Using Smart Apps Creator (SAC) as an Android-Based Learning Multimedia in Improving the Students' Vocabulary Achievement

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Abstract

The aim of this research was to explain the extent to which the use of SAC as the Android-based learning multimedia is effective in improving the students' vocabulary achievement of the seventh-grade students at SMPN 3 Topoyo. It used a quantitative approach with pre-experimental design taking all the seventh-grade students and 30 students as the sample of this research and employed a vocabulary test as its instrument to collect the data. The results of this research reveal that the students' vocabulary achievement got significant improvements which the students' mean score for the Pre-test was 46.33 and the students' mean score for the Post-test was 81.67. The Post-test mean scores exceeded 70, achieving the learning objectives. From the findings of the research, it can be concluded that the results demonstrated significant improvement in students' vocabulary achievement, with a substantial increase in the number of students achieving high levels of achievement. Therefore, the use of SAC was considerably effective in enhancing students' vocabulary achievement and fostering a positive learning atmosphere.

Keywords: Smart Apps Creator (SAC), vocabulary achievement, android.

1. Introduction

The rapid global changes have significantly impacted education, leading to the integration of technology in teaching and learning. This transformation emphasizes the need for IT-based strategies to innovate educational methods (Novaliendry et al., 2020). Briefly, technology has been an integral part of the current trend in teaching and learning process. Furthermore, the current educators have to keep up with the technology and media in designing their course materials. Initially, education 4.0 incorporates technology to enhance creativity, learning processes, and create an engaging learning environment (Gulicheva et al., 2017; Chairunisa & Kasriyati, 2021).

Using the learning technologies properly will foster the application of the learning process (McCulloch, 2018). This is obvious since upgrading the quality of Indonesian human resources that will, indirectly, affect the development rate itself can be realized by improving the quality of its education in advance, especially the instructional process. Then, the instructional process at schools is supposed to provide the students with the opportunity to explore their own potential to grow (Khasanah & Rusman, 2021). Therefore, the creative and new learning media need to be applied for the effective and efficient learning process. One of the creative and innovative learning media is Android-based learning multimedia.

To address these challenges, SAC as an Android-based learning multimedia has been introduced. SAC offers portability, connectivity, flexibility, affordability, and ease of use, making it suitable for creating interactive educational applications (Hakim, 2018; Prasetyo, 2017). SAC has been effectively used in various subjects, but its application in English Language Teaching (ELT) needs further exploration. Research indicates SAC's success in other disciplines, but its impact on vocabulary learning remains under-investigated. Studies have shown SAC's potential in improving learning outcomes across different subjects. For instance, SAC has been successfully implemented in physical education, math, and Arabic language teaching, demonstrating its versatility (Adhiono & Purnomo, 2021; Romdhoni, Agustina & Ayuningtyas, 2023; Abidin & Arifin, 2021). Despite these successes, there is a lack of comprehensive research on SAC's effectiveness in vocabulary acquisition in ELT, particularly for younger students.

Among all language components, vocabulary is the most important component that should be achieved in advance as it plays a fundamental role in English. It clearly means that without the existence of vocabulary, the language will be

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meaningless. Beside it being an essential language element in learning English, it is outlined in the National Education Regulation (2010) and the K-13 curriculum requiring junior high students to master a huge number of various word types. However, students often struggle with vocabulary, leading to difficulties in understanding, pronouncing, and differentiating word classes, impacting their overall learning process (Septina, 2015; Suprayitno, 2014).

Having considered the effectiveness of SAC in many other contexts/disciplines above, this research is intended to use the SAC in ELT context especially as an alternative solution to overcome the students' vocabulary deficiency and its teaching and learning at junior high school settings. It is based on the result of a preliminary observation conducted at SMPN 3 Topoyo in August 2023 which found the students' inability to understand what the teacher says in delivering the material presentation making them translate the words into their first language as a result. Due to the existing problem encountered, it inspires to explore the effectiveness of SAC in improving the existing problem mentioned above by addressing a research question, that is to what extent is the use of SAC as an Android-based learning multimedia effective in improving the students' vocabulary achievement of the seventh-grade students in SMPN 3 Topoyo?

2. Literature Review

2.1. Definition of Vocabulary

The basis of learning a language is its vocabulary, which is crucial to understand. Some specialists discovered the vocabulary' definitions.

1) Stahl (2005), vocabulary encompasses a person's familiarity with words and their definitions, emphasizing that it involves not only knowing a word's definition but also comprehending its appropriate usage within a given context.

2) Suri (2012) defined vocabulary as a crucial language element to the teaching and learning process because it allows teachers to gauge how much their pupils understand about English. Vocabulary also plays a significant role in language development.

To sum up, vocabulary is the foundation of language learning, encompassing familiarity with words and their definitions, as well as understanding their usage in context which comprises a linguistic asset requiring continuous growth, regardless of language proficiency.

2.2. Types of Vocabulary

Vocabulary is categorized into two types, that is (1) active vocabulary including words that students can use in communication, and (2) passive vocabulary consisting of words they recognize and understand but do not use frequently (Harmer, 1991). Additionally, Schell (1982) categorized vocabulary into three, they are active vocabulary, reserve vocabulary, and passive vocabulary. Active refers to words in everyday spoken language; reserve vocabulary includes words that we are familiar with but seldom employ in speech, though they find regular use in writing; and words within the passive vocabulary are those that are recognizable but may not have a complete understanding of which is mainly based on previous encounters, whether in spoken or written form.

2.3. Aspects of Vocabulary and Word Class

Vocabulary learning encompasses pronunciation, spelling, meaning, synonyms, antonyms, and grammar. Pronunciation involves how words are articulated, while spelling refers to the accurate construction of words. Meaning includes denotation (literal meaning) and connotation (emotional associations). Synonyms are words with similar meanings, and antonyms are words with opposite meanings. Grammar is essential for clear communication, involving verb tenses, articles, adjectives, and question formation (Wehmeler, 2003; and Ur, 1997).

Furthermore, words are categorized into parts of speech such as verbs, adjectives, nouns, and adverbs. Adjectives provide additional information about nouns, nouns identify entities, verbs indicate actions, and adverbs modify verbs, adjectives, and other adverbs. Understanding these categories enhances vocabulary achievement (Hatch and Brown, 1995; Pustet, 2006; Swan, 2005; Jackson, 1982; Quirk et al., 1985).

2.4. Smart Apps Creator (SAC)

Android applications can be made with the aid of SAC without requiring programming as it has the ability to export projects as Windows Apps (.exe) and Hyper Text Markup Language version 5 (HTML5). To make our own applications, we might try using SAC. In line with this point, Amajida (2020) confirmed several benefits to employing a smart apps maker, including the ability to create applications without having to grasp programming languages, the ability to make applications more beautiful, the ability to construct displays that are simple to understand, and the use of less Random-Access Memory (RAM). She further assumed that SAC can develop applications without knowing programming, export html5 projects having a feature that is frequently required in the IT industry to move or simply store a nearly finished project, ease the users to understand its display or how it works, and is low cost. Additionally, SAC's advantages are visually appealing interfaces, efficient application generation, and reduced RAM usage making it a valuable tool in application development. In short, SAC is a user-friendly tool allowing individuals to create Android applications without programming knowledge as it is accessible to those with basic programming knowledge and exports projects as Windows Apps and HTML5.

3. Methodology

This study used a pre-experimental design with a quantitative approach having a pretest to assess students' initial vocabulary knowledge which is followed by giving them a treatment using SAC as a learning multimedia, and ended with a post-test (Gay, Mills, & Airasian, 2012). The Population of this research was the Seventh-grade students at SMPN 3 Topoyo consisting of 30 students selected using total sampling. It has two variables, namely independent variable referring to the use of SAC, a software platform that enables users to create mobile applications without coding, and dependent variable covering vocabulary achievement that focused on active vocabulary consisting nouns, verbs, adjectives, and adverbs. To collect the data, vocabulary tests were distributed for both pre-test and post-test with 40 questions in the form of multiple choice to evaluate vocabulary knowledge before and after the treatment. The data gained was analyzed using SPSS to determine the mean scores, T-tests, and gained scores to see if they met the criteria for achieving learning objectives (KKTP).

4. Findings and Discussions

The result of the vocabulary test revealed that the use of SAC significantly improved the students' vocabulary achievement indicated by the result of the students' means score of pre-test and post, the percentage and score classification of the students' vocabulary achievement, and t-test analysis. The descriptions of these findings can be seen in the following lines.

a. The students' mean scores

The students' mean score in pre-test and post-test were analyzed and resulted in the information as shown in the table 1.

Table 1. Descriptive Statistics of Students' Mean Score

		Pre-test	Post-test
N	Valid	30	30
	Missing	0	0
Mean		46.3333	81.6667
Std. Error of Mean		2.32655	1.36317
Median		41.2500	80.0000
Mode		37.50	75.00[a]
Std. Deviation		12.74304	7.46640
Variance		162.385	55.747
Range		45.00	30.00
Minimum		30.00	70.00
Maximum		75.00	100.00
Sum		1390.00	2450.00

The table 1 reveals the mean score for students' pre-test is 46.33 which is below the 70 thresholds meaning that they do not achieve the criteria for achieving learning objectives (KKTP) and the mean score for their post-test is 81.67

which is above the 70 thresholds figuring out that they achieve the criteria for achieving learning objectives (KKTP) . The improvement of students' vocabulary achievement from pretest to post-test mean scores indicates that SAC significantly enhanced students' vocabulary achievement.

b. The percentage and score classification of the students' vocabulary achievement

The students' vocabulary achievement through the use of SAC can also be seen from the percentage and score classification as in the table 2.

Table 2. The Scoring Classification of the Students' Vocabulary Achievement

No.	Classification	Score	Pre-test		Post-test	
			F	%	F	%
1	Very Good	90 – 100	0	0 %	3	10 %
2	Good	80 – 89	0	0 %	16	53,3 %
3	Fair	70 – 79	3	10 %	11	36,7 %
4	Poor	51 – 69	5	16,7 %	0	0 %
5	Very Poor	0-50	22	73,3 %	0	0 %
	Total		30	100%	30	100%

The table 2 points out that the most students in pre-test placed very poor category in which 22 students (73.3 %) are classified into very poor category, 5 students (16.7 %) got poor category, 3 students (10%) were classified into fair, none of the students got both good and very good category. After the treatment, the scores for post-test significantly improved in which most students in post-test got good category in which 16 students (53.3%) were classified into this category, three students (10%) got very good category, 11 students (36.7%) took fair category, and none student got both poor and very poor category. Based on these findings, it is possible to conclude that the use of SAC can improve the students' vocabulary achievement.

c. The Result of Hypothesis Testing

To measure the significance between the score of pre-test and post-test, both these data should pass the test of normality using SPSS. The result of this test found that the null hypothesis indicates that the data is normally distributed if the p-value ≥ 0.05 and the alternative hypothesis is that the data is not normally distributed if the p-value of Sig. < 0.05 showing in the table 3.

The table 3 shows that the p-value for pre-test was 0.007 and for post-test was 0.062. For pre-test, it has p-value of Sig.< 0.05 and for post-test, it has p-value of Sig.> 0.05. It can be concluded that the data for pre-test was not normally distributed and the data for post-test was normally distributed. Then the alternative hypothesis for post-test data can be rejected and it can be concluded that the data came from a normal distribution. To indicate the significance between posttest and pretest, a paired-sample test was used. The result is shown on Table 4.

Table 3. The Kolmogorov-Smirnov Test

One-Sample Kolmogorov-Smirnov Test

		Pre-test	Post-test
N		30	30
Normal Parameters[a,b]	Mean	46.3333	81.6667
	Std. Deviation	12.74304	7.46640
Most Extreme Differences	Absolute	.190	.156
	Positive	.190	.156
	Negative	-.106	-.119
Test Statistic		.190	.156
Asymp. Sig. (2-tailed)		.007[c]	.062[c]

Since this p-value is 0.000 or less than our significance level $\alpha = 0.05$, the null hypothesis can be rejected. There is sufficient evidence to suggest that using SAC can affect the improvement of the students' vocabulary achievement. The Result of calculating the T-test by SPSS is 12.649. Compared with the T-table score for df = 29 and significance level $\alpha = 0.05$ is 1.699. Since the score of the T-test is greater than the score at t table, we reject the null hypothesis. It concludes that using SAC can affect the improvement of the students' vocabulary mastery.

Table 4. The Paired-Sample Test

		Paired Differences					T	Df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Pre-test Post-test	-35.33333	6.58935	1.20305	-37.79384	-32.87283	-29.370	29	.000

In pre-test, most students initially had very poor vocabulary achievement, not meeting the criteria for achieving learning objectives (KKTP) at SMPN 3 Topoyo. It may come on the surface due to the media used by teachers prior to the study which were not probably effective in improving their vocabulary achievement. That is the reason why SAC is proposed to be utilized in facilitating the students to learn vocabulary in four meetings of treatment. During the treatments, the explanation of vocabularies, provision of vocabulary lists, and interactive games/quizzes focusing on a different word class: verbs, adjectives, nouns, and adverbs were presented to the students.

In the first meeting, the focus of treatment was on verbs leading the students to understand their meaning, classify them into their forms, and use them in grammatical and contextual sentence constructions. The verbs provided were wash, drink, walk, sleep, have breakfast, drink coffee, read the news, etc. In the second meeting the students drew their attention to adjectives getting them to understand, classify, and find their antonyms the words provided, and used them contextually in sentence buildings. The adjectives given were smart, happy, rich, beautiful, tall, slim, diligent, etc. In the third meeting, nouns were the main focus of learning vocabulary to make the students understand their meanings and identify nouns in contextual use coming along with the familiar and concrete ones. The nouns presented were fish, tooth, apple, woman, mouse, orange, box, university, etc. Additionally, the students in this meeting were able to understand the meaning of the words properly and identify the nouns found in some paragraphs provided as a result. In the last meeting, the students focused on adverbs bridging them to understand their meanings and identify their usage in a proper context. The adverbs taught were yesterday, tomorrow, now, today, daily, weekly, monthly, early, here, there, everywhere, somewhere, happily, quietly, fast, hard, well.

Furthermore, the learning objectives oriented for those four meetings of treatment through the use of SAC were to lead the students to understand the meanings of those content words, identify, and apply them in some grammatical sentence construction with the appropriate and proper context. However, the students found a shortcoming in applying them in good sentences. They did not seem to gain a deep understanding of the word usage grammatically and contextually. They, for instance, got confused when to put adverbs either before or after the verbs modified. In addition, they also found problems in using adverbs of manners without 'ly' as the suffix, such as "well, fast, and hard".

Having considered the treatments given, the post-test was conducted to find a significant improvement of the students' vocabulary achievement. The statistical analysis showed that most students successfully reached good category scores, contrasting with the results of the pre-test in which most students got a very poor category. These findings simply reveal the level of effectiveness of SAC use in improving the students' vocabulary achievement. In line with this finding, it empirically proved the findings of Puspitasari, et. al research (2022) that SAC media is really effective to be implemented in the class since it is fun, understandable, interesting, practical, and not boring for the students. Similarly, SAC is also considered by Muzakkir, Pomalato & Katili (2022) as a valid, practical, and effective tool to be applied for the learning process in Math class in Public Senior High School majoring in IPA (science) in Gorontalo Province.

Based on the descriptions, it is considerable and unavoidable to use the digital-based learning multimedia that have been widely used in the education sector due to their corresponding benefits, that is facilitating and motivating the students' learning process. Therefore, it is recommended for other English teachers to use the SAC learning multimedia to help students acquire new vocabularies in the classroom and feel excited and enjoyable in learning any other related materials presented in SAC that can be opened anywhere and anytime and both in online and offline mode.

5. Conclusion

The use of SAC as Android-based learning multimedia in the classroom effectively improved the students' vocabulary achievement in SMPN 3 Topoyo, Mamuju Tengah indicated by the significant different mean score of both the students' pre and post-test, the p-value of sig. which was higher than 0.05 meaning that the data is normally distributed and revealing the score of T-test which is higher than the score of T-table meaning that the null hypothesis can be rejected.

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