

A Study on the Effects of Game-Based Learning in Learning and Reviewing English Grammar and Student Satisfaction

Sutheerawan Suwannatrai, Surawiwat School Suranaree University of Technology, Thailand
Suricha Thanwisai, Surawiwat School Suranaree University of Technology, Thailand

The Asian Conference on Arts & Humanities 2026
Official Conference Proceedings

Abstract

This classroom research aimed to: (1) compare English grammar achievement before and after instruction using game-based learning, (2) compare English grammar achievement between male and female students after game-based learning, and (3) examine students' satisfaction with game-based learning activities. The sample comprised 63 Grade 11 students at Surawiwat School, Suranaree University of Technology, Thailand, selected through cluster sampling. The study employed a one-group pretest-posttest design. Data were analyzed using paired-samples t-tests for pre-/post comparisons, independent-samples t-tests for male-female comparisons, and descriptive statistics for satisfaction. Results showed that post-test scores were significantly higher than pre-test scores at the .05 level ($t(62) = 8.512, p = .000$). Male students scored significantly lower than female students in some lessons at the .05 level. Overall student satisfaction with the approach was high ($M = 3.93, SD = 0.68$). The findings indicate that game-based learning can improve English grammar achievement while increasing enjoyment and reducing boredom in grammar review.

Keywords: game-based learning, English grammar, student satisfaction, secondary education

iafor

The International Academic Forum
www.iafor.org

Introduction

English is an essential skill in the contemporary world because it plays an important role in education, employment, and participation in a globally interconnected society. Although English has long been introduced in Thai education from early levels onward, English language teaching in Thailand still faces persistent challenges, particularly in the development of learners' language skills. In the researcher's experience as a classroom teacher, one important difficulty is that students often struggle to develop listening and speaking skills because of shyness, low confidence, limited motivation to participate in classroom activities, and incomplete understanding of English grammar, which differs substantially in structure from Thai.

Grammar remains a fundamental basis for using language accurately and appropriately in different contexts. Students need sufficient grammatical understanding in order to strengthen other language skills such as writing, reading, and communication. However, grammar instruction is often delivered through traditional explanation and memorization. Such approaches may not adequately stimulate students' interest or sustain their motivation. Many students do not review lessons independently, rarely seek additional knowledge on their own, and depend heavily on repeated teacher guidance or peer support.

For this reason, the researcher saw the need to improve instructional practice and create a learning atmosphere that better supports student motivation. The researcher therefore became interested in game-based learning as an instructional approach. Game-based learning can create enjoyment, promote participation, reduce learning tension, and provide opportunities for students to practice language while engaging in structured activities. Because students generally respond positively to age-appropriate and entertaining forms of learning, game-based learning appeared to be a promising way to support grammar review in the English classroom.

This study was conducted in a Grade 11 integrated English course and focused on three objectives. First, it examined whether students' English grammar achievement improved after game-based learning activities. Second, it compared post-test grammar achievement between male and female students after the activities. Third, it investigated students' satisfaction with game-based learning. The study sought not only to measure learning outcomes, but also to generate classroom-based evidence that could be used to refine future instructional design.

Literature Review

Game-based learning refers to an instructional approach in which learning activities are deliberately designed around games to support specific learning objectives. In practice, it is closely related to gamification because both rely on challenge, participation, feedback, and motivation to promote learner engagement. In English language teaching, game-based learning is valuable not merely because it is enjoyable, but because it can make repeated practice more meaningful and lower students' anxiety while they work with target language forms.

Thai and international scholarship has consistently suggested that game-supported learning can enhance participation and achievement. Sinthuprasit (2021) explained that gamification is important in education because it can increase learners' motivation and commitment to classroom tasks. Khamjatphai et al. (2024) argued that game-based instructional techniques can make classroom learning more attractive and can support stronger achievement outcomes. In language education, Yuditseva (2015) noted that game-enhanced second-language learning

can create repeated exposure, interaction, and a safer space for trial and error, all of which support more active learning.

Research in Thai educational settings also provides empirical support for the use of games in English instruction. Limmanee (2020), for example, found that English speaking skills improved after students learned through games and that students showed strong interest in the approach. Bamrung and Phusirit (2023) reported that game-based learning improved English-speaking skills among Grade 3 students and produced achievement levels above the expected criterion. Singlor (2022) similarly found that using vocabulary games helped students improve English vocabulary learning, with post-test scores higher than pre-test scores.

These studies suggest that game-based learning can support learning alongside enjoyment, reduce boredom, encourage practice, and help students develop concepts without feeling overwhelmed by formal instruction. Even so, the effectiveness of the approach depends on the appropriate instructional design. Games need to match the lesson objective, the linguistic difficulty of the target content, and the needs of learners. They should not be added solely for entertainment; rather, they should be clearly connected to what students are expected to understand and use.

Hongkhunthod (2023) proposed five major steps in game-based instructional design: defining learning objectives, selecting appropriate games, designing activities around those games, providing guidance and support during participation, and reviewing and improving the process after implementation. Moolthaisong (2020) further explained that games used for instruction may aim to create enjoyment, promote cooperation, support physical, emotional, and cognitive development, reduce classroom tension, and help teaching achieve course objectives. Taken together, these perspectives indicate that game-based learning requires both pedagogical understanding and careful selection of game forms.

In the present study, the researcher drew on these ideas to develop grammar review activities that were aligned with the objectives of the integrated English course. The expectation was that students would gain stronger grammatical understanding, be more willing to engage in review, and respond positively to classroom activities that were relevant to their learning level and interests.

Methodology

Research Design

This classroom research employed a one-group pretest-posttest design. The study examined the effects of game-based learning on English grammar achievement, compared post-test achievement between male and female students, and explored student satisfaction with the instructional approach.

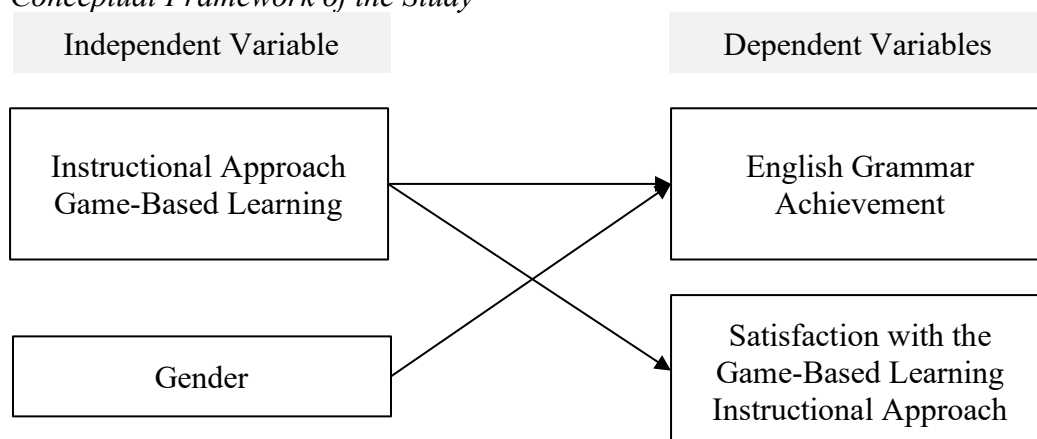
Research Hypotheses

The study was guided by two hypotheses. First, students who learned through game-based learning would show higher English grammar achievement after the intervention than before it. Second, male and female students would differ in post-test English grammar achievement after the game-based learning activities.

Conceptual Framework

Figure 1

Conceptual Framework of the Study



Note. Gender was treated as a comparison variable in relation to grammar achievement and satisfaction outcomes.

Participants

The population comprised 148 Grade 11 students at Surawiwat School, Suranaree University of Technology, Thailand. The sample was selected through cluster sampling, using classrooms as the sampling unit. Three of the five Grade 11 classrooms taught by the researcher in EN 32102 Integrated English were selected, producing a sample of 63 students.

Table 1

Participant Distribution by Classroom and Gender

Classroom	Male		Female		Total	
	n	%	n	%	n	%
M.5/1	13	59.09	9	40.91	22	34.92
M.5/2	9	45.00	11	55.00	20	31.75
M.5/3	8	38.10	13	61.90	21	33.33
Total	30	47.62	33	52.38	63	100.00

Note. n = 63.

Instruments

Two research instruments were used. The first was a set of grammar achievement tests covering three lessons: Relative Clauses, Future Perfect and Future Continuous, and Future in the Past. These topics were selected from the EN 32102 Integrated English course structure in the revised upper-secondary curriculum of Surawiwat School, Suranaree University of Technology. The pre-tests and post-tests were prepared from exercises and test items adapted from the Think! Level 5 (C1) series published by Cambridge University Press. The materials are aligned with the Common European Framework of Reference for Languages (CEFR), an internationally recognized framework for language proficiency.

The second instrument was a 17-item student satisfaction questionnaire concerning game-based learning activities. Responses were recorded on a 5-point Likert scale from lower to higher levels of satisfaction. Following Boonchom Srisa-ard (2013), mean scores were interpreted as follows: 4.51–5.00 = very high, 3.51–4.50 = high, 2.51–3.50 = moderate, 1.51–2.50 = low, and 1.00–1.50 = very low.

Data Collection Procedure

Before the experiment began, the researcher explained the purposes of the study and the sequence of data collection to the students. Students then completed an initial questionnaire to provide baseline information about their attitudes and expectations regarding game-based learning.

For each grammar lesson, students first completed a pre-test in order to record their initial level of understanding. The researcher then taught the target lesson and conducted a review activity designed according to the principles of game-based learning. During each activity, the researcher explained the rules of the game, observed student behavior, and recorded the results of participation. Extra points were used as a motivational element within the game structure.

After each game-based review activity, students completed a post-test for the same grammar topic. At the end of the intervention sequence, they completed the satisfaction questionnaire. The researcher then analyzed the collected data in order to determine whether game-based learning improved achievement and whether students responded positively to the instructional approach.

Data Analysis

Quantitative data analysis was conducted in three ways. First, English grammar achievement before and after the intervention was compared by using paired-samples t-tests. Second, male and female students' post-test achievement was compared by using independent-samples t-tests. Third, student satisfaction was analyzed by using descriptive statistics, specifically mean scores and standard deviations.

Results and Discussion

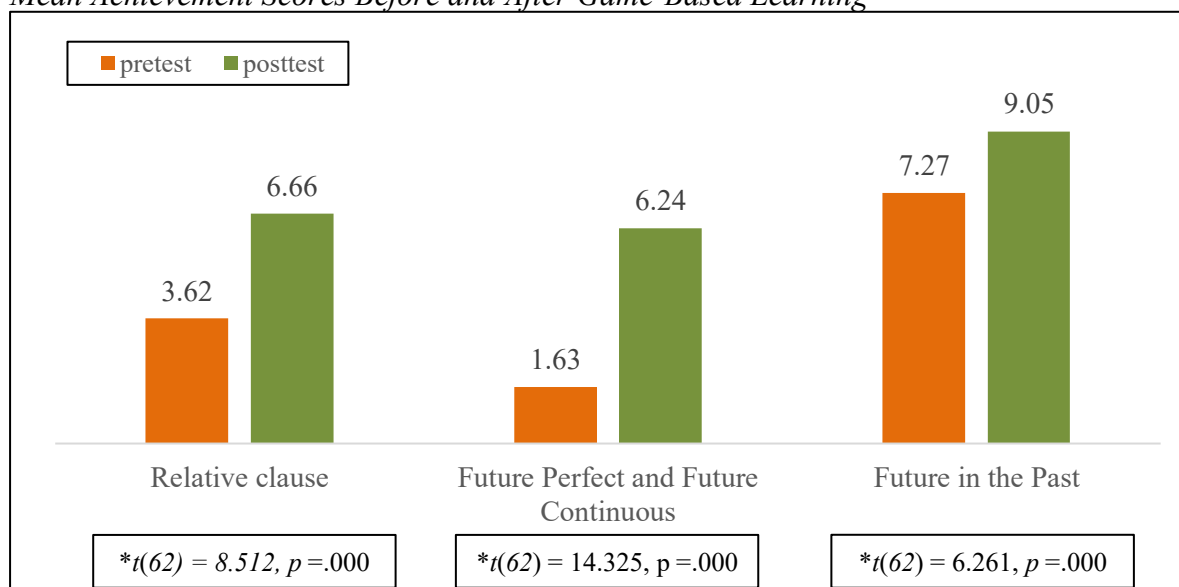
Learning Achievement Before and After Game-Based Learning

Students' mean grammar scores increased across all three lessons following the game-based review activities, with statistically significant gains observed in each case. Specifically, for Relative Clauses, the mean score improved from 3.62 (pre-test) to 6.66 (post-test), $t(62) = 8.512$, $p = .000$. In the Future Perfect and Future Continuous lesson, the mean increased from 1.63 to 6.24, $t(62) = 14.325$, $p = .000$. Similarly, for Future in the Past, the mean rose from 7.27 to 9.05, $t(62) = 6.261$, $p = .000$. These consistent improvements indicate that the game-based learning activities contributed meaningfully to students' grammar achievement rather than serving solely as engaging classroom tasks. The statistically significant differences at the .05 level across all lessons further support the instructional effectiveness of the intervention. These findings are summarized and illustrated in Table 2 and Figure 2.

Table 2*Comparison of Mean Achievement Scores Before and After Game-Based Learning*

Lesson	Test	M	SD	SE	t	p
Relative Clauses	Pretest	3.62	2.30	0.29	8.512*	.000
	Posttest	6.66	2.29	0.29		
Future Perfect and Future Continuous	Pretest	1.63	2.02	0.25	14.325*	.000
	Posttest	6.24	1.87	0.24		
Future in the Past	Pretest	7.27	1.87	0.24	6.261*	.000
	Posttest	9.05	1.29	0.16		

Note. n = 63. df = 62. Full score = 10 points. *p < .05.

Figure 2*Mean Achievement Scores Before and After Game-Based Learning*

Note. Full score = 10 points.

Gender Differences in Post-test Achievement

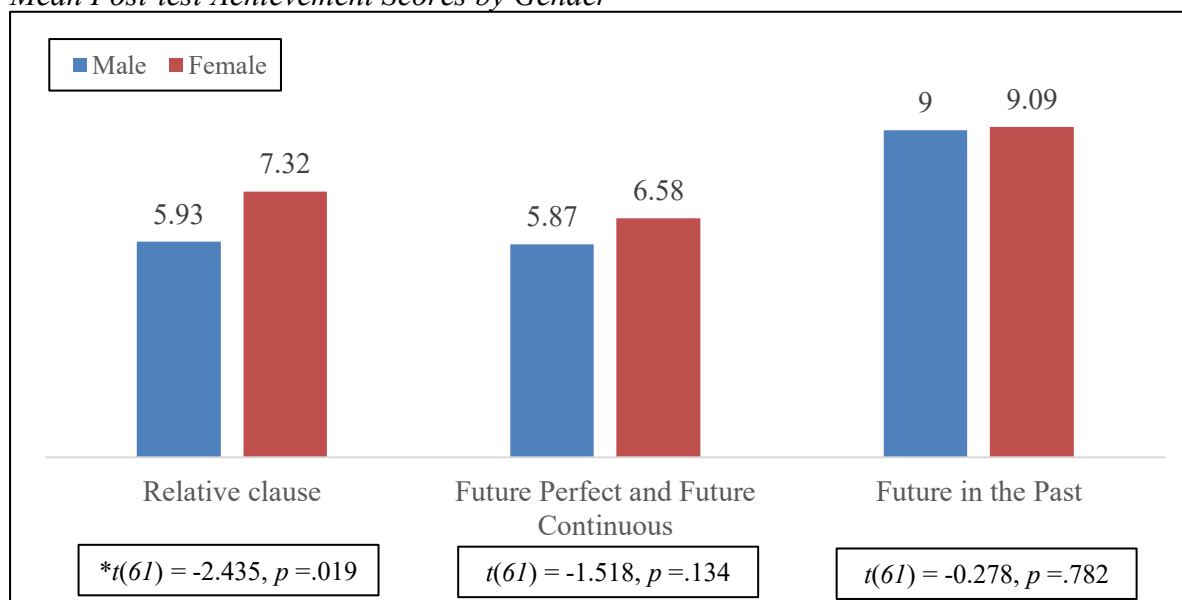
A comparison of male and female post-test scores revealed a statistically significant difference only in the Relative Clauses lesson. Female students achieved a higher mean score ($M = 7.32$) than male students ($M = 5.93$), and this difference was statistically significant, $t(61) = -2.435$, $p = .019$. In contrast, no statistically significant gender differences were found in the other two lessons. For Future Perfect and Future Continuous, female students ($M = 6.58$) slightly outperformed male students ($M = 5.87$), but the difference was not significant, $t(61) = -1.518$, $p = .134$. Similarly, in Future in the Past, the mean scores for male ($M = 9.00$) and female students ($M = 9.09$) were nearly identical, with no significant difference observed, $t(61) = -0.278$, $p = .782$. These findings suggest that gender-related differences in post-test performance were minimal overall, with a significant disparity observed only in the Relative Clauses lesson. These findings are summarized and illustrated in Table 3 and Figure 3.

Table 3
Comparison of Post-test Achievement by Gender

Lesson	Gender	n	M	SD	SE	t	p
Relative Clauses	Male	30	5.93	2.77	0.51	-2.435*	.019
	Female	33	7.32	1.49	0.26		
Future Perfect and Future Continuous	Male	30	5.87	2.12	0.39	-1.518	.134
	Female	33	6.58	1.57	0.27		
Future in the Past	Male	30	9.00	1.36	0.25	-0.278	.782
	Female	33	9.09	1.23	0.21		

Note. n = 63. df = 61. Full score = 10 points. *p < .05.

Figure 3
Mean Post-test Achievement Scores by Gender



Note. Full score = 10 points.

Student Satisfaction With Game-Based Learning

Student satisfaction with game-based learning was high overall ($M = 3.93$, $SD = 0.68$). Across the three activities combined, the highest mean was found in the content dimension ($M = 4.35$, $SD = 0.76$). Game format and practical usefulness followed with equal mean scores of 4.14, although their standard deviations differed slightly. The lowest mean was found in attitude toward game-based learning ($M = 3.53$, $SD = 0.64$). Even so, the overall pattern indicates that students responded positively to the activities.

Table 4
Overall Student Satisfaction With Game-Based Learning Across All Activities

Dimension	Male		Female		Overall	
	M	SD	M	SD	M	SD
Content	4.30	0.81	4.38	0.72	4.35	0.76
Game format	4.20	0.75	4.09	0.87	4.14	0.82
Practical usefulness	4.22	0.83	4.07	0.91	4.14	0.87
Attitude toward game-based learning	3.61	0.49	3.47	0.73	3.53	0.64
Overall satisfaction	3.98	0.62	3.88	0.72	3.93	0.68

Note. Responses were measured on a 5-point Likert scale.

When examined by activity, students reported a high level of satisfaction with game-based learning (GBL) across all lessons. The highest overall satisfaction was found in the Future Perfect and Future Continuous lesson ($M = 4.09$, $SD = 0.52$), followed by Future in the Past ($M = 3.89$, $SD = 0.68$) and Relative Clauses ($M = 3.83$, $SD = 0.72$), respectively.

In terms of content, students reported the highest level of satisfaction across all lessons, particularly in the Future Perfect and Future Continuous lesson ($M = 4.49$), which received the highest mean score. This suggests that the grammatical content was well-suited for implementation through game-based learning activities. These findings are summarized and illustrated in Table 5.

Table 5
Activity-Level Satisfaction Summary

Dimension/Lesson	Relative Clauses		Future Perfect and Future Continuous		Future in the Past	
	M	SD	M	SD	M	SD
Content	4.26	0.81	4.49	0.63	4.32	0.80
Game format	4.03	0.89	4.32	0.65	4.12	0.85
Practical usefulness	3.99	0.92	4.41	0.71	4.09	0.90
Attitude toward game-based learning	3.46	0.67	3.66	0.51	3.49	0.66
Overall satisfaction	3.83	0.72	4.09	0.52	3.89	0.68

Note. The table combines the three activity-level satisfaction summaries reported in the Thai source report.

The pre-test and post-test findings support the view that games can be used not simply as entertaining breaks, but as structured review tools that strengthen learning. In the present study, students' achievement increased in all three grammar lessons after game-based review. This pattern is consistent with the claim that games can attract attention, reduce boredom, and support repeated practice of target forms in a more relaxed atmosphere. As Singlor (2022) and Bamrung and Phusirit (2023) also found in earlier Thai studies, game-based activities can contribute to stronger language outcomes when they are aligned with instructional objectives.

One reason for this improvement may be that games encouraged students to interact more actively with grammar forms and meanings. Instead of relying only on lecture and memorization, students encountered the target structures through participation, movement, immediate response, and repeated exposure. Yudintseva (2015) argued that game-supported language learning creates high interaction and a safer environment for experimentation, allowing learners to try, fail, and try again without the same pressure often associated with formal testing or explanation. This interpretation aligns closely with the classroom observations that motivated the present study.

The gender comparison produced a more limited pattern. Female students significantly outperformed male students only in the Relative Clauses lesson, while no significant difference appeared in the other two lessons. This suggests that the gender-related effect was lesson-specific rather than broadly generalizable. The result may reflect differences in readiness, persistence, attention to detail, or participation during that particular lesson, rather than a consistent difference in grammar learning ability.

This interpretation is compatible with Olowookere et al. (2020), who suggested that educational performance may be influenced by learner characteristics such as diligence, discipline, responsibility, and emotional stability. In the present context, the female students' stronger performance in Relative Clauses may have been associated with greater preparation or closer attention during review. However, because the difference did not appear across all lessons, it should be interpreted cautiously.

The student satisfaction findings provide additional insight into how game-based learning operated in the classroom. Students rated the content, game format, and practical usefulness dimensions at high levels. These results suggest that the activities were perceived as relevant to what students were learning and that the games were viewed as understandable, engaging, and beneficial. At the same time, attitude toward game-based learning received the lowest ratings, falling only in the moderate range for Relative Clauses and Future in the Past.

The comparatively lower attitude scores in these two lessons may be related to the nature of the grammar topics themselves. Relative Clauses are highly useful in writing, but students may perceive them as less immediately applicable in everyday communication and more difficult to use spontaneously in short game rounds. Future in the Past also involves meaning relationships that require careful interpretation, which may limit the suitability of fast-paced game review. In other words, not every grammar point is equally well matched to the same kind of game-based activity.

These findings indicate that game-based learning should be used strategically. The approach can strengthen achievement and improve motivation, but its effectiveness depends on careful alignment between the grammar target, the form of the game, and the level and maturity of the learners. Teachers who use games in grammar instruction therefore need to design activities that balance enjoyment with sufficient cognitive time and linguistic depth.

Conclusion

This classroom research found that game-based learning improved Grade 11 students' English grammar achievement across three lessons and was associated with high student satisfaction. Female students outperformed male students only in the Relative Clauses lesson, whereas no significant gender difference appeared in Future Perfect and Future Continuous or in Future in

the Past. Overall, the study supports the use of game-based learning as a practical and meaningful strategy for reviewing English grammar in Thai EFL classrooms.

For classroom practice, the findings suggest that teachers should design games that are appropriate to the difficulty of the target grammar point and clearly connected to curriculum objectives. Teachers should also consider how groups are organized during gameplay and should take students' attitudes, language level, and maturity into account when selecting game types and activity formats.

For future research, it would be valuable to examine the longer-term effects of game-based learning, to compare traditional and digital game formats, and to include more diverse samples or other subject areas. Further studies could also investigate which types of learners benefit most from particular game elements, durations, or levels of challenge.

Acknowledgements

The authors would like to thank Surawiwat School and Suranaree University of Technology for the financial support provided for the publication of this research.

Declaration of Generative AI and AI-Assisted Technologies in the Writing Process

The authors declare that ChatGPT was limited to and used for translation support from Thai to English, and language refinement. The research ideas, design, data, findings, interpretation, and academic responsibility remain with the authors.

References

- Bamrung, C., & Phusirit, T. (2023). Kan phatthana kan chat kan rianru baep chai kem pen than thi mi to thaksa kan phut phasa angkrit khong nakrian chan prathom sueksa pi thi 3 [Development of game-based learning management affecting English speaking skills of Grade 3 students]. *Udon Thani Rajabhat University Academic Journal*, 11(2), 81–82.
- Boonchom Srisa-ard. (2013). *Basic research methodology* (9th ed.). Suweeriyasan.
- Hongkhunthod, A. (2023, April 6). *Naeo thang kan okbaep kan son doi chai kem pen than (Game-based teaching)* [Guidelines for designing game-based teaching]. <http://krukob.com/web/news-81/>
- Khamjatphai, T., Kanha, J., & Siangwan, P. (2024). Kan phatthana phon samrit thang kan rian duai theknik kan chat kan rianru doi chai kem pen than rueang khroangsang rabop khruueakhai samrap matthayom sueksa pi thi 6 [Development of learning achievement through game-based learning techniques on network structure for Grade 12 students]. *Warasan Wijai Wichakan*, 7(4), 311.
- Limmanee, R. (2020). *Development of English speaking skills through learning games for Grade 7 students*. [Master's thesis, Rangsit University].
- Moolthaisong, K. (2020). *Kan phatthana kitjakam kan rianru wicha phasa angkrit rueang Food and Drink doi chai kan chat kan rianru baep ruam mue theknik STAD ruam kap kem samrap nakrian chan prathom sueksa pi thi 4* [Development of English learning activities on Food and Drink using STAD cooperative learning with games for Grade 4 students] [Master's thesis, Sakon Nakhon Rajabhat University].
- Olowookere, E. I., Omonijo, D. O., Odukoya, J. A., & Anyaegbunam, M. C. (2020). Exploring the effect of gender and personality characteristics on educational performance. *Journal of Educational and Social Research*, 10(5), 99–107.
- Singlor, S. (2022). *Kan chai kem kham sap phuea phatthana kan rianru kham sap phasa angkrit khong nakrian chan prathom sueksa pi thi 3 rongrian Wat Laem Phra That Changwat Phitsanulok* [Using vocabulary games to develop English vocabulary learning among Grade 3 students at Wat Laem Phra That School, Phitsanulok Province] [Independent study, Naresuan University].
- Sinthuprasit, T. (2021). Khwam samkhan khong gamification lae raeng chongchai su phonlap nai waedwong kansueksa [The importance of gamification and motivation for outcomes in education]. *Bua Bundit Educational Administration Journal*, 21(2), 32–33.
- Yudintseva, A. (2015). Game-enhanced second language vocabulary acquisition strategies: A systematic review. *Open Journal of Social Sciences*, 3(10), 101–109.

Contact email: t.suricha@g.sut.ac.th