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THE EFFECT OF KAHOOT IN ENHANCING VOCABULARY ACHIEVEMENT AT CAMBRIDGE BASED CURRICULUM

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ABSTRACT

This study investigated the effectiveness of Kahoot! based game learning in enhancing vocabulary achievement among third-grade students in a Cambridge-based bilingual school in Sidoarjo, addressing a gap in research on digital game-based learning within this specific educational context. Employing a quasi-experimental pretest-posttest design, the research compared an experimental group using Kahoot! with a control group receiving traditional vocabulary instruction. Vocabulary data, focused on descriptive texts, were collected through tests, and statistical analysis, including ANOVA, try-out validation, and independent t-tests, was conducted using SPSS. The findings revealed a statistically significant improvement in vocabulary achievement for the Kahoot! group ($p = 0.025$), suggesting that the engaging and interactive nature of digital game-based learning more effectively fosters vocabulary mastery compared to traditional methods. These results also support Kahoot!'s utility as a practical tool for formative assessment, particularly within the Cambridge curriculum framework, and offer valuable insights for educators seeking innovative and engaging vocabulary teaching strategies in bilingual learning environments.

Keywords: Kahoot, Vocabulary achievement, quasi-experimental design, pretest, posttest, Cambridge curriculum, game-based learning, student engagement

INTRODUCTION

The integration of digital technology in teaching challenges educators to adapt and innovate. The educational process changes rapidly, with digital technologies transforming how learning happens and improving the quality of education. In the past, teachers use books or physical teaching materials, but now, various digital learning platforms are accessible anytime and anywhere. Huang (2019) states that digital technology plays an important role in helping learners stay updated with technological advancements. It also motivates students and helps them develop learning and innovation skills. Additionally, digital technology allows educators to access information quickly, improve their teaching methods, and create learning materials more easily. Therefore, educational institutions continuously innovate in curriculum design and teaching models to keep up with technological advancements.

Game-based learning is an effective way to make lessons more engaging and interactive. Kahoot! is a popular educational game that provides various features for instructional development. One important feature is its quiz function, which allows teachers to create quizzes that make learning fun. Studies (Barzilai & Balu, 2014; Alaswad & Nadolny, 2015; Wang et al., 2016) show that students who participate in digital game-based learning have a stronger desire to continue their education compared to those who use traditional methods. Additionally, game-based learning with computers and mobile devices is practical, especially since most students today own smartphones. While school computers can support game-based learning, they are often used individually, which may limit social interaction (Rofiyarti & Sari, 2017). Platforms like Kahoot! solve this issue by encouraging collaborative and competitive learning experiences.

Kahoot! includes interactive features that increase student enthusiasm, such as friendly competition with classmates. A study at the Faculty of Medicine at the University of Science

Malaysia (Ismail & Mohammad, 2017) finds that Kahoot's visual elements help students stay focused and motivated. Additionally, the game's music feature provides an engaging learning experience that supports vocabulary achievement. The study also shows that students see Kahoot! as a useful tool for formative assessment because it gives instant feedback on their learning progress. The platform's simple interface allows students to access it easily on their smartphones, making it a flexible and convenient tool for digital education.

Although many studies explore game-based learning, few focus still minor on Kahoot's direct impact on vocabulary achievement in a Cambridge-based curriculum. Most research examines engagement, motivation, and formative assessment rather than vocabulary achievement, especially in bilingual education settings. Additionally, studies that focus on vocabulary achievement often explore general language learning rather than specific curriculum frameworks like the Cambridge curriculum, which has unique assessment standards and learning objectives. There is also limited research on how Kahoot! influences vocabulary retention and application in bilingual learning environments, where students may face additional challenges in mastering English vocabulary. This study fills that gap by analysing how Kahoot! affects vocabulary achievement in an international Cambridge bilingual school in Sidoarjo. Using a quasi-experimental post-test only design, the study compares two groups: one using Kahoot! for vocabulary learning and another using traditional methods. The post-test results show whether Kahoot! improves vocabulary achievement. Additionally, the study explores students' perceptions of Kahoot! as a vocabulary learning tool. The findings add to research on digital learning tools in language education and provide practical insights for teachers looking for innovative ways to improve vocabulary achievement, especially in Cambridge bilingual schools.

METHOD

This study employed a quasi-experimental design with a pre-test and post-test control group to investigate the effectiveness of *Kahoot!* in improving students' vocabulary achievement. The participants were third-grade students at MIMNU Pucang Sidoarjo, selected through cluster random sampling. Two intact classes were randomly assigned as the experimental group and the control group. The experimental group received vocabulary instruction using *Kahoot!*, while the control group was taught through conventional methods. A vocabulary test consisting of 30 multiple-choice questions was developed and tried out in a separate class. Based on the results of the try-out analyzed using SPSS, 20 valid and reliable items (r = 0.689) were selected for the post-test. Prior to the treatment, a homogeneity test using ANOVA was conducted based on students' previous vocabulary scores to ensure both groups had similar ability levels. The treatment was conducted over several sessions in a natural classroom setting. After the intervention, both groups took the same post-test. Data were analyzed using an independent samples t-test to compare post-test scores between groups. Levene's test confirmed equal variances (p = 0.788), and the t-test showed a significant difference (p = 0.025) with a higher mean score in the experimental group. Effect size was also calculated to measure the magnitude of the treatment effect.

RESULTS AND DISCUSSION

Results

Homogeneity test

Based on the ANOVA test results, the variance between class 3ICP1 and 3ICP2 was found to be homogeneous, with an F-value of 1.489 and a significance level (p-value) of 0.227. Since the p-value is greater than 0.05, it indicates that there is no statistically significant

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difference in the variances between the two groups. Therefore, both classes can be assumed to have similar variance in vocabulary achievement scores.

Tabel 1. Test of Homogenety

Oneway

[DataSet0]

Test of Homogeneity of Variances

		Levene Statistic	df1	df2	Sig.
HasilDailyTest	Based on Mean	3.187	1	63	.079
	Based on Median	3.172	1	63	.080
	Based on Median and with adjusted df	3.172	1	60.972	.080
	Based on trimmed mean	2.916	1	63	.093

ANOVA

HasilDailyTest

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	47.676	1	47.676	1.489	.227
Within Groups	2016.878	63	32.014		
Total	2064.554	64			

Try out Test

Before the post-test was administered, a try-out was conducted on a separate class that did not belong to either the control or experimental group. A total of 30 multiple-choice questions were prepared. From the try-out analysis using SPSS, 20 questions were selected based on validity and reliability criteria. These items were: 5, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 18, 19, 21, 22, 23, 24, 25, 27, and 30. The reliability coefficient was 0.689, which indicates a fair level of reliability. The selected items were used in the post-test for both groups.

Table 2. Reliability Statistics (Split-Half Method)

Cronbach's Alpha	Part 1	Value	.787
		N of Items	10[a]
	Part 2	Value	.726
		N of Items	10[b]
	Total N of Items		20
Correlation Between Forms			.689
Spearman-Brown Coefficient	Equal Length		.816
	Unequal Length		.816
Guttman Split-Half Coefficient			.812

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Post Test

The Levene's Test for Equality of Variances produced a significance value of 0.788, which is greater than 0.05, indicating that equal variances can be assumed. The independent samples t-test revealed a statistically significant difference between the experimental and control groups with a Sig. (2-tailed) value of 0.025 (< 0.05). The experimental group had a higher mean score (M = 83.75, SD = 16.185) compared to the control group (M = 74.58, SD = 17.622), with a mean difference of 9.167 points. The 95% confidence interval for the difference was between -17.120 and -1.213.

Table 3. Post-Test Independent Samples T-Test Summary

Group Statistics

	Class	N	Mean	Std. Deviation	Std. Error Mean
Post Test Score	Control	34	74.58	17.622	2.937
	Experimental	34	83.75	16.185	2.698

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Post Test	Equal variances assumed	.073	.788	-2.299	70	.025	-9.167	3.988	-17.120	-1.213
	Equal variances not assumed			-2.299	69.500	.025	-9.167	3.988	-17.121	-1.212

Discussion

The results of the homogeneity test confirmed that the two classes used in this study were comparable in terms of variance in vocabulary scores prior to the treatment. This indicates that any difference observed in the post-test scores is unlikely due to pre-existing group differences and can be attributed to the instructional intervention. The try-out test ensured that the post-test items met psychometric criteria. The reliability score of 0.689, while categorized as fair, was deemed acceptable for classroom-level assessments. This supports the internal consistency of the instrument used to measure vocabulary achievement, which is essential for drawing valid conclusions from the post-test data (Nation, 2001).

The post-test findings revealed a statistically significant improvement in vocabulary mastery among students taught using Kahoot! based learning compared to those taught using traditional memorization techniques. The mean difference of 9.167 points in favor of the experimental group indicates a meaningful educational impact. The significance level ($p = 0.025$) supports the conclusion that this effect is not due to random variation. These findings align with previous research demonstrating the positive impact of game-based learning on student motivation, engagement, and achievement. According to Wang and Tahir (2020), Kahoot! enhances learning outcomes by fostering active participation and immediate feedback. Similarly, Ismail and Mohammad (2017) found that Kahoot! serves as an effective formative assessment tool that promotes deeper understanding and retention of learning material.

The results also support the broader literature on digital game-based learning, which highlights how technology can be effectively integrated to enhance instructional effectiveness (Prensky, 2001; Alaswad & Nadolny, 2015). Game-based platforms like Kahoot! are not only engaging but also pedagogically sound, as they incorporate elements of competition, repetition, and instant feedback that align with principles of effective learning design (Barzilai & Blau, 2014; Plump & LaRosa, 2017). Moreover, the use of Kahoot! aligns with constructivist learning theory, which emphasizes active and student-centered learning experiences. Research by Hung (2017) and Irwansyah & Izzati (2021) indicates that the interactive nature of such tools helps learners construct knowledge more effectively, especially when compared to passive learning methods such as rote memorization.

In language learning contexts, gamified approaches have shown particular promise. Smith and Johnson (2022) in their meta-analysis found that game-based learning significantly improves language acquisition, including vocabulary development. Kahoot! by offering real-time engagement and contextualized learning experiences, provides an ideal platform for vocabulary instruction (Zarzycka-Piskorz, 2016; Wang, Zhu, & Sætre, 2016). In conclusion, the hypothesis verification process supports the rejection of the null hypothesis (H_0), which stated that Kahoot! based learning has no significant effect on vocabulary mastery. The acceptance of the alternative hypothesis (H_1) confirms that Kahoot! based instruction leads to improved vocabulary achievement. This finding reinforces the growing body of evidence supporting the integration of gamified, digital tools in modern educational practice (Huang, 2019; Stockwell, 2013; Garton & Graves, 2014).

CONCLUSION

In conclusion, the findings of this study demonstrate that the use of Kahoot! as a learning tool significantly enhances students' vocabulary achievement compared to traditional teaching methods. The homogeneity test confirmed that the two groups were comparable at the outset, while the try-out test ensured the validity and reliability of the post-test items. The results of the independent t-test showed a statistically significant improvement in the experimental group's post-test scores, indicating that the integration of Kahoot! into vocabulary instruction positively impacted student learning outcomes. Therefore, it can be concluded that implementing interactive technology such as Kahoot! is an effective strategy to improve vocabulary mastery among third-grade students in a bilingual school context.

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