INTEGRATING DIGITAL FLIPPED CLASSROOM WITH STUDENT TEAM ACHIEVEMENT DIVISION APPROACH TO IMPROVE ENGLISH READING SKILLS

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Abstract

This quantitative research aimed to investigate integrating digital flipped classroom with student team achievement division (STAD) approach to improve English reading skills of undergraduate students and to compare the achievement pre-test and posttest of students in the experimental group. The third purpose was to compare the achievement pre-test and posttest of students in the control group and the last purpose was to compare the achievement in English Reading Skill between the experimental group and the control group. The sample was undergraduate students in Rajamangala University of Technology Tawan-ok, Thailand. They were divided into two group: 50 for experimental group and 50 for control group by purposive sampling who enrolled in English for study skills course. There were two equipment such as English reading program (3 lessons) and three lesson plans for STAD. The results found firstly students in experimental group who studied English reading program before doing STAD for improving their reading skills had higher academic achievement in posttest than the control group who hadn't studied the English reading program before doing STAD in classroom with statistical significance at the level of 0.05. Secondly, students who studied STAD technique to develop English reading skills had significantly higher academic achievement after studying than before studying at the level of 0.05. Finally, the academic achievement of the experimental group was significantly higher than the academic achievement of the control group at the level of 0.05.

Keywords: Student Team Achievement Division, Digital Flipped Classroom, English Reading Skills

Introduction

English is currently recognized as the major lingua franca or global language employed for global communication. Given the diversity of languages among nations, effective communication with individuals from different countries necessitates the use of English as a universal language. English is extensively utilized in Thailand for global trade, education, tourism, technology, and communication with foreign individuals. English is often regarded as an indispensable and consequential language in the contemporary day. Consequently, possessing proficiency in the English language confers a competitive edge to individuals in the realms of education and employment. The utilization of numerous technologies has significantly enhanced the importance of English in contemporary 21st century culture. Typically, the English language is employed for the purposes of watching movies, listening to music, reading books, and conducting research. Hence, English has emerged as the predominant language that is imperative to acquire in contemporary life (Kongprachan, 2019). To equip Thai individuals at the higher education level with 21st century learning skills and meet high quality requirements, it is crucial to enhance efficiency, procedures, techniques, and teaching systems that prioritize learning. Ministry of Higher Education, Science, Research and Innovation (2023) emphasizes the importance of lifelong learning in order to continuously update one's knowledge and skills to adapt to future changes. This includes enhancing educational standards and promoting the progress of the Thai academic community to gain international recognition. Hence, the 2008 Basic Education Core Curriculum incorporates English as a subject to enable students to attain fluency in the language and effectively engage in global communication in this era of boundless information (Ministry of Education, 2008). Reading is a crucial skill in the English language that students can use in their daily life, whether they are working or studying. Engaging in focused reading with the aim of comprehension enhances students' ability to comprehend lengthy and intricate texts, while also stimulating their curiosity to explore new information (Senatham, 2021).

Starting from the academic year 2022, the English reading course has been removed from the general education curriculum at Rajamangala University of Technology Tawan-ok, Thailand. Therefore, students are unable to enhance their reading abilities through a course properly. Implementing cooperative and interactive activities in the classroom poses a significant opportunity to increase students' learning experiences and enhance their English reading skills. Cooperative learning is a pedagogical approach that facilitates group-based learning, allowing students to exchange knowledge and embrace differing perspectives (Aporbo, 2023). Through the integration of cooperative learning practices, instructors can establish a setting in which students engage in active collaboration, discussion, and mutual assistance during the reading process, resulting in enhanced reading abilities and a more profound sense of appreciation. Furthermore, Srisuk (2019) succinctly outlined the seven techniques of cooperative learning aimed at enhancing learning abilities: 1) jigsaw 2) student teams achievement divisions (STAD) 3) learning together (LT) 4) team assisted individualization (TAI) 5) teams games tournaments (TGT) 6) group investigation (GI) 7) cooperative integrated reading and composition (CIRC). The authors of this study specifically examine the use of the STAD method as a means of supporting student development and enhancing the teaching and learning process. The implementation of STAD can be advantageous due to the varying levels of knowledge and abilities among students. Students with lower basic knowledge can enhance their reading skills more effectively by participating in activities with peers who possess greater basic knowledge. Senatham & Pattamadilok (2022) discovered that the STAD method can help students read more fluently in English. An effective method for teaching strategy involves collaborative problem-solving among students, facilitating their comprehension of reading passages. By incorporating additional challenges into this study, a blended learning environment can be created using the STAD method and the flipped classroom approach. This

will ultimately improve students' reading skills while promoting teamwork and critical thinking by leveraging individual preparation, collaborative activities, and active discussions. The flipped classroom model employs pre-class video clips delivered through a university's e-Learning platform to effectively involve students with instructional information in an advanced way.

Therefore, this study relies on blending the STAD method with the flipped classroom teaching approach, enabling students to acquire knowledge through multimedia resources while the teacher assumes the role of a facilitator and advisor. This approach also transforms the classroom setting into one that encourages discussions and other interactive activities, fostering independent learning and accountability among students. Moreover, cooperative learning is considered a pedagogical approach that emphasizes the need of students collaborating as a group to achieve objectives and achieve success (Naowanondha, 2014). The study of Phumpuang & Sittiwong (2018) examined the implementation of flipped classroom learning activities using a collaborative learning strategy for undergraduate students. Their findings revealed that incorporating flipped classroom instruction in the classroom facilitated faster and more effective comprehension among students. This study aims to enhance students' reading skills by implementing a cooperative learning approach using the STAD technique and Flipped classroom model. This strategy seeks to transition the emphasis from teacher-centered education to student-centered learning, enabling students to investigate and implement information with the teacher's direction and assistance during in-person encounters. The flipped classroom concept facilitates individualized learning, cultivates analytical reasoning abilities, and motivates students to assume responsibility for their own learning journey. The research findings of this study have the potential to facilitate the creation of comprehensive learning experiences that integrate both collaborative and individual elements. This method acknowledges the many learning styles and interests of students, promoting a more inclusive and efficient educational setting. Teaching tactics may encompass the development of a well-rounded curriculum that incorporates cooperative tasks, self-directed learning, and focused assistance to accommodate the diverse requirements of students.

Literature Review
English Reading

Reading is the act of deciphering a writer's meaning through letters or symbols. It serves as a bridge between the author and the reader, who will then apply what they have learned or experienced to understand and apply what they have read (Porang, 2018). Montri (2018) stated that reading comprehension is the ability to comprehend a text's primary topic or a paragraph that summarizes all previous paragraphs in the text. Reading for main ideas is defined as reading with the intention of identifying key concepts or knowledge points in the story that is being read. This conclusion can be drawn from examining the definition of reading comprehension as stated above. To locate the writer's core concept, the reader needs to be able to answer the questions of who, what, where, and how. To comprehend the story being read, the reader employs their linguistic knowledge of words, phrases, and structure. In order to grow personally and professionally, reading for comprehension is crucial and required for knowledge acquisition. Since reading comprehension is now a crucial foundational skill. In particular, proficiency in reading English will allow students to broaden their knowledge and stay up to date with global events. As a result, being able to read and write in English will benefit that person in their daily life, career, and education (Chankit et al., 2018). Three aspects are included in the summary of reading elements: 1) the reader whose interpretation is dependent on a variety of factors; 2) text which influences the reader's interpretation and 3) how the reader and the text communicate. Miller (1963) structured the guidelines for reading assessment into four steps, which are as follows: 1) Knowledge of the material in alphabetical order 2) Data

organization, classification, synthesis, and summarization 3) Interpretive comprehension that is able to order occurrences Analyze traits, behaviors, cause-and-effect connections, forecast occurrences, and decipher metaphors 4) Evaluation that necessitates the use of the reader's experience to assess viewpoints, facts, appropriateness, and veracity. Moreover, reading involves five additional critical skills, about which the authors have made the following comments: 1) Reading comprehension is the most important part that the reader gets from summarizing the meaning that shows the purpose, content or theme of the story (Mathung, 2019). 2) Telling details of the story's specifics clarifies and expands on the central theme, which improves the story's comprehension (Arigato, 2022). 3) Guessing word meaning helps readers understand unfamiliar words by allowing them to infer the meaning of new, unknown words from words or phrases that are close by (Bagais, 2023). 4) A pronoun reference is a word that is used in place of people, animals, or other items that have already been mentioned. It is best to avoid using the same word or set of words again in a subsequent mention. It is a word that draws the reader's attention to the continuity or relationship between the sentences (Kitkhunnatham, n.d.). 5) Inference is the process of assuming something based on information that is accessible and utilizing past knowledge to infer, evaluate, and interpret a message (Casey, 2022).

Collaborative Learning Management Using STAD Techniques
The Student Team Achievement Divisions (STAD) learning management system requires students of varying ability levels to collaborate in groups of four to five, with one member being a strong learner, two or three being a medium learner, and one member being a weak learner (Naemkhunthod, 2018). Furthermore, Kurniawan (2021) discovered that STAD learning boosts motivation for language acquisition in low-achieving learners who can rely on group members to help them understand what they don't understand. Low-achieving learners can benefit from group conversations by interacting with and picking up knowledge from their teammates when comparing this to traditional learning, students are more motivated to reach their full potential. STAD can motivate students to pick up knowledge from more experienced teammates, according to Nazari et al. (2022), who investigated STAD learning to improve the skills of EFL learners in Iran. This is one of the best ways to improve the success of EFL learners in language learning.

This approach fosters positive peer reliance among students, which is beneficial for improving reading skills in STAD classes. As a result, the group becomes more unified and accountable for reaching its objectives. In addition to improving reading comprehension skills, it allows for greater understanding of what is read and helps each other understand the assigned reading stories (Juntong & Channuan, 2020).

Flipped Classroom Approach
The concept of Flipped Classroom is to provide students the opportunity to see pre-class video clips of the lesson on their own using the E-learning platform that their teachers have set up ahead of time. It will be very helpful for students to review their lectures more thoroughly, especially in the run-up to exams. Flipped classroom instruction also saves teachers time when it comes to instructing and going over material with students. It is fine to let students study the material independently when there is not enough time for teaching and learning. The time that is left over can be usefully used going over key points and answering queries from the students. Additionally, it provides extra time for teachers and students to collaborate on activities and share ideas in the classroom (Saiphon, 2021). Moreover, Wiranata et al. (2023) who studied the impact of a flipped classroom on reading comprehension in students found a foundational comprehension of the material is ensured for the next day's in-class activities by using the flipped classroom technique as shown in the Figure 1 below.
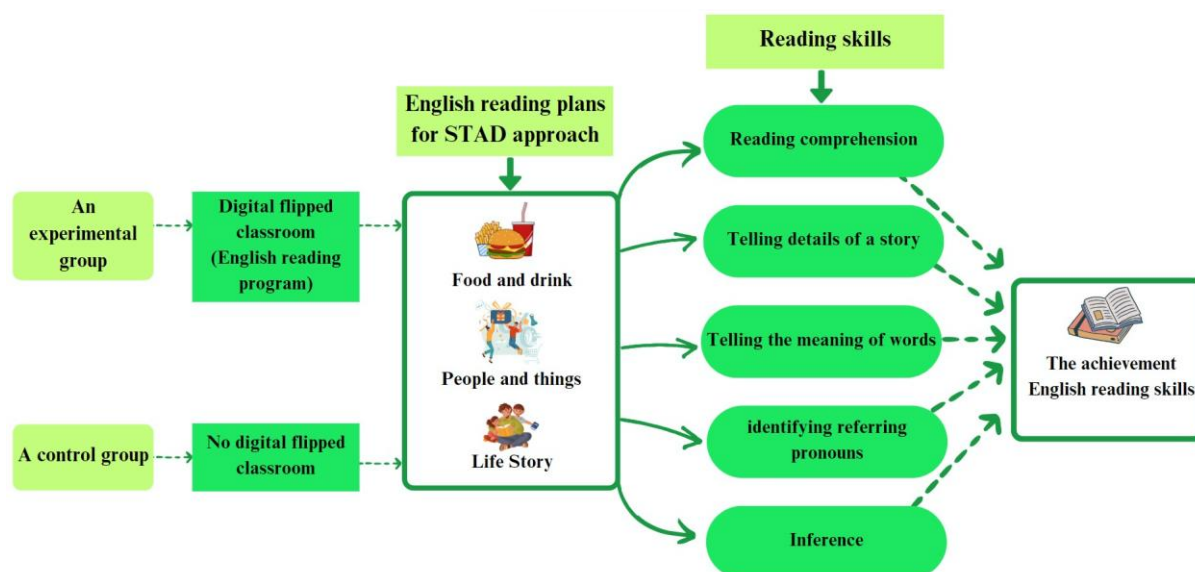
Figure 1 Research Framework of a blended learning through STAD method and flipped classroom

Research Methodology

Population and Sample

The population was 100 students in Rajamangala University of Technology Tawan-ok who enrolled in English for study skills course in the first semester in academic year 2023. They were divided into two groups with 50 students for the experimental group and 50 students for a control group.

Data Collection

This experimental research was conducted by pretest-posttest design with nonequivalent group as in the picture below.
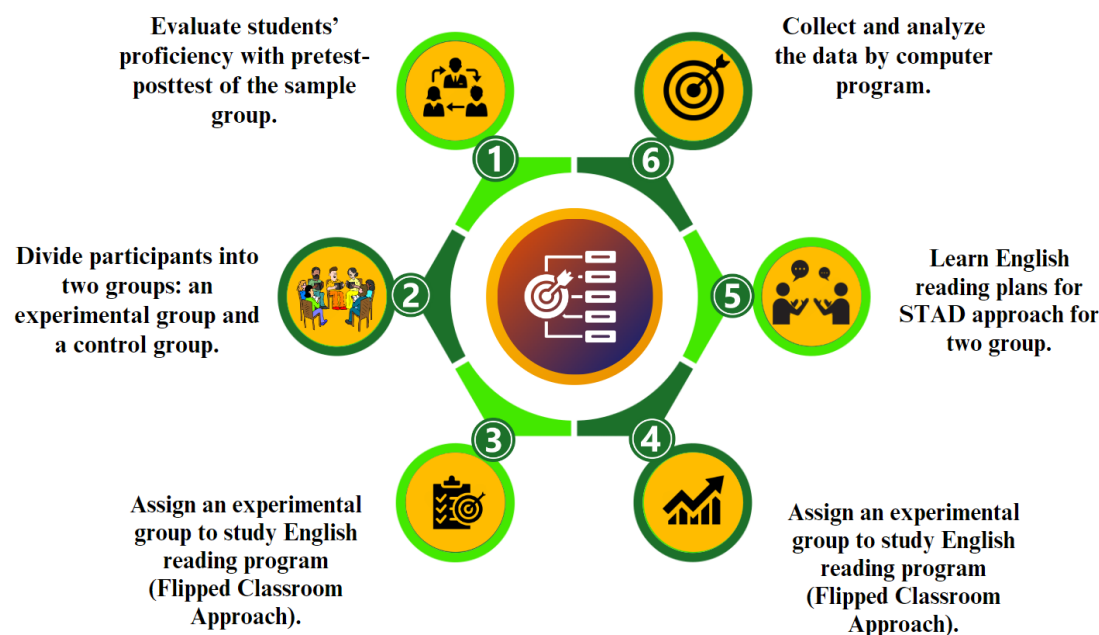

Figure 2 Data collection

The tools used for experiment were English reading program with three lesson (9 hours) and three English reading plans with student team achievement division (STAD) approach (12

hours). These tools were created by following steps: firstly, to study reading theory and concept of flipped classroom and STAD approach, secondly, to create three lessons for English reading program (online) and to make English reading plans with STAD approach with the topics of food and drink, people and things, and life story. These three lessons are adapted from the textbook named Cutting Edge Elementary. In addition, the tool used for collecting the data was English reading test (pre and post) which measures reading skills in 5 areas: reading comprehension, telling details of a story, telling the meaning of words, identifying referring pronouns and inference.

Both three lesson in English reading program and three English reading plans for STAD approach were evaluated quality by three experts using rating scale (5 levels). The evaluation results found that three lesson in English reading program was appropriate at a high level ($\bar{x}$ = 4.54) and three English reading plans for STAD approach was appropriate at a high level ($\bar{x}$ = 4.49). Moreover, three English reading tests were evaluated quality by three experts for finding the index of item-objective congruence (IOC) and the result revealed that it was appropriate (IOC = 0.95). After that English reading test was tried out with 30 students who weren't in sample groups for finding difficulty (0.60-0.95) and index of discrimination (0.28-0.85). Then the improved test was used to find reliability by KR-20 Kuder-Richardson (0.66).

The first step to collecting data was to evaluate students' proficiency with pretest-posttest of the sample group. Secondly, students were divided into two groups: an experimental group and a control group. Next, the experimental group was assigned for studying English reading program. Fourthly, both sample groups learned English reading plans for STAD approach. After that, both sample groups were evaluated English reading proficiency with pretest-posttest. Finally, the data was collected and analyzed by computer program.

Data Analysis

The comparison of scores obtained from English reading ability before learning with integrated digital flipped classroom and cooperative learning using STAD technique of the experimental and control groups involved calculating the mean ($\bar{x}$) and standard deviation (S.D.) and conducting independent t-test to compare the differences between two means.

Research Results

This study compared the analytical thinking ability scores of the experimental and control groups in the English Study Skills course before learning integrated digital flipped classroom with cooperative learning using the STAD technique. The independent samples t-test was tested at the statistical significance level of 0.05. Table 1 displays the findings of the data analysis.

Table 1 Results of comparative analysis of English reading ability before learning with integrated digital flipped classroom and cooperative learning using STAD technique of the experimental and control groups (pretest).

Samples	N	$\bar{x}$	S.D.	t	Sig
An experimental group	50	12.82	1.70	3.47	0.00[*]
A control group	50	11.76	1.32		

* Statistically significant at the 0.05 level.

Table 1 revealed that the experimental group's scores had a mean of 12.82 and a standard deviation of 1.70. The control group's results were Mean = 11.76 and S.D = 1.32. The pre-test scores of the students in the experimental and control groups that received integrated digital flipped classroom learning with cooperative learning using STAD techniques were found to be significantly different at the 0.05 level when comparing the mean learning ability scores of the

integrated digital flipped classroom with cooperative learning using the STAD technique between the experimental group and the control group.

The analysis compared the mean analytical thinking scores of the experimental group before and after learning with an integrated digital flipped classroom and cooperative learning using the STAD technique. The data analysis results are displayed in Table 2 after evaluating the t-value of non-independent samples (t-test) at the statistical significance level of 0.05.

Table 2 Results of the comparative analysis of English reading ability before and after learning with the integrated digital flipped classroom and cooperative learning using the STAD technique of the experimental group.

An experimental group	N	x̄	S.D.	t	Sig
Pre-test	50	12.82	1.70	33.98	0.00*
Post-test	50	24.46	1.37		

* Statistically significant at the 0.05 level.

From Table 2, it was found that the experimental group that received teaching and learning that integrated the digital flipped classroom with cooperative learning using the STAD technique had a mean pre-test score of mean = 12.82, SD = 1.70 and the post-test score has mean = 24.46, SD = 1.37. The results of comparing the difference in mean English reading skill scores after learning with integrated digital flipped classroom and cooperative learning using STAD technique of the experimental group were higher than before learning with statistically significant at the 0.05 level.

The results of the analysis comparing the difference in the mean English reading scores before and after the integrated digital flipped classroom and cooperative learning using the STAD technique of the control group by group t-test of non-independent samples had the statistical significance level of 0.05. The data analysis results are shown in Table 3.

Table 3 Results of comparative analysis of English reading ability scores before and after learning with the integrated digital flipped classroom and cooperative learning using the STAD technique of the control group.

A control group	N	x̄	S.D.	t	Sig
Pre-test	50	11.76	1.32	37.65	0.00*
Post-test	50	20.76	1.15		

* Statistically significant at the 0.05 level.

From Table 3, it was found that scores of the control group who only using the STAD technique had a mean pre-test score of mean = 11.76, SD = 1.32 post-test scores had mean = 20.76, SD = 1.15. Results of comparing the difference in mean English reading scores after learning (post-test) by using STAD technique of the control group was significantly higher than before studying (pre-test) at the 0.05 level. Results of the comparative analysis of English reading ability scores after learning to integrate digital flipped classroom with cooperative learning using STAD technique of the experimental group and control group by independent samples t-test had a statistical significance level of 0.05. The results of the data analysis are shown in Table 4.

Table 4 Results of comparative analysis of English reading ability scores after integrated digital flipped classroom and cooperative learning using STAD techniques of the experimental and control groups (post-test).

Samples	Number	Mean	S.D.	t	Sig
An experimental group	50	24.46	1.37	14.03	0.00*
A control group	50	20.76	1.15		

* Statistically significant at the 0.05 level.

From Table 3, it was found that the scores of the experimental group had mean = 24.46, SD = 1.37. The scores of the control group had mean = 20.76, SD = 1.15. The results of comparing the mean learning ability scores of the integrated digital flipped classroom with cooperative learning using the STAD technique between the experimental group and the control group found that the experimental and control group learners who received learning by integrating the digital flipped classroom with cooperative learning using the STAD technique after learning had significantly different at the 0.05 level.

Conclusion and Discussion

According to a comparison of the academic achievement of developing an integrated learning management plan for the flipped classroom with cooperative learning using the STAD technique to develop English reading skills, the experimental group had higher academic achievement after studying than before studying and the control group had higher academic achievement after studying than before studying. The experimental group outperformed the control group in terms of academic accomplishment at the 0.05 level, according to a comparison of the two groups' academic performance. This demonstrates that after receiving learning management through the media of English reading program and learning management that combined cooperative learning with digitally flipped classrooms using STAD techniques to develop English reading skills, the experimental group's reading ability significantly increased. This is consistent with the findings of Chankit et al. (2018) who reported that the use of cooperative learning activities and the STAD technique in the classroom leads to better reading comprehension in English. Moreover, students' achievement after learning activities (Posttest) in English reading comprehension can be improved by employing the STAD technique to organize collaborative group learning activities. This learning approach aids students' average score increase from before to after studying (Lertworaruttikul, 2020). The STAD technique can also be used to plan activities that assist students improve their English reading skills. This learning method can motivate students to learn more and help them become independent learners with the support of their peers. In addition, higher learning outcomes can also be achieved by using a range of techniques to pique students' interest, enthusiasm, and enjoyment of the learning process (Sati & Boontongtherng, 2022). Furthermore, Samoh & Thangkabutra (2020) found that after implementing a flipped classroom, post-study achievement for the experimental group was significantly higher than for the control group, statistically significant at the.05 level.

Essentially, a learning management system for the blended learning model, supported by the media English reading program, integrates STAD-based cooperative learning with digital flipped classrooms. This teaching and learning system include procedures and techniques for structuring lessons that effectively enhance students' mental, cognitive, and reading-related skill development. When conducting collaborative studying with friends in a study group, individuals can attentively focus on each other and actively contribute to the completion of assigned tasks. Group discussions among students promote constructive interpersonal exchanges and enhance comprehension for individuals who may have difficulty comprehending the material.

Suggestions

1) Teachers should prepare pre-class materials for students while implementing this blended learning strategy in order to enhance English reading skills. This study employs an e-Learning technology that allows all students to access the material from any location. Subsequently, the implementation of cooperative learning management utilizing the STAD strategies can be employed in the classroom. Furthermore, the teachers should initiate the instruction of students in utilizing the internet as an educational tool via multimedia resources within the English for study skills curriculum. Consequently, students can enhance their learning flexibility and usefulness.

2) Teachers can enhance the online learning experience by offering additional educational exercises within the flipped classroom setting. Students are given the chance to engage in online activities that involve character creation or event simulation, enabling them to optimize their learning experience. Therefore, students can get knowledge most efficiently by engaging in direct personal experiences. Furthermore, STAD activities can be incorporated through the utilization of technology. For instance, students may utilize online platforms to engage in collaborative conversations, conduct research, or create multimedia presentations in order enhance their learning experience.

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