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## Preface

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## **1<sup>st</sup> Virtual Conference on Engineering, Science and Technology (VICEST) 2020**

We are glad to introduce you the proceedings of the first 1st Virtual Conference on Engineering, Science and Technology (VICEST) 2020. The 1<sup>st</sup> VICEST 2020 addresses challenges and innovations the field of Engineering, Science, and Technology. It also provides a premier interdisciplinary platform for researchers, educators and practitioners to present and discuss the most recent innovations, trends, and concerns as well as practical challenges encountered and solutions adopted in the fields of science, engineering and technology issue related.

As we may aware, the World Health Organization officially declared the novel coronavirus COVID-19 a pandemic. Governments around the world are now issuing restrictions on travel, gatherings, and meetings in an effort to limit and slow the spread of the virus. The health and safety of the author and reseacher community is our first priority and we are supporting these efforts. Therefore, the VICEST 2020 conference was held virtually on 12-13 August 2020.

The VICEST conference is hosted by Forum Kerjasama Pendidikan Tinggi, Synthesis Publication Research Group and co-hosted by Universitas Budi Darma, Politeknik Cendana. This year, we held this flexible online conference to gather experts and scholars around the globe with the aim to continue disseminating the latest advanced research in the field of Engineering, Science, and Technology. The conference was held from Online as the host of the event. The VICEST 2020 event is virtually implemented with a model that all invited speakers are given time to present their material for about 30-45 minutes each. It then followed by a question and answer by the participants with a direct questioning system, through chat forums and Q&A forums provided by the zoom application. Overall, the conference took 6 hours.

The number of participants who joined the zoom room was recorded around 243 participants. The authors or participants are came from 12 countries, namely Indonesia, Malaysia, Brunei Darussalam, Philippine, India, Iraq, Iran, Nigeria, USA, Vietnam, Russia, China. Indonesian Participants are come from 19 Provinces of 33 Provinces.

We are glad to share with you that around 227 pre-registered authors are submitted their work in the conferences. However, its about 147 papers are selected and accepted for the conferences. All the papers have been through rigorous review by a panel of reviewers who provide critical comments and corrections, and have contributed substantially to the improvement of the quality of the papers to meet the requirements of International publication standard and IOP JPCS Scope.

We also want to thank the publisher for publishing the proceedings. May the readers could enjoy the gain some valuable knowledge from it. We are expecting more and more experts and scholars from all over the world to join this international event next year.

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## The Effectiveness of Scrabble Game Media in Improving Learning Outcomes

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# The Effectiveness of Scrabble Game Media in Improving Learning Outcomes

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**Abstract.** In this digital era, technology-based learning media are attractive to students because it improves their learning outcomes. Therefore, this study aims to determine the improvement in learning outcomes for Arabic vocabulary using scrabble game media. It was designed using a quasi-experiment with a sample of 81 people. Furthermore, the data collection technique was conducted through pre-test and post-test, as well as analyzed by SPSS 26. The results showed that students' Arabic vocabulary ability is improved by using scrabble game media. This conclusion followed the results of the Mann-Whitney analysis and the N-gain test, where the highest score was in the experimental class after treatment.

## 1. Introduction

Arabic vocabulary is one of the language elements needed to create a good communication skills[1]. Poor vocabulary leads to low language skills[2] and given its importance[3] in learning, this aspect should attract the attention of every educator[4]. In the reality of learning Arabic, reported has been made that students' vocabulary is still low at different levels[5].

To overcome the low Arabic vocabulary ability, efforts have been made to conduct different studies. These include using different learning methods[6],[7], the use of media as considered relevant [8], reformulation of learning resources [9], increased teacher training [10], the use of information technology in learning, as well as various other efforts.

Regarding the student's ability, studies were conducted on scrabble game media in improving the vocabulary skills. This desire is inextricably linked to the use of these games in learning since it helps students to easily learn vocabulary and store different words in their memory[11]. In addition, it is a great educational game to play with kids even though sometimes it can take too long. Most children do not like to participate in playing scrabble because of the long playing time[12]. However, the game as a learning media has been shown to improve learning outcomes[13]. Studies have shown that students tend to focus more on scrabble application contained in tablet than the board game[14]. Therefore, this study aims to determine the learning outcomes improvement for Arabic vocabulary by using scrabble games as a learning media. This can provide information to educators about learning innovations using the right media. Equally important, it may reinforce or refute previous studies related to the use of Scrabble games as a means of learning.

## 2. Material and Methodology



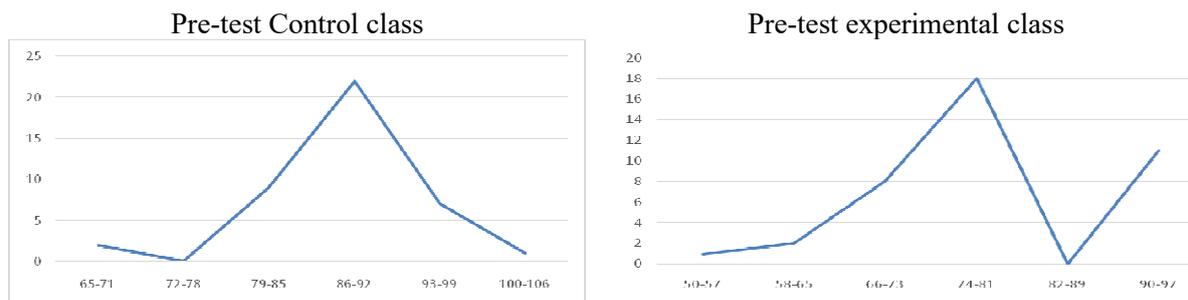
The study material is related to Arabic vocabulary and the scrabble games. The vocabulary used consists of 25, 15 and 10 vocabularies of *isim*, *fi'il* form, and *harf* form respectively. Meanwhile, the material related to scrabble games as a learning medium is used to teach 50 Arabic vocabularies.

This study uses a qualitative approach with a quasi-experiment type and this approach was chosen because the type of data desired and analyzed is in the form of an improvement from a certain to a different state. Statistical calculations can be used to measure the improvement. Furthermore, it was conducted at State Madrasah Tsanawiyah 1 Pasaman and the sample consisted of 81 (eighty-one) including 41 control and 40 experimental classes.

The data were collected by using pre-test and post-test techniques. The pre-test was the Arabic vocabulary ability test before the experiment was conducted in the control and experimental classes. Meanwhile, the post-test was intended to obtain data on the students' ability in Arabic vocabulary after conducting the experiment. The results were then analyzed using SPSS 26 and the use of this tool was intended to facilitate studies in conducting the analysis.

### 3. Results and Discussion

The pre-test results of the students' ability in the control class toward Arabic vocabulary showed the lowest score of 65 while the highest was 100. Meanwhile, the pre-test result in the experimental class for the lowest and highest score of 50 and 97 respectively. This acquisition is known from the participants' answers on 50 item questions that include *isim*, *fi'il*, and *harf*. The intended pre-test results can be described in Figure 1 below:



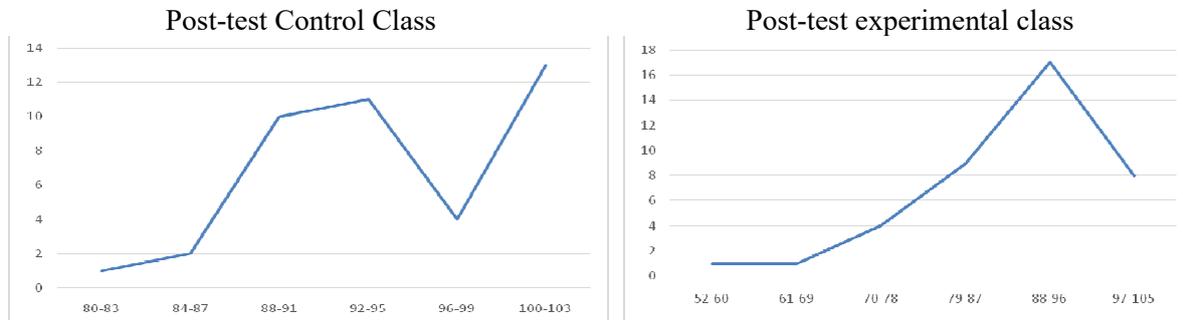
**Figure 1.** The frequency distribution curve of the pre-test scores for the vocabulary abilities on the control and the experimental classes

The Arabic vocabulary which is used as study material and as a scrabble game consists of 50 vocabularies, as shown in Figure 2 below:



**Figure 2.** Scrabble conducted experimentally

A significant improvement occurred in the students' ability in Arabic vocabulary using the scrabble game. This statement followed the results of the post-test with the number of 50 questions been equal to that of the pre-test. Based on the results, the score can be described as in Figure 3 below:



**Figure 3.** The frequency distribution curve of the post-test score for the vocabulary ability of the control and the experimental class

**Table 1.** Kolmogorov-Smirnov Normality Test

		Tests of Normality					
		Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
Class Group		Statistic	df	Sig.	Statistic	Df	Sig.
The score of vocabulary skills	Experiment Class	,253	40	,000	,860	40	,000
	Control Class	,195	41	,000	,889	41	,001

a. Lilliefors Significance Correction

The SPSS output table above showed that the significance score of the control and experimental classes using the Kolmogorov-Smirnov normality test is 0,000. Meanwhile, the results of the Shapiro-Wilk normality test have the significance of the control value of 0.001 and the experimental class value of 0.000. This means that the significance score of the post-test data normality test above is too small. Therefore, the value cannot be seen in the SPSS output image in the significance section above.

**Table 2.** Mann-Whitney Analysis Test Results

Test Statistics <sup>a</sup>	
Arabic Vocabulary Ability	
Mann-Whitney U	602,500
Wilcoxon W	1422,500
Z	-2,086
Asymp. Sig. (2-tailed)	,037

a. Grouping Variable: Class

The basis for decision making is used as a reference in the Mann-Whitney test:

- When the value of Significance or Asymp. Sig. (2-tailed) is smaller than the 0.05 probability then the hypothesis or "Ha is accepted"
- However, when the value of Significance or Asymp. Sig. (2-tailed) is greater than the 0.05 probability then the hypothesis or "Ha is rejected"

Based on the Mann-Whitney analysis data above, a significance point of 0.037 was obtained. When this level is compared with the reference for the Mann-Whitney decision making, it is  $0.037 < 0.05$ . Therefore, it can be concluded that hypothesis a (Ha) or 1 is accepted. In the previous chapter, it was explained that hypothesis 1 was "There is a significant difference in the vocabulary mastery of

students after learning scrabble game media. Therefore, this game influences the students' Arabic vocabulary abilities. To determine the effectiveness, the Normalized Gain test or abbreviated as N-Gain was conducted.

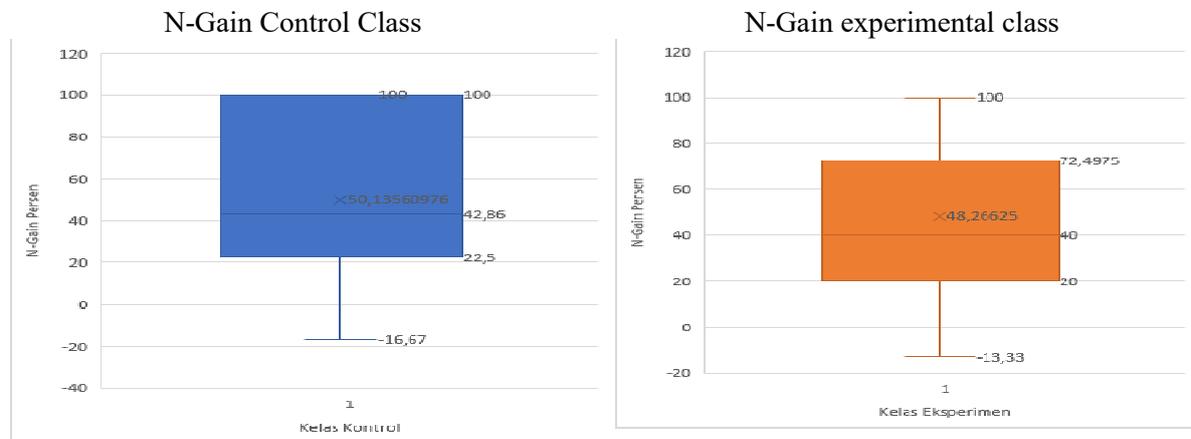


Figure 4. N-Gain Test Results

Based on the above N-Gain calculation table, previously analyzed with SPSS version 26, it can be seen that the value for the experimental class 48.2667 has been placed in the less effective category. Meanwhile, the control class has a score of 50.13889 when compared to the N-gain category table above, and it is included in the less effective group.

After the statistical data obtained from the post-test has been analyzed, the students' learning outcomes towards the mastery of Arabic vocabulary, the results of the hypothesis test using the Mann-Whitney test had a significance value of 0.37, while that of the table was 0.05. When compared to the calculation score with a table score of  $0.37 < 0.05$ , it showed that hypothesis 1 is accepted. Therefore, the scrabble game is effectively used as a medium for learning Arabic vocabulary.

These results are different from Mu'thia's findings which concluded that the use of scrabble game media is very effective in learning[15]. This is possible due to differences in material objects. Mu'thia and Widiyanto's study focuses on writing, but more on the ability to use Arabic vocabulary. These findings are in line with Taylor's conclusion, where one of the biggest problems with learning vocabulary is forgetfulness[16].

The novelty obtained is that students can experiment, discover, and interact with their environment through the scrabble game. This is important in learning because playing games in the classroom develops the ability to cooperate, be competitive, and work to achieve certain goals [17]. When students play the scrabble game, they are asked to arrange words per character and improve their spelling ability skills with their friends and check the correct spelling in the dictionary.

#### 4. Conclusion

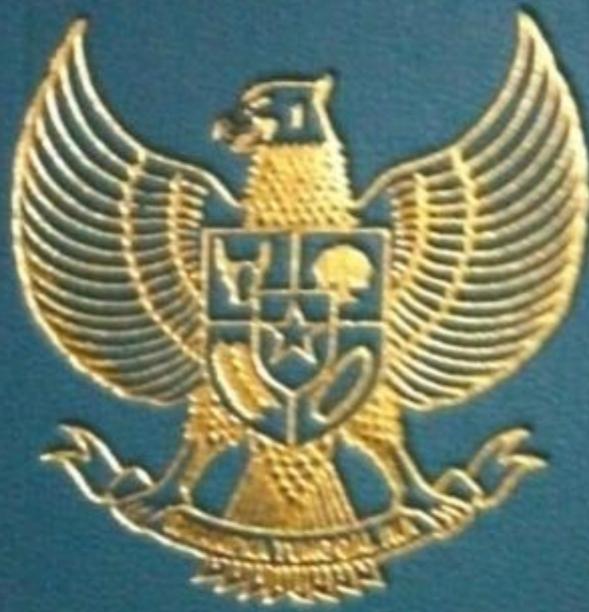
The use of scrabble game media improves students' Arabic vocabulary ability. This conclusion followed the results of the Mann-Whitney analysis test with a significance score of 0.037. Furthermore, the results of the N-gain test in the control class showed that there was a difference in the learning outcomes before and after learning the scrabble game by 51.3889%. Therefore, there was an increase in the ability of 51.3889% from the average score before learning the scrabble game. The lowest N-gain score showed a minus score (-) equal to -16.67% due to a decrease in the value of one student. Meanwhile, the maximum N-gain score was 100. There was an increase in the score of student learning outcomes up to 100% before and after learning the scrabble game.

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