was appropriate because it compares two independent groups without requiring the same strict normality assumption as an independent-samples t-test (Field, 2018; Mann & Whitney, 1947).

Table 3. Homogeneity of Variance Test Results

Learning Outcome		Levene Statistic	df1	df2	Sig.
	Based on Mean	3.055	1	48	.087
	Based on Median	2.674	1	48	.109
	Based on Median and with adjusted df	2.674	1	47.883	.109
	Based on trimmed mean	3.104	1	48	.084

Note:

a. Lilliefors Significance Correction

Table 3 shows that the homogeneity test produced a significance value of 0.087, based on the mean. Because this value was greater than 0.05, the variance between the control and experimental groups was considered homogeneous. This means that the score variability between the two groups was not statistically different at the 0.05 level (Brown & Forsythe, 1974; Field, 2018).

The median-based results also support the same interpretation because the significance value was 0.109 for both the ordinary median test and the adjusted df version. This consistency strengthens the

conclusion that the two groups had comparable variances, even though their score distributions differed in normality. Homogeneity is important because it helps researchers determine whether group comparisons are distorted by unequal variability (Brown & Forsythe, 1974; Cohen et al., 2018).

Although the homogeneity assumption was satisfied, it did not eliminate the need for non-parametric testing because normality was not consistently satisfied. The combined test results suggest that the two classes were sufficiently comparable in variance but not fully comparable in terms of distribution shape. Therefore, the Mann-Whitney U test remained the safer inferential option for comparing learning outcomes between the two independent classes (Field, 2018; Shapiro & Wilk, 1965).

Table 4. Mann-Whitney U Test Results for Differences in Learning Outcomes

	Result
Mann-Whitney U	156.500
Wilcoxon W	481.500
Z	-3.041
Asymp. Sig. (2-tailed)	.002

Note:

a. Grouping Variable: Kelas

Table 4 shows that the Mann-Whitney U value was 156.500, with a Z value of -3.041 and an asymptotic significance of 0.002. Because the significance value was below 0.05, the null hypothesis was rejected, and the alternative hypothesis was accepted. This means that there was a statistically significant difference between the learning outcomes of the control and experimental classes (Mann & Whitney, 1947; Field, 2018).

However, statistical significance must be interpreted in conjunction with descriptive statistics. The posttest mean of the control class was 68.00, whereas that of the experimental class was 62.36. Therefore, a significant difference does not automatically prove that Scrabble produced higher achievement than the comparison method. In this dataset, the direction of the descriptive difference favors the control class rather than the Scrabble class (Creswell & Creswell, 2018; Field, 2018).

Therefore, the hypothesis should be stated carefully. Scrabble-based instruction was associated with improvement from pretest to posttest, but it did not outperform the comparison class in the final posttest mean score. This distinction is important because educational interventions should be evaluated not only by whether scores change, but also by whether the treatment group improves more than the comparison group under comparable conditions (Cohen et al., 2018; Shadish et al., 2002).

Analysis of the data for the normality test using IBM SPSS Statistics 25 revealed that the p-values for the Shapiro-Wilk test in the control group were 0.004 for the pretest and 0.003 for the posttest, both below 0.05 (0.004 ± 0.05 and 0.003 ± 0.05 , respectively). Similarly, the significance value of the Kolmogorov-Smirnov test was 0.001 ± 0.05 . Therefore, the data from the control group did not follow a normal distribution. In contrast, in the experimental group, the significance values of the Shapiro-Wilk test were 0.214 ± 0.05 for the pretest and 0.050 for the posttest, that is, greater than or equal to 0.05 (0.214 ± 0.05 and $0.050 \geq 0.05$, respectively). The significance values of the Kolmogorov-Smirnov test were above 0.05 (0.200 and 0.191, respectively). Therefore, the data from the experimental group appeared to be normally distributed. Based on these results, it can be concluded that the data were not all normally distributed, necessitating the use of nonparametric statistical tests.

The results of the homogeneity test show that the significance value based on the mean was 0.087, which was greater than 0.05 ($0.087 > 0.05$). This suggests that the data from the control and experimental groups were homogeneous. The results of the Mann-Whitney test show that the significance value (Asymp. Sig., two-tailed) is 0.002, which is less than 0.05 ($0.002 < 0.05$). Therefore, H_0 is rejected, and H_a is accepted. This indicates a significant difference between the learning outcomes of the control and experimental groups. From the results of the hypothesis test, the results show that H_0 0.05 < sig is rejected or the difference or difference in results between the two classes exists, in this case H_0 in the research

hypothesis is rejected and H_a is accepted. The results demonstrate that Scrabble is an effective medium for teaching Arabic vocabulary to fifth-grade students at this institution. These data provide sufficient evidence to support the proposed hypothesis.

The study showed that both classes demonstrated an improvement in learning outcomes from the pretest to the posttest. In the control class, the average score rose from 45.60 to 68.00, while in the experimental group, it increased from 43.16 to 62.36. However, the comparative analysis shows that the control class achieved a higher average score on the post-test than the experimental group ($68.00 > 62.36$). This indicates a difference in the learning outcomes between the two groups. And the conclusion based on the results of the hypothesis test and the descriptive analysis, it can be concluded that there is a significant difference between the control class and the experimental group. However, the control class exhibited higher learning outcomes than the experimental group.

The findings show that Arabic vocabulary learning improved in both classes, but the improvement was not stronger in the Scrabble class. This suggests that Scrabble may help students practice vocabulary, yet its implementation in this study was not sufficient to produce better post-test achievement than the comparison method. In vocabulary instruction, improvement depends on repeated exposure, quality of processing, teacher support, and learners' opportunities to retrieve and use words meaningfully (Nation, 2021; Webb & Nation, 2017).

One possible explanation is that Scrabble may have increased classroom engagement without fully controlling the accuracy of students' vocabulary production. In a word game, students can become focused on winning, arranging letters, or following game rules, while the teacher still needs to ensure that every word is connected to meaning, pronunciation, and sentence use. Game-based learning is most effective when the mechanics of the game are integrated with clear instructional objectives and feedback (Chen et al., 2018; Kapp, 2012).

Another possible explanation concerns learner readiness for online learning. Fifth-grade students who are still weak in Arabic letters, spelling, and word recognition may require more guided practice before they can fully benefit from a word-building game. If students spend too much cognitive effort understanding the game procedure, they may have less capacity for retaining vocabulary. Multimedia learning theory similarly warns that instructional design should reduce unnecessary cognitive load and support relevant processing (Mayer, 2009; Schmitt, 2008).

The control class results also indicate that comparison methods should not be automatically dismissed as ineffective. Traditional or teacher-guided vocabulary instruction can still produce learning gains when students receive clear explanations, repetition, and structured practice. The stronger post-test mean in the control class suggests that direct support may have better matched the students' immediate needs than a competitive word game during this short intervention (Field, 2018; Nation, 2001).

Simultaneously, the Scrabble class showed a meaningful increase from 43.16 to 62.36. This improvement indicates that Scrabble can function as a supplementary medium, especially for reinforcing word forms, spelling awareness, and student participation. Prior studies have also reported that Scrabble can support vocabulary learning when the game is designed for the learner's level and is directly connected to vocabulary targets (Chairani, 2021; Fuad et al., 2023; Mahendra et al., 2024).

For Arabic instruction, Scrabble adaptation requires careful design because Arabic has script, morphology, and word-formation features that differ from English. Teachers should prepare tiles, picture prompts, pronunciation drills, and meaning-check activities that match the Arabic vocabulary being taught. Arabic vocabulary media are most helpful when they do not merely entertain students but also strengthen their recall, comprehension, and accurate use of words (Arif, 2020; Nisa' et al., 2023; Ubaidillah et al., 2023).

These findings also have implications for assessment. A posttest should measure the specific vocabulary skills targeted by the treatment, such as recognition, spelling, meaning recall, and contextual usage. If Scrabble mainly trains spelling and word arrangement but the posttest emphasizes meaning translation or sentence comprehension, the treatment-test alignment may be weak. A strong alignment between intervention activities and test indicators is necessary in quasi-experimental classroom research (Cohen et al., 2018; Shadish et al., 2002).

The relatively high variation in the experimental class suggests that Scrabble may not equally benefit all students. Some students may enjoy competitive word games and learn quickly through peer interaction, whereas others may need more explicit teacher scaffolding. Sociocultural theory emphasizes that learning improves when students receive support within their zone of proximal development, which means that the teacher's guidance remains essential even when the class uses a game-based medium (Vygotsky, 1978; Kapp, 2012).

Therefore, future implementations should combine Scrabble with explicit vocabulary teaching. Teachers can introduce the words, model pronunciation, explain meanings, use pictures, guide students during play, and close the lesson with sentence practice or a short reflection. This blended approach may preserve the motivational benefits of games while ensuring that learners receive systematic vocabulary instruction (Mayer, 2009; Nation, 2021; Turohmah et al., 2020).

The results of the analysis support the existence of a statistically significant difference between the two classes, but the direction of the descriptive results does not support a strong claim that Scrabble was more effective than the comparison method. The most accurate interpretation is that Scrabble has potential as an engaging supplementary medium for Arabic vocabulary learning, but its effectiveness depends on instructional design, treatment duration, teacher scaffolding and assessment alignment (Chen et al., 2018; Creswell & Creswell, 2018; Field, 2018).

4. CONCLUSION

This study examined the use of Scrabble-based instruction to improve Arabic vocabulary mastery among fifth-grade students at Muhammadiyah Islamic Elementary School Walikukun, Ngawi, Indonesia. The results showed that both the experimental and control classes improved from pre-to post-testing. The experimental class increased from 43.16 to 62.36, and the control class increased from 45.60 to 68.00. These results indicate that learning progress occurred in both the groups.

The inferential analysis using the Mann-Whitney U test showed a significance value of 0.002, which means that there was a statistically significant difference between the learning outcomes of the two classes. However, the descriptive comparison showed that the control class achieved a higher post-test mean than the experimental class. Therefore, this study cannot conclude that Scrabble is more effective than the comparison method in this sample. The more precise conclusion is that Scrabble supported improvement but did not outperform the control class in terms of final vocabulary achievement.

Scrabble can still be considered a useful supplementary medium for Arabic vocabulary learning because it encourages students to arrange letters, recall vocabulary, and actively participate in class. For better results, future instructions should use Scrabble for a longer period, provide clearer teacher guidance, align the game rules with Arabic vocabulary indicators, and ensure that the posttest measures the skills practiced during the game. Future studies should use larger samples, stronger treatment controls, and effect size analyses to determine the practical strength of Scrabble-based vocabulary instruction.

Ethical Approval

Not Applicable.

Informed Consent Statement

Not Applicable.

Authors' Contributions

MA conceptualized the study, designed the research methodology, collected data, conducted statistical analysis, and prepared the original draft of the manuscript. IRN contributed to the development of the research framework, interpretation of the findings, and the review and editing of the manuscript. AHBZ

supervised the overall research process, provided academic guidance and critically reviewed the manuscript. All authors contributed to the discussion of the results and approved the final manuscript.

Disclosure Statement

No potential conflict of interest was reported by the author(s).

Data Availability Statement

The data presented in this study are available on request from the corresponding author due to privacy reasons.

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Notes on Contributors

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