Effects of Cooperative Learning Integrated with Game-Based Learning on Undergraduate Students' English Language Proficiency Based on the CEFR

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Abstract

This study aimed to 1) compare students' language proficiency before and after learning through cooperative learning integrated with game-based learning, and 2) examine students' CEFR English proficiency levels following cooperative learning integrated with game-based learning. A quasi-experimental one group pretest–posttest design was employed. The study purposively selected 54 fourth-year English major students from the Faculty of Education and Human Development, Sisaket Rajabhat University. Research instruments included cooperative learning integrated with game-based learning lesson plans and a CEFR-based English proficiency test. The intervention was implemented over a four-month period from November 2025 to February 2026. Data were analyzed using descriptive statistics, including frequency, percentage, mean, standard deviation, and dependent t-test.

The findings were as follows:

1) The results of the study on students' language proficiency before and after learning through cooperative learning with games revealed that students' post-learning scores (Mean = 45.56, S.D. = 6.48) were higher than their pre-learning scores (Mean = 38.56, S.D. = 6.19) at a statistically significant level of .05 ($t(53) = 11.93$, $p = < .001$).

2) Regarding CEFR English proficiency levels, the majority of students achieved the overall level of B1 (51.85%). Looking at specific skills, most students were at the B2 level for Listening (46.30%), B1 for Reading (38.89%), and A2 for Speaking (61.11%) and Writing (59.26%).

The findings suggest that cooperative learning integrated with game-based learning can serve as an effective instructional approach for enhancing undergraduate students' English proficiency and preparing them for CEFR-based English proficiency assessment.

Keywords: Cooperative learning integrated with game-based learning; English language proficiency; CEFR; EFL

Introduction

Undeniably, English proficiency has become an essential competency for 21st-century learners as it contributes to academic performance, which in turn affects one's career on global scale. In Thailand, English proficiency remains a problem to be solved, despite years of educational policy initiatives. According to the EF English Proficiency Index (2025) [1], Thailand ranked 116th out of 123 countries and placed 24st out of 25 countries in Asia. This report shows Thailand is very low proficiency in English both nationally and regionally. Such rankings signal an urgent need to identify and implement more effective instructional approaches in education system.

One of the educational initiatives introduced by the Ministry of Education of Thailand to address the problem of low English proficiency among Thai learners is the adoption of the Common European Framework of Reference for Languages (CEFR) as guidelines in English teaching and learning practices, curriculum development and assessment. The CEFR describes learners' proficiency categorizing into six levels: Basic Users (A1 and A2), Independent Users (B1 and B2), and Proficient Users (C1 and C2) [2], [3].

However, previous studies [4], [5] have shown that many Thai undergraduate students still perform below the expected B2 level set by the MHESI (Ministry of Higher Education, Science, Research and Innovation) [6], indicating that the students remain "basic users" of English. In addition to low proficiency levels, Thai undergraduate students also face difficulties, such as difficulties in listening, vocabulary, and grammar or use of English, when taking a CEFR-based English proficiency test [4]. These findings indicate that English proficiency development remains a crucial challenge in Thailand's higher education as many learners still require further development to reach higher CEFR benchmarks. It also suggests the need for instructional approaches that provide learners with meaningful language exposure, interaction, and opportunities to apply English in communicative tasks to help them improve their English proficiency and prepare for CEFR-based English proficiency assessment.

To address these challenges, researchers and educators have considered a variety of useful instructional techniques.. One promising direction is "cooperative learning", an approach which emphasizes collaborative knowledge construction through structured group interaction [7], [8]. When students work in cooperative settings, they engage in peer-to-peer communication, negotiation, and shared problem-solving. Earlier studies have shown that cooperative learning can enhance EFL learners' motivation, achievement, enjoyment, and English learning outcomes [8], [9], [10], [11]. Meanwhile, "game-based learning" has also been widely examined as an approach that can increase motivation, create interactive learning environments and improve language learning outcomes [12], [13].

In the combination of cooperative learning and game-based learning, the advantages of each will be able to supplement one another. Therefore, the integral approach will have a possibility to offer learners hands-on learning experience opportunities to practice language in various situations, and more meaningful learning process in general. However, cooperative learning, game-based learning or language performance seems to be emphasized independently in EFL settings, and research examining the integration of both approaches within a CEFR-aligned framework, especially in the higher education context, remains limited. Prior studies indicate that English classroom in Thailand continues to prioritize traditional teaching methods, particularly rote-learning approaches, over authentic communication, resulting in passive and unengaging learning experiences. This pedagogical gap suggests that integrating cooperative and game-based elements may offer a more dynamic and effective alternative.

This study, therefore, examined the effects of cooperative learning integrated with game-based learning on enhancing English language proficiency among undergraduate students. The findings of this study would provide practical guidelines that supports learners' proficiency development and prepares them for CEFR-based English proficiency assessment.

Research Objectives

1. To compare students' language proficiency before and after learning through cooperative learning integrated with game-based learning

2. To examine students' CEFR English proficiency levels following cooperative learning integrated with game-based learning

Variables

Independent variable: Cooperative learning integrated with game-based learning

Dependent variables: Language proficiency and CEFR level

Learning Content in the Research

The research content is drawn from the course material for "English for Proficiency Tests" for undergraduate students, aligned with the structure of the CEFR-based English proficiency test. It consists of four-unit lesson plan covering: 1) Listening, 2) Speaking, 3) Reading Comprehension, and 4) Structure and Written Expression. All lessons are delivered through cooperative learning activities integrated with game-based learning.

Literature Review

Cooperative Learning and Game-Based Learning

Cooperative learning, a learner-centered approach rooted in social constructivist theory, has been widely recognized as an instructional approach that promotes active learning, peer interaction, shared responsibility, and meaningful participation in language classrooms. It emphasizes collaborative knowledge construction through structured group interaction [7], [8], [11]. Unlike common group work, cooperative learning settings require elements, such as clear group goals, individual accountability, positive interdependence, interpersonal skills, and group reflection [7], [11]. The success of the group depends on everyone's contribution, not just the strongest students.

In higher education, cooperative learning has been found to promote students' learning-oriented academic goals and engagement, indicating its potential for encouraging increase active participation in learning tasks [14]. In EFL contexts, previous studies have shown that cooperative learning can support both cognitive and affective aspects of English learning. Bećirović et al. [9] found that cooperative learning is associated with EFL learners' motivation and achievement, especially through individual accountability, interaction, and interpersonal skills. Zheng and Zhou [10] also reported that positive goal interdependence and peer support promoted EFL learners' enjoyment. In the Thai EFL context, Yamo et al. [15] found that cooperative learning positively affected English achievement, retention, and motivation among low-level students in a rural province of Thailand. These findings suggest that cooperative learning can enhance English proficiency through a supportive, interactive, and motivating learning environment.

Game-based learning (GBL), meanwhile, has attracted considerable attention in the field of education. It is an instructional approach utilizing games as tools for learning and skill development. Prensky [16] stated that games are a powerful tool for 21st-century learning, as they enhance motivation, challenge, and student engagement. Empirical studies have reported positive effects of GBL on EFL learning outcomes and affective factors. Cabrera-Solano [17] found that GBL helped EFL undergraduates improve their grammar and vocabulary in context, and also increased motivation when feedback was given. Zhou [13] noted that digital GBL positively affected the enjoyment of EFL learners, their engagement, learning perception, and autonomy. Similarly, Susaniari and Santosa's systematic review [12] demonstrated that GBL could positively influence motivation, vocabulary learning, academic performance, engagement, while lowering anxiety. In Thailand, Saraiwang & Worawong [18] combined task-based and game-based learning and found that it improved students' English skills and led to more positive learning experiences. These findings suggest that GBL can support English proficiency development by offering positive learning environment, making learning

more motivating, reducing affective barriers, and giving learners repeated opportunities to use English in fun and meaningful way.

Taken together, both cooperative learning and GBL promote active, student-centered learning in complementary ways. That is, while cooperative learning encourages interaction and communication among learners, GBL provides a meaningful and motivating context for real language use. Therefore, integrating these two approaches serves as a powerful mechanism for creating a positive classroom environment and enhancing the effectiveness of English language teaching.

English Language Proficeiency

English language proficiency is an essential competence for undergraduate students in EFL contexts because it enables learners to use English for academic, professional, and communicative purposes. The term "language proficiency" commonly refers not only to vocabulary and grammar knowledge, but also the ability to use the target language meaningfully in communicative contexts across listening, speaking, reading, and writing [2], [3], [19], [20]. In other words, it involves both knowing about the language and being able to utilize the language in real-world situations. Apridayani [19] explained that English proficiency can be used as a reference for designing English courses and evaluating teaching and learning outcomes. To assess such knowledge and ability, English standardized tests aligned with international frameworks such as the Common European Framework of Reference for Languages (CEFR) [4], [19], [21].

In Thai higher education, undergraduate students still face challenges in English proficiency development and CEFR-based testing. An official announcement of MHESI [6] suggests the universities to support students to reach a specific target level of English at CEFR B2. However, the target CEFR level remains largely unmet. The recent study by Mafu [4] found that the majority of undergraduate students in the study achieved an overall CEFR level of A2, while none reached C1 or C2. Similarly, Waluyo [5] reported that most of Thai first-year university students were at the A2 level. In addition to low proficiency issue, Thai undergraduate students also face difficulties in CEFR-based English proficiency testing. Mafu [4] noted the students' major difficulties in listening due to speed and unclear accents, insufficient vocabulary, and problems with grammar. These suggest that undergraduate learners need instructional approaches that provide repeated exposure to English input, opportunities for meaningful language use, and practice across both receptive and productive skills.

Common European Framework of Reference for Languages (CEFR)

The Common European Framework of Reference for Languages (CEFR) was first introduced in 2001 by the Council of Europe [2] and has been widely adopted as a guiding framework for language policy and instruction both within and beyond Europe. It is also recognized as one of the international standards for assessing and describing learners' foreign language proficiency, particularly in English [22]. The CEFR comprehensively maps out language production by accounting for general competences, communicative language competences, communicative language activities, and communicative language strategies. It provides "Common Reference Levels," which classify language users into three main groups and six proficiency levels as shown below.

Table 1. Holistic Summary of CEFR Common Reference Levels

User	CEFR Level	Descriptors
Proficient User	**C2**	Can understand with ease virtually everything heard or read. Can summarize information from different spoken and written sources, reconstructing arguments and accounts in a coherent presentation. Can express him/herself spontaneously, very fluently and precisely, differentiating finer shades of meaning even in more complex situations.
	C1	Can understand a wide range of demanding, longer texts, and recognise implicit meaning. Can express him/ herself fluently and spontaneously without much obvious searching for expressions. Can use language flexibly and effectively for social, academic and professional purposes. Can produce clear, well-structured, detailed text on complex subjects, showing controlled use of organisational patterns, connectors and cohesive devices.
Independent User	**B2**	Can understand the main ideas of complex text on both concrete and abstract topics, including technical discussions in his/her field of specialization. Can interact with a degree of fluency and spontaneity that makes regular interaction with native speakers quite possible without strain for either party. Can produce clear, detailed text on a wide range of subjects and explain a viewpoint on a topical issue giving the advantages and disadvantages of various options.
	B1	Can understand the main points of clear standard input on familiar matters regularly encountered in work, school, leisure, etc. Can deal with most situations likely to arise whilst travelling in an area where the language is spoken. Can produce simple connected text on topics which are familiar or of personal interest. Can describe experiences and events, dreams, hopes & ambitions and briefly give reasons and explanations for opinions and plans.
Basic User	**A2**	Can understand sentences and frequently used expressions related to areas of most immediate relevance (e.g. very basic personal and family information, shopping, local geography, employment). Can communicate in simple and routine tasks requiring a simple and direct exchange of information on familiar and routine matters. Can describe in simple terms aspects of his/her background, immediate environment and matters in areas of immediate need.
	A1	Can understand and use familiar everyday expressions and very basic phrases aimed at the satisfaction of needs of a concrete type. Can introduce him/herself and others and can ask and answer questions about personal details such as where he/she lives, people he/she knows and things he/she has. Can interact in a simple way provided the other person talks slowly and clearly and is prepared to help.

Source: Council of Europe [23]

In the context of Thai education, the CEFR framework has been integrated into educational policies at both the basic and higher education levels, with the aim of improving English language instruction and enhancing English proficiency of Thai learners to meet international standards. In terms of language proficiency, the CEFR serves as an internationally recognized framework that provides a clear and systematic approach to assessing and developing learners' language proficiency.

Conceptual Framework

The conceptual framework of this study is illustrated in the diagram below.

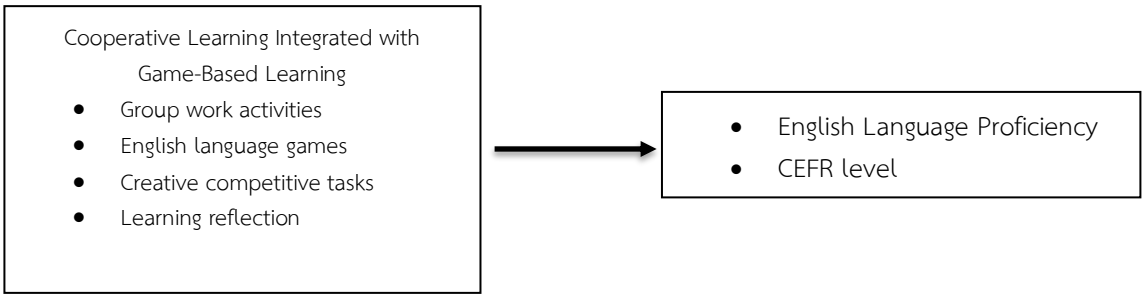


Figure 1. Conceptual Framework of the Study

Research Methodology

This study, "Effects of Cooperative Learning Integrated with Game-Based Learning on Undergraduate Students' English Language Proficiency Based on the CEFR", employed a Quasi-Experimental Research design using a One Group Pretest–Posttest Design.

1. Participants

54 fourth-year English major students from the Faculty of Education and Human Development, Sisaket Rajabhat University selected through purposive sampling, based on the criterion that they were students enrolled in the course English for Language Proficiency Tests in the second semester of the 2025 academic year.

2. Research Instruments

The research instruments used in this study were as follows:

2.1 Four Lesson Plans Incorporating Cooperative Learning Integrated with Game-Based Learning were used. Each included the following instructional steps: 1) warm-up, 2) cooperative group activities, 3) English language game activities, 4) knowledge sharing and peer exchange, and 5) wrap-up and learning reflection

2.2 The CEFR-based English proficiency test used in this study was the "90-Minute EF Standard English Test (90 MIN EF SET)" by EF Education First [24]. The test was developed according to standardized English language testing principles, and its quality has been analyzed using statistical methods, including Classical Test Theory, the Rasch model, and Item Response Theory (IRT). In addition, a systematic standard-setting process was established to provide benchmark for test scores against the CEFR levels.

3. Data Collection

1) The participants were briefed on the research objectives, procedures, and data confidentiality. Informed consent was obtained from all participants prior to the study. The study was conducted between November 2025 and February 2026.

2) A pretest was administered through the online "90 MIN EF SET" system to collect baseline data on the participants' English language proficiency.

3) The researcher implemented cooperative learning integrated with game-based learning lessons as designed, and served as both the instructor and facilitator during the learning process.

4) Formative data on language proficiency were collected during the learning process through exercises, group activities, and quizzes in each learning unit.

5) At the end of the learning process, a posttest was administered through the online "90 MIN EF SET" system to determine the students' post-learning language proficiency outcomes. The test runs for 90 minutes with a total score of 100 points and covers all four language skills: reading — multiple-choice questions with four options, 20 minutes; listening — multiple-choice questions with four options, 20 minutes; writing — descriptive writing task, 35 minutes; and speaking — oral test, 15 minutes.

4. Data Analysis

Language proficiency was analyzed using the mean, standard deviation, and a dependent samples t-test to compare pretest and posttest scores. CEFR English proficiency was analyzed using frequency and percentages to describe the distribution of students across proficiency levels.

Research Results

1. Analysis of Students' Language Proficiency Before and After Learning through Cooperative Learning Integrated with Game-Based Learning

Table 2. Students' Language Proficiency Before and After Learning

	n	Total Score	Mean	S.D.	t	df	p
Pretest	54	100	38.56	6.19			
Posttest	54	100	45.56	6.48	11.93	53	< .001*

* $p < .05$

As shown in Table 2, the comparative analysis reveals that the pre-test mean score was 38.56 while the post-test mean score was 45.56.The dependent samples t-test revealed that the post-test mean was significantly higher than the pre-test mean at the .05 level of statistical significance, indicating that the intervention had a positive effect on students' language proficiency. The dependent samples t-test indicated that the posttest mean was significantly higher than the pretest mean at the .05 level of statistical significance, indicating that cooperative learning integrated with game-based learning had a positive effect on students' language proficiency.

2. Students' CEFR English Proficiency Levels after Learning through Cooperative Learning Integrated with Game-Based Learning

Table 3. CEFR English Proficiency Levels by Skill (n = 54)

Skill	CEFR Level	Frequency	Percentage
Listening	A2	2	3.70
	B1	22	40.74
	B2	25	46.30
	C1	5	9.26
Speaking	A1	1	1.85
	A2	33	61.11
	B1	17	31.48
	B2	3	5.56
Writing	A1	4	7.41
	A2	32	59.26
	B1	17	31.48
	B2	1	1.85
Reading	A2	12	22.22
	B1	21	38.89
	B2	15	27.78
	C1	6	11.11
Overall	A2	16	29.63
	B1	28	51.85
	B2	9	16.67
	C1	1	1.85

According to Table 3, the majority of students achieved an overall CEFR level of B1 (51.85%). In Listening, most students were at B2 level (46.30%). In Speaking, most students were at A2 level, (61.11%). In Writing, most students were at A2 level (59.26%), and most of them were at the B1 level in Reading (38.89%).

Discussion

The comparison of students' pre-learning and post-learning scores revealed that the posttest mean score (Mean = 45.56, S.D. = 6.48) was higher than the pretest mean score (Mean = 38.56, S.D. = 6.19) at the statistically significant level of .05. This demonstrated that cooperative learning integrated with game-based learning was effective in developing students' language proficiency and English language skills.

Similarly to Johnson & Johnson's assertion [7] that cooperative learning environment promotes learning achievement, interpersonal skills, and learning motivation, as group members share common goals and take collective responsibility for their success; the findings suggest that cooperative learning provides students with opportunities to collaborate, exchange ideas, and support one another, which helps them gain a better understanding of the content, particularly in terms of language use for communication. The integration of games further boosted students' interest and motivation, as well as creates an enjoyable classroom atmosphere that reduced anxiety in using English. Students became more confident and participated more actively in learning activities, resulting in more meaningful learning and stronger language

proficiency development. This is consistent with earlier studies [13] [16] [17],[18] demonstrating that games are a powerful 21st-century learning tool that enhances motivation, challenge, and learners' engagement. Overall, cooperative learning integrated with game-based learning can be considered an effective approach to enhance students' English language proficiency. It also can be applied to English language instruction at different educational levels to appropriately enhance students' learning achievement and communication skills. Through game activities and group work the students were given repeated practice in reading, listening, speaking, and critical thinking, and these activities built their confidence and ability to apply English in real-life contexts.

Regarding CEFR proficiency levels, most students achieved an overall level of B1, accounting for 51.85%. This indicates that most students were at the "Independent User" level, reflecting the ability to understand the main points of familiar topics and communicate about general situations in daily life to some extent.

However, notable differences were observed across individual skills. Most students were at B2 in Listening (46.30%), while the majority remained at A2 in Speaking (61.11%) and Writing (59.26%), and B1 in Reading (38.89%). These results demonstrate that the students developed stronger receptive skills (listening and reading) than productive skills (speaking and writing). This difference may be explained by the nature of cooperative learning and game-based learning activities, which frequently exposed students to the target language through listening to explanations, peer responses, and game instructions, as well as reading information or game descriptions, especially in competitive or time-pressured activities that required careful listening and reading before responding. Such repeated receptive exposure naturally strengthened listening and reading performance.

In contrast, the results for Speaking and Writing, in which most students were at the A2 level, indicate that while students could use basic English and communicate on familiar topics, they still faced challenges in producing language fluently, accurately, and with complexity. Speaking requires learners to quickly think of vocabulary and sentence structures, as well as use natural pronunciation, and spontaneous interaction. Meanwhile, Writing requires the integration of multiple competencies, including vocabulary, grammar, organization of ideas, sentence connection, and accuracy of expression. Therefore, although cooperative learning integrated with game-based learning encouraged participation and increased opportunities for language use, developing speaking and writing skills to higher levels may require more sustained, targeted practice over a longer period.

In summary, cooperative learning integrated with game-based learning considered to be an effective instructional approach for enhancing English language proficiency, particularly in listening and reading. However, to bridge the productive gap and improve students' speaking and writing skills, which are essential for academic and professional communication, to the B2 level or higher, future instruction should introduce more systematic productive language activities. These may include oral presentations, structured group debates, role plays, paragraph writing tasks, and systematic feedback. Such activities would enable learners to develop comprehensive English competence across both receptive and productive skills as well as further improve their English proficiency in alignment with higher CEFR levels.

Suggestion

This study has some limitations. First, it employed a one-group pretest–posttest design without a control group; therefore, the improvement in students' scores should be interpreted with caution. Second,

the participants were selected purposively from one institution, which may limit the generalizability of the findings. Some suggestions are as following:

Suggestions for Further Research

1. Future studies should employ a control group and and include participants from different educational levels or diverse institutional contexts, in order to compare outcomes and further validate the effectiveness of cooperative integrated game-based learning approach.

2. Additional variables should be investigated, such as motivation to learn English, communication confidence, and learner satisfaction, to provide a more comprehensive understanding of how the integrated approach affects English proficiency.

3. Future studies should investigate the long-term effects of the intervention, particularly on productive skills (speaking and writing), which may require more sustained practice over a longer period.

Suggestions for Applying the Research Findings

1. Based on the effectiveness of cooperative learning, which was incorporated with the game-based learning, English teachers are encouraged to apply this integrated instructional approach in English classroom in order to promote active student participation, create a positive learning atmosphere, and enhance learners' English language proficiency.

2. Since the findings showed that students' speaking and writing proficiency remained lower than their listening and reading proficiency, future instruction should include more structured productive-skill activities, such as role plays, oral presentations, group discussions, paragraph writing, etc.

3. Since the majority of students in the study achieved an overall CEFR level of B1, indicating a functional ability to communicate in everyday English situations (Independent Users), educational institutions should provide continuous support for language activities, such as creative English games, digital language tools, or English camps, in order to help students develop English proficiency continuously and prepare for CEFR-based English proficiency tests.

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