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Enhancing Achievement in the TGAT1 (91) English Test Through Game-Based Learning

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Abstract

This study aimed to investigate the effectiveness of game-based learning (GBL) on students' achievement in the TGAT1 (91) English communication test. The study employed a quasi-experimental design utilizing a one-group pre test-post test approach. The sample consisted of 36 Grade 11 students from a class selected through purposive sampling, specifically those with the lowest English communication scores. The research instruments included: 1) five game-based lesson plans, and 2) a standardized TGAT1 (91) English communication test. Data were analyzed using mean, standard deviation, and paired sample t-tests. The findings showed that the students' post-test scores were significantly higher than their pre-test scores at the .05 level of significance. This demonstrates a clear improvement in English communication proficiency following the implementation of game-based learning. The findings support the effectiveness of game-based learning in enhancing students' English language achievement, particularly for the TGAT1 (91) test. Game-based instruction presents an engaging, student-centered alternative to traditional teaching methods, which is especially beneficial for secondary school learners in test-oriented educational contexts. Further research is recommended to explore the sustained effects of GBL, its adaptability across varying proficiency levels, and its impact on specific language competencies.

Keywords: English Achievement, English Communication, Game-Based Learning, Quasi-Experimental Design, Secondary School Students, TGAT1 (91)

Introduction

Currently, a significant number of Thai high school students are striving to improve their English proficiency in preparation for the TGAT1 (91) English communication test, a key requirement for gaining admission to universities in Thailand. This test serves as a national assessment of students' English language capabilities and plays a crucial role in determining their eligibility for higher education.

Originally introduced in 2009 under the name GAT English, the test was held three times a year before being reduced to two sessions annually in 2012. Responsibility for the test shifted from the National Institute of Educational Testing Service (NIETS) to the Council of University Presidents of Thailand (CUPT). The initial assessment comprised four key components: (1) Speaking and Conversation, (2) vocabulary, (3) Grammar and Writing, and (4) Reading Comprehension. In its current form, the test emphasizes Speaking Skills and Reading Skills, aiming to better reflect real-world English usage and communication. Despite these adjustments, students still encountered difficulties in achieving satisfactory results.

Based on statistics from the Teachers' Council of Thailand (2024), the average TGAT1 (91) English test scores from 2022 to 2024 are 43.640, 37.606, and 40.634 out of 100, indicating a clear need for enhanced English instruction and learner support.

TGAT1 (91) is a crucial component of the Thai university admission process, which plays a central role in determining higher education opportunities in Thailand. Unlike traditional exams that emphasize grammar rules or memorization, TGAT1 (91) evaluates a student's ability to use English effectively in everyday communication. It assesses comprehension, article analysis, and the practical use of vocabulary and idiomatic expressions. Eligible applicants include students in grade 12, vocational certificates and diploma holders, and students who have obtained education in a secondary school outside the country. Since TGAT1 (91) scores can be used across multiple admission rounds and weighed differently by each faculty, performance on this test significantly influenced students' access to higher education.

TGAT1 (91) is designed as a multiple-choice test with 60 questions, scored out of 100 points, and conducted 1 hour and 30 minutes. It comprises two parts namely, Part 1 Communicative Skills and Part 2 Reading Skills. The test evaluates the receptive skills as well useful knowledge (understanding) and effective use of practical skills (use of language). Part 1: Speaking Skills included 30 questions which were divided into three sections. The Question-Response section consists of 10 questions that evaluate the capacity to act appropriately in daily activities. The Short Conversations part contains 3 dialogues each of which follows with 3-4 questions, a total of ten questions. The Long Conversations part has 2 conversations, including 5 questions each amounting to 10 questions. This section mostly assesses the knowledge of listening and the capability to understand the spoken English in different contexts.

Part 2 Reading Skills also contains 30 questions, divided into two sections. Text Completion checks the capacity to learn the meaning and use the proper words in grammatical and logical continuity, with 2 texts containing 7 to 8 questions, a total of 15 questions. Reading Comprehension is composed of 3 short articles (100-200 words each) and 5 questions

each while measuring the skill to see main ideas, details and accurate interpretation of information. In a combination, both of these aspects enable a well-rounded assessment of the English communication skills, based on spoken and written language addressed to both realistic and academic situations.

The 2019-2023 test results indicate a steady decline in average scores, with results in recent years consistently falling below 50, which is considered the minimum passing threshold.

This trend shows that students need to improve their English communication skills, especially for real-life situations, so they can get better scores and qualify for university admission.

Given the challenges in English language learning, many researchers have employed game-based learning (GBL) as an innovative solution because it involves the integration of game elements into educational settings and is increasingly recognized for its ability to enhance learning outcomes. It integrates digital and traditional games into classroom instruction to foster a dynamic and motivating learning environment. Educational games are widely accessible and often free, providing opportunities to reinforce language skills while increasing student engagement and enjoyment. According to [Fitzgerald \(1997\)](#), games provide learners with clear objectives and rules, allowing them to meaningfully engage in the learning process. Additionally, games help reduce anxiety and create a relaxed classroom atmosphere, which supports language acquisition ([Adipat, 2021](#)).

Effective GBL development and implementation are based on two theoretical principles: problem solving theory and engagement theory. First, problem-solving theory considers problem solving an essential part of contemporary education. GBL can best apply this theory through the use of realistic challenges, and in most cases challenges that represent the real-life problems students must formulate solutions ([Dostál, 2015](#)). This approach helps bridge classroom learning with practical, real-world applications, thereby significantly enhancing students' problem-solving abilities. Second, according to [Whitton \(2011\)](#), engagement theory is strongly associated with enhancing student retention and comprehension levels when students interact with learning content. The theory presents three key

components that are essential in student participation, namely collaborative interaction among students, project-based work and authentic tasks that are relevant to the real-life situations. Game-based learning effectively incorporates these components, fostering deeper student engagement and promoting lasting educational outcomes.

Growing popularity of GBL among educators is undeniable. The role of teachers has shifted from traditional instructors to facilitators and advisors, enabling them to assess student progress through GBL activities ([Insa-ard, 2023](#)). Through games, learners can overcome obstacles and develop essential learning skills, such as persistence and strategic thinking ([Rajan, 2022](#)). In addition, simulated environments offer students opportunities to practice and apply knowledge in realistic contexts, thereby supporting meaningful learning. Importantly, games motivate learners and create positive attitudes toward learning by making the process enjoyable ([Dalton & Devitt, 2016](#)).

Various studies demonstrate GBL's superiority over traditional instruction. [Gui et al. \(2023\)](#) and [Al-Jamili et al. \(2024\)](#) found digital GBL more effective than traditional learning methods while [Roohani & Vincheh \(2021\)](#) identified games as the most effective method for teaching phrasal verbs compared to social media and traditional instruction. As stated in [Xu et al. \(2023\)](#) study, GBL can foster an engaging environment that enhances students' academic performance. Considering GBL's effectiveness in specific language domains, [Sriyota et al. \(2024\)](#) conducted a study on the effectiveness of GBL in enhancing English speaking skills among 4th-grade students in the Intensive English Program utilizing a one-group pre-test and post-test design with 40 participants, the findings demonstrated a statistically significant improvement in students' speaking abilities. Studies by [Madju \(2023\)](#), [Plianpran \(2015\)](#) and [Chanlen \(2015\)](#) also demonstrated significant improvements in English reading, vocabulary, listening, and speaking skills among primary students using GBL. Beyond language proficiency, it also promotes communication, teamwork, motivation, positive attitude, teamwork, and other related skills ([Janakiraman et al., 2018](#); [Kathinthong & Adipat, 2022](#); [Na Chiangmai, 2023](#)).

While GBL has proven to be an effective instructional approach that enhances academic performance, boosts learner motivation, and supports the development of social and communication skills, among English language learners across different educational levels, no prior studies have specifically examined its impact on the TGAT1 (91) English communication test. To address this gap, the present study investigated the extent to which GBL could enhance students' performance on the TGAT1 (91) English communication test. The significance of this study extends beyond the Thai educational context, offering valuable insights for educators and policymakers in countries where English proficiency tests play a crucial role in educational development. The findings offer valuable guidance for the integration of GBL into high-stakes language assessments globally, especially in educational contexts that emphasize communicative competence over memorization.

Research Question

To what extent could game-based learning enhance students' performance on the TGAT1 (91) English communication test?

Methodology

This study used a quasi-experimental design with a one-group pre-test and post-test format. The main goal was to examine how GBL could improve students' academic performance in preparing for the Thai General Aptitude Test (TGAT1 91)

Participants

From a population of 142 grade 11 students at a government school in Thailand, A sample comprised 36 Grade 11 students, selected through purposive sampling technique.

Research Instrument

Lesson Plans

The second instrument was a set of five game-based lesson plans, totaling 12 hours of instruction. These plans were created to help students improve their skills in each part of the TGAT1 English communication test. The lessons included four educational games: Mystery Box, Wordwall, Kahoot, and Blooket. These games made learning fun and interactive, helping students stay engaged, remember the language better, and practice test skills.

In addition, the five game-based lesson plans created by the researcher were submitted to three experts for evaluation. They assessed the plans based on three core aspects: the overall structure of the lesson, the relevance and clarity of the content, and the appropriateness of the learning activities. A Likert scale was used, following the guidelines of Sisa-at, with five levels ranging from very low to very high. The average scores were then interpreted using a set of clear benchmarks: scores between 4.51–5.00 indicated excellent quality, 3.51–4.50 high quality, 2.51–3.50 moderate quality, 1.51–2.50 low quality, and 1.00–1.50 very low quality. The evaluation results from three experts indicated that the game-based lesson plans were accurate, appropriate, and internally consistent across all components. Each plan received an average score in the highest range of assessment scales, with mean scores of 4.61, 4.67, 4.78, 4.72, and 4.63, respectively. These results suggest that all five lesson plans were rated as being of excellent quality and suitability for educational use.

TGAT1 English Communication Practice Test

The researcher created the TGAT1 English communication practice test that reflected the structure and content of the official examination. It included 60 multiple-choice questions based on the Test Blueprint of the Council of University Presidents of Thailand (CUPT) to guarantee validity. It had five parts, with Question and Response, Short Conversations, Long Conversations, Text Completion, and Reading Comprehension as the test sections. Different language skills were evaluated in each section; reading and critical thinking, among others. This test was developed to help make the development of the TGAT1 (91) exam as close as possible and as a valid method to gauge student development before and after the game-based intervention.

The validity of the test was examined by the same three experts using the Item-Objective Congruence (IOC) method to determine whether every item of the test is relevant to an intended study goal. Each of the items was rated according to the scale +1 (obviously corresponds with the objective) to 0 (uncertain or unrelated). After analyzing feedback obtained from the experts, the researcher evaluated the outcomes to ascertain whether an item had to be revisited. The

results revealed that every question satisfied the IOC value of greater than 0.5, which demonstrated that each of the questions was valid and suitable for measuring the intended skills.

The researcher conducted a pilot study with 36 students who had similar characteristics to the population of the target study group before implementing the actual study. This was aimed at to evaluate the quality of the TGAT1 (91) English communication achievement test. Specifically, the researcher calculated the difficulty index (p), discrimination index (r), and the reliability of the test. The result of the difficulty index (p) yielded a difficulty index (p) of 0.55 which implied a good level of difficulty. The discrimination index (r) was calculated to determine how well the items that were composed discriminated against high performers and low achievers, which were found to be within the acceptable range (0.27). To determine the reliability of the test, a rather popular tool used to assess internal consistency, Kuder-Richardson Formula 20 (KR-20), was used with a result of 0.96, which indicates high reliability. These results proved the test to be of good quality and suitable to measure the aspect of the achievement of students in their communication achievement in English.

Data Collection

A total of 36 participants were selected to complete a pre-instruction assessment designed to evaluate their proficiency in the TGAT1 English communication test. This instrument, developed by the researcher based on the test structure provided by the Council of University Presidents of Thailand (CUPT), consisted of 60 multiple-choice items, with a maximum score of 60 points. The assessment was administered within a time limit of 1 hour and 30 minutes. Following the pre-test, the researcher implemented a series of five instructional plans, comprising a total of 12 hours of instruction, delivered through GBL. Upon completion of the instructional activities, the participants took the same test again as a post-assessment.

Data Analysis

The mean, standard deviation, and percentage were utilized to analyze the data, both overall and

in specific areas, to determine whether students' performance on the English communication test improved after participating in GBL instruction. In addition, a dependent samples t-test was employed to compare students' TGAT1 English communication scores before and after participating in GBL instruction and examine the research hypothesis that students who received GBL instruction would have higher average posttest scores than their pretest scores.

Results

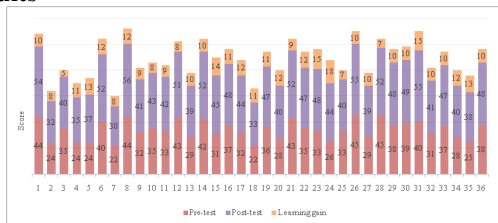


Figure 1 The Pretest and Posttest Scores, along with the Learning Gains, in the TGAT1 English Communication Achievement (n=36)

The results are presented in three main aspects as follows: 1) the pretest and post test scores, along with the learning gains, in the TGAT1 English communication achievement test; 2) the mean scores of students before and after participating in GBL

activities; and 3) the results of a dependent samples t-test conducted to compare students' TGAT1 English communication achievement prior to and following the implementation of GBL instruction.

From Figure 1, after the implementation of GBL, all 36 students showed an increase in their posttest scores. The learning gains between the pretest and posttest ranged from a minimum of 5 points to a maximum of 18 points, out of a total of 60 points.

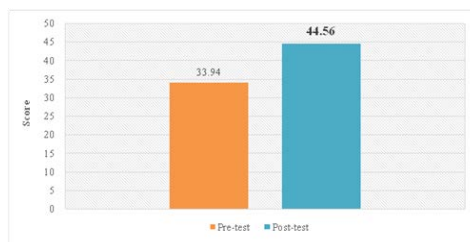


Figure 2 The Mean Scores of Students Before and After Participating in Game-based Learning Activities

Figure 2 shows the mean score on the TGAT1 English communication achievement test before the implementation of GBL ($M = 33.94$, $S.D. = 6.98$), while the mean posttest score increased to 44.56, with a standard deviation of 6.89.

Table 1 Dependent Samples t-test Results for Students' TGAT1 English Communication Scores Before and After Game-based Learning

Test	Scores	N	Mean	S.D.	D	t	df	Sig
Pretest	60	36	33.94	6.98	10.61	25.15	35.00	.000
Posttest	60	36	44.56	6.89				

Table 1 reveals that the mean score on the TGAT1 English communication achievement test after GBL was 44.56, with a standard deviation (S.D.) of 6.89, which was higher than the pretest mean score of 33.94, with a standard deviation of 6.98. The average difference score (\bar{D}) between the pretest and posttest was 10.61. The t-test value was 25.15, which was statistically significant at the .05 level ($p < .05$). These results indicate that the students' TGAT1 English communication achievement after participating in GBL was significantly higher than before the intervention, supporting research hypothesis

Discussion and Conclusions

The findings from this study have significant implications for English language instruction, particularly in the context of standardized tests such as the TGAT1 (91) and any other communication skill tests. The primary objective was to examine the effectiveness of game-based learning (GBL) as a pedagogical strategy to enhance students' academic performance on the TGAT1 English communication test.

Quasi-experimental research with a one-group pre test-post test design was employed, involving 36 Grade 11 students. Following the implementation of GBL activities over 12 class periods, students exhibited significant improvement in their academic

performance. Specifically, the mean pretest score increased from 33.94 to 44.56 on post test, reflecting an average gain of 10.61 points. This increase reflects improvement in learning outcomes, demonstrating the effectiveness of GBL as a pedagogical strategy for enhancing English language proficiency.

These results are consistent with previous studies. For instance, [Plianpran \(2015\)](#) showed that students in grade 6 participating in GBL activities performed significantly better in vocabulary tests than others who did not participate in GBL activities. Similarly, according to some studies conducted by [Tanago \(2017\)](#), GBL not only helped improve the level of vocabulary acquisition in the context of studying undergraduate learners but also enabled more positive perceptions of English language learning. In addition, according to [Madju \(2023\)](#) GBL phonics instruction was very effective in enhancing Grade 2 students' English pronunciation skills, motivation, interest, and enjoyment.

The current results support the idea that GBL is an efficient, active, and student-centered pedagogical strategy, especially useful in test-oriented settings. It is not only academic achievements that can be measured but also the effectiveness of learners' motivation, their participation and engagement. It emphasizes the practical value of employing GBL in English language classes.

Recommendations for Future Research

From the findings and conclusions of this study, the researcher would like to provide recommendations for further studies.

1. The present study focused on Grade 11 students; future research should include other educational levels, especially Grade 12, whose proximity to the TGAT1 exam may result in greater academic motivation and more significant learning gains, offering deeper insights into the effectiveness of GBL.
2. Further studies are encouraged to employ a two-group experimental design, that incorporates both a control group and an experimental group, in order to facilitate more rigorous comparisons and enhance the validity of the findings.
3. Further studies should involve surveys or interviews to assess students' knowledge and

perceptions after participating in GBL. Such qualitative data would offer valuable insights into students' understanding and attitudes, complementing quantitative test results and providing a more comprehensive evaluation of the instructional approach.

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