

Developing game-based learning and English learning achievement of grade 1 students

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Article Info	ABSTRACT
Article history: Received February 4, 2024 Revised March 14, 2024 Accepted April 24, 2024	The first objective aims to develop English learning activities using game-based learning for enhancing the vocabulary retention of grade 1 students, to be effective according to the 70/70 criterion. The second objective aims to compare the learning achievement before and after. The participants of this research consisted of 32 grade 1 students in Semester 2, Academic Year 2023. The research tools were divided into two categories, including 3 learning management plans, a vocabulary memorization ability test in flashcard format with 20 items, and a learning achievement test, which was 20 items of multiple choices. The statistics used in data analysis were percentage, mean, standard deviation, and dependent t-test. The results of the research found that the game-based learning plan for grade 1 students had an efficiency of 86.41/79.38, which is higher than the set criteria of 70/70. They had higher academic achievement after learning management than before learning at a statistical significance of .05. English learning and other fields of study can benefit from the implementation and more research in various group of the study.
Keywords: Academic achievement English language Game-based learning	
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1. INTRODUCTION

English is a language of great importance and necessity in everyday life; it serves as an international language for communication among many countries worldwide. Technology and science have undergone significant development and transformation (Janpleng & Ruangmontri,

2021). This allows various information to spread quickly in the educational development. Whether it is economic, social, political, or cultural, each aspect has an impact. Interconnectedness forms a network and influences each other; the Ministry of Education has therefore established a policy to reform the teaching of English at the basic education level. Every sector of educational development is aware of the need to urgently reform.

International English language proficiency, including the Common European Framework of Reference for Languages (CEFR), is the main framework for teaching and learning. Specifically, the CEFR, is an internationally recognized framework that encompasses all four language skills (listening, speaking, reading, and writing) and enjoys widespread acceptance. The acceptance of English is extensive in Europe and is growing globally including Thai education (Baker & Jarunthawatchai, 2017; Piamsai, 2023).

A problem that students regularly encounter when learning English is that they cannot memorize the vocabulary for a long time. When teaching vocabulary to new English students, they often forget the English vocabulary they have learned before. Teaching to be inconsistent, affecting learning in other content areas, and causing student academic achievement to be low, vocabulary memory scores and academic achievement has decreased in average scores. It is the emphasis on English language learning and testing. Memorizing words with their meanings, but when such words are found in messages that are heard or read, they are not able to tell the meaning of the message or sentence heard or read correctly (Stevani et al., 2022). The vocabulary may contain a meaning that is different in other situations or contexts (Kulachit & Nuangchalerm, 2021; Mustaeva et al., 2022).

Therefore, teachers should organize activities to learn in various and appropriate ways. The teaching method has been changed from memorization to management. Learner-centered learning aims to efficiently develop students to their maximum potential. Game-based learning management is a process that teachers use to help students learn by having the game. The game is relevant to the rules and using the content and information of the game, playing behavior, playing methods, and the results of the learner's play in discussions to summarize learning (Adipat et al., 2021; Karakoç et al., 2022; Lane, 2022; Sriyota, 2024). It helps students learn by seeing clearly for themselves, learned various things in a fun way and challenged their abilities.

Bringing games and applying them to study is considered a good motivator. It helps students' learning about things. The teacher gives a presentation to create an atmosphere for learning, where interactions between teachers and students occur and between the students themselves very well, game-based learning consists of 4 steps: Step 1: teacher presents the lesson, explain how to play and the rules for playing. Step 2: students play games according to the rules. Step 3: teachers and students discuss playing results and the author's playing methods or behavior, and Step 4: teacher evaluates the students' learning. The researchers interested in developing learning activities for the ability to memorize vocabulary through game-based learning. It can be able to bring knowledge and skills to apply in continuing life.

2. METHOD

The participants in this research consisted of students in grade 1, semester 2, the academic year 2023, Chomchonnathomkhokkong School, totaling 32 people by random group sampling. Game-based learning plan for foreign learning subject groups was used for learning

management. A test for memorizing English vocabulary for grade 1, which is 20 items of flashcards. The academic achievement test for grade 1 students is a multiple-choice type with 3 options, used as a pre-test and post-test, with 20 questions were used for collecting data.

The experiment was conducted using a single-group design with pre-test and post-test measures. The data collection period is the second semester of the 2023 academic year. Experimental method can be started by conducting pre-test before class to measure academic achievement. Then, organizing students learn through lesson plan until all 3 plans are completed. Learning management allowed students complete worksheets and tests for each plan. After the experiment, students had a post-test with 20 questions in English to measure students' ability to remember English vocabulary which is the same set used for pre-testing,

Data were analyzed the effectiveness of learning management that promotes English vocabulary according to the specified criteria of 70/70 using the formula for calculating efficiency. Comparative analysis of the ability to remember English vocabulary by administering for game-based learning with a 70 percent threshold through dependent t-test.

3. RESULT AND DISCUSSION

Development of learning management for English subjects using the game-based learning for grade 1 student has efficiency according to the criteria of 70/70. The results are shown in Table 1.

Table 1 Efficiency of game-based learning

Efficiency	n	Full score	$\bar{x}$	SD	Percentage
Process of efficiency (E_1)	32	120	103.69	0.86	86.41
Product of efficiency (E_2)	32	20	15.88	2.02	79.38
E_1/E_2 was 86.41/79.38					

From Table 1, it found that the efficiency of learning management promotes English vocabulary ability of grade 1 students had the efficiency 86.41/79.38, which was higher than the set 70/70 threshold. The data presented in Table 1 provides valuable insights into the effectiveness of game-based learning in terms of both the process and the product of efficiency. We can explore how well game-based learning enhances both the ongoing learning process and the final outcomes. The process of efficiency, with a full score of 120 has a higher percentage efficiency score of 86.41%. This indicates that the learning process itself is highly effective in this context. Game-based learning appears to engage students well during the learning journey, suggesting that interactive and dynamic game elements facilitate higher engagement, sustained focus, and perhaps increased motivation. The relatively high efficiency percentage also indicates that students can efficiently engage with the learning material, assimilating and processing information as they participate in the game.

On the other hand, the product of efficiency shows a lower efficiency score of 79.38%, while this is still a fairly high percentage. Product efficiency is concerned with the final outcomes or results of the learning process, which could include the retention of knowledge,

performance on assessments, or completion of specific tasks in the game. The slightly lower efficiency in E₂ may suggest that while the learning process is effective. The final results or actual learning outcomes could be influenced by other factors, such as the complexity of the content, the design of the game, or the depth of learning required. It's possible that the learning tasks or tests built into the game might not fully show how much the students understand or how well they can think critically (Wang et al., 2022). This is because some students might find it harder to turn their success in the game into measurable results (Meccawy et al., 2023).

Students had higher academic achievement after learning management than before learning at a statistical significance of .05. Comparison of achievement before and after learning by organizing game-based learning for grade 1 students is shown in Table 2.

Table 2 Academic achievement of grade 1 students before and after organizing game-based learning

Testing	n	Full score	Percentage	$\bar{x}$	SD	df	t	p
Pre-test	32	20	31.41	6.28	2.05	31	45.22	.000
Post-test	32	20	79.69	15.94	1.74			

From Table 2, it found that grade 1 students have academic achievement after the management. Game-based learning can gain their score by after is higher than those before studying with statistical significance at the .05 level. It may be game-based learning allows students to develop listening, speaking, reading, and writing skills. They can check their answers, ask questions from friends to create durability in remembering.

This is due to learning management using the game-based learning help students learn through enjoyment. Students can write in what they have learned. It focuses on allowing students to learn various topics in a fun way and challenge their abilities. The students are the players themselves. It is a method that allows students to participate in the game and learning enjoyment. It also emphasizes necessary learning skills. Students can move, enjoy and relax with mutually agreed-upon rules and regulations (Lemarchand, 2021; Rouse, 2024). They also have a competition that will be played in groups or individually. Game-based learning appears to be highly effective in engaging students and facilitating the learning process (Robberts & Van Ryneveld, 2022).

4. CONCLUSION

Students showed their learning achievement in the positive development. They enjoy to learn with others through employment necessary learning skills. In addition, the findings suggest that game-based learning can benefit to students in English with potential for further research. Teacher can design their class and game-based learning environment through suitable classroom and school contexts.

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