

Enhancing Learning Outcomes and Students' Satisfaction Through Flipped Classroom and STAD Integration in Thai EFL Students' Syntax Learning

Natthaya Boonkongsaen*

Srisuda Phatchan

Damrong Saensing

Saengchoy Inthrachak

Faculty of Education, Vongchavalitkul University, Thailand

Received: 15 Oct, 2024

Revised: 19 Nov, 2024

Accepted: 7 Jan, 2025

Abstract

This study explores the impact of integrating the Flipped Classroom model with the Student Teams-Achievement Divisions (STAD) technique on Thai EFL students' syntax learning, focusing on learning outcomes and student satisfaction. The quasi-experimental study was conducted with 16 first-year Thai Bachelor of Education students in English. The study involved administering pre-immediate posttests and delayed posttests each consisting of 60 items. The tests assessed students' knowledge and application of English grammar, focusing on the types and functions of words. The results of the comparative analysis show significant improvements in student achievement. Pretest scores ($M = 25.25$, $SD = 7.08$) increased substantially in the posttest ($M = 52.81$, $SD = 6.92$), with a statistically significant difference ($Z = -3.521$, $p = .000$). Retention was supported by the delayed posttest scores ($M = 51.75$, $SD = 8.28$), which remained high but slightly lower than the immediate posttest. Students expressed high satisfaction with the integrated approach, highlighting enhanced engagement, active participation, and personalized learning. The flipped classroom promoted self-directed learning by encouraging students to prepare before class, while the STAD technique facilitated peer collaboration, fostering teamwork and communication skills. The combined approach also developed higher-order thinking and a growth mindset, as students engaged in analytical and practical tasks. Despite these strengths, some students found pre-class preparation tasks less engaging, indicating a need for improved task design. Overall, this integration significantly enhances academic performance and satisfaction.

Keywords: Flipped Classroom, STAD, Student Achievement and Satisfaction, Collaborative Learning, Peer Learning Strategies

*Corresponding Author

Introduction

Instructing English as a foreign language (EFL), particularly in the areas of morphology and syntax, presents significant challenges. This is particularly applicable to Thai students pursuing a Bachelor of Education. To teach effectively in the future, it is essential for these students to develop a strong understanding of sentence structure and the functions of different parts of speech. Regrettably, the conventional instruction of syntax and morphology frequently devolves into rote memorization. Teachers typically deliver grammar and sentence construction lessons from the front of the classroom, using a chalkboard or PowerPoint for examples. While this method of presenting information is straightforward, it may not facilitate comprehension or appreciation of the subject matter. Consequently, this approach often renders classes tedious, reduces student engagement, and compromises learning quality, potentially leading to subpar academic performance.

The Flipped Classroom and Student Teams-Achievement Division (STAD) methodologies are appealing alternatives. Flipped learning prioritizes active engagement and student involvement (Bishop & Verleger, 2013). Flipped classrooms, as noted by Abeysekera and Dawson (2015), contest conventional educational paradigms. This technique transfers instructional content beyond the classroom, preferably into personal learning settings via digital technologies. This renders the class more dynamic, engaging, and focused on the learner. Nanor (2024) characterizes several key features of STAD. Firstly, STAD promotes heterogeneous grouping, where students are organized into diverse teams based on varying abilities, backgrounds, and learning styles. This diversity is crucial as it allows students to learn from one another, fostering a supportive learning environment that encourages peer interaction and collaboration (Nanor, 2024). The field of education has thoroughly examined the flipped classroom and STAD methodologies.

Research on the utilization of English morphology and syntax instruction for Thai bachelor's degree students is limited. This lack of focused research raises uncertainty about whether novel tactics can enhance learning outcomes in this educational context. Moreover, instructing students on the Flipped Classroom model and the STAD methodology prior to their implementation in English morphology and syntax lessons can be advantageous. By introducing these strategies beforehand, students will understand what to expect in class, including teaching methodologies, student roles, and expectations for engagement. This could potentially ease the transition and improve the quality of learning and instruction.

Consequently, this research aims to address these gaps by focusing on two primary objectives. First, it evaluates the efficacy of the Flipped Classroom model and the STAD technique in teaching English morphology and syntax to first-year Thai Bachelor of Education students. Specifically, it investigates two research questions:

RQ1: What is the impact of using the Flipped Classroom model and the STAD technique on the academic performance and retention of first-year Thai Bachelor of Education students, as measured by pretest, immediate posttest, and delayed posttest scores?

RQ2: What is the level of students' satisfaction with the implementation of the Flipped Classroom model and the STAD technique in the English morphology and syntax class?

Through these research questions, the study seeks to provide insights into the application of these pedagogical strategies in Thai EFL instruction.

Literature Review

Innovative teaching strategies are crucial for teaching EFL, notably morphology and syntax. Flipped-classroom instruction and cooperative learning methods such as STAD boost student engagement and learning. This study uses these two strategies to help Thai EFL students understand morphology and syntax and overcome learning challenges. To support this research, the literature review discusses flipped-classroom instruction, STAD, morphology and syntax learning, and related studies.

Flipped-Classroom Instruction

A teaching method known as the “flipped classroom” reverses the traditional sequence of learning. Instructional content is delivered outside of the classroom, often through online videos or readings, allowing students to explore and learn independently. Class time is then utilized for active and collaborative learning experiences, such as discussions, problem-solving, and hands-on activities (Tucker, 2012).

One of the primary advantages of the flipped classroom is its ability to foster active learning. Jensen et al. argue that the flipped classroom facilitates active learning strategies, which can lead to increased student satisfaction and improved learning outcomes compared to traditional instructional methods (Jensen et al., 2015). This assertion is corroborated by Jang and Kim, who conducted a meta-analysis revealing that flipped classrooms significantly enhance cognitive outcomes, such as test scores and self-directed learning skills (Jang & Kim, 2020). Furthermore, the flexibility of accessing pre-recorded lectures allows students to learn at their own pace, which has been shown to improve understanding and retention of material (Hew & Lo, 2018).

To summarize, the flipped classroom is a teaching method that reverses traditional instruction by having students engage with learning materials, such as videos or readings, outside of class. This approach allows classroom time to focus on active learning, discussions, and collaborative activities, helping students deepen their understanding with support from teachers and peers.

Student Teams Achievement Division (STAD) Techniques

STAD is a cooperative learning strategy in which students of mixed abilities are placed in teams to work together on academic tasks. Each team member is individually accountable for their own learning and is also responsible for helping their teammates learn. Team points are awarded based on the individual and collective achievement of team members (Slavin, 2014).

In the STAD approach of cooperative learning, students are placed into diverse teams to work together on academic assignments to support each other's learning and improve their performance through mutual assistance and shared accountability. Individual and group incentives are provided to motivate students and promote academic achievement (Kagan, 2021).

To sum up, STAD is a cooperative learning model where students of diverse skill levels cooperate on academic objectives in teams. Students take responsibility for their learning and help the team succeed. Rewards for individual and team performance encourage collaboration, peer support, and shared responsibility.

Morphology and Syntax Learning

Morphology and syntax are fundamental components of language learning, and their understanding is crucial for language teachers. Morphology, the study of word structure, and syntax, the study of sentence structure, are intertwined. For language teachers, a solid grasp of these elements enhances their ability to teach effectively, as they provide the foundational knowledge necessary for students to develop proficiency in a language.

Teachers who incorporate morphological instruction into their curriculum can help students understand the internal structure of words, which in turn aids in decoding and comprehension tasks (Anwar & Rosa, 2020). This is especially important in contexts where students may struggle with language acquisition, as morphological knowledge can serve as a predictor of overall language proficiency (Washburn & Mulcahy, 2018).

Furthermore, teacher training programs that emphasize the importance of morphology and syntax can better prepare educators to address the diverse needs of their students. Studies suggest that teacher candidates often lack sufficient knowledge in these areas, which can hinder their teaching effectiveness (Daulay et al., 2021; Washburn & Mulcahy, 2018). By focusing on linguistic content, including morphology and syntax, teacher preparation programs can equip future educators with the tools necessary to support their students' language development.

In formal educational settings, the teaching of morphology can be challenging due to the inherent complexities of different languages. For instance, learners often struggle with the diverse morphological structures present in English, which can vary significantly from their native languages (Le, 2023). Effective instructional strategies that incorporate morphological analysis have been shown to improve students' understanding and use of language. For example, teaching methods that emphasize the segmentation of words into morphemes and the meanings of affixes can significantly enhance vocabulary knowledge and reading comprehension (Goodwin et al., 2012; Sulistyawati et al., 2021). Furthermore, interventions focusing on morphological awareness have demonstrated positive outcomes in enhancing learners' productive vocabulary breadth, particularly among second language learners (Asaad et al., 2022; Ghasemi & Vaez-Dalili, 2019).

To summarize, a solid understanding of morphology and syntax is critical for efficient language teaching, especially in diverse and demanding educational settings. Integrating morphological instruction and emphasizing linguistic knowledge into teacher education programs can considerably improve students' language growth and performance. Teachers can better meet the requirements of their students by implementing effective teaching strategies and interventions that promote greater vocabulary, comprehension, and productive language abilities.

Related Studies

Several studies have explored the effects of flipped classrooms and cooperative learning across various educational contexts, revealing positive impacts on both learning outcomes and student motivation. Rohyami and Huda (2020) investigated the application of flipped classroom and cooperative learning in an analytical chemistry course at the Islamic University of Indonesia. In this study, students had access to online video lectures and instructional materials before class through various devices such as cellphones, tablets, laptops, and PCs. During in-person sessions, students engaged in collaborative learning using the STAD and Team Games Tournament (TGT) techniques. The lecturers evaluated student progress through interactive tests, group activities, and continuous feedback. The findings demonstrated that this flipped classroom-cooperative learning approach significantly improved students' understanding of volumetric testing concepts and yielded higher average learning results compared to traditional cooperative learning methods. The study concluded that this instructional method enhanced the comprehension of volumetric and stoichiometric concepts in analytical chemistry.

Moreover, Shafiee Rad et al. (2022) conducted a quasi-experimental investigation of the impact of flipped learning in conjunction with STAD cooperative learning on students' expository writing and learning attitudes. Over an 11-week period, students in the experimental group participated in flipped classroom activities focused on expository essay writing, while the control group followed traditional face-to-face instruction. The

researchers collected data using pretests, posttests, surveys, and interviews. The results indicated that the flipped classroom-STAD approach led to significant improvements in students' expository writing scores. Additionally, students in the experimental group expressed positive attitudes toward the flipped learning model, citing the benefits of instructor support, group collaboration, and the opportunity to engage more deeply with course content. Similarly, Mayasari et al. (2022) explored the impact of a flipped classroom-STAD approach on cognitive learning outcomes related to the blood circulatory system. Their study used a one-group pre-experimental design with pretests and posttests to measure learning gains. The results indicated a substantial improvement in student learning, with the N-Gain test showing a 62% increase in cognitive understanding, as compared to an 87% gain under more traditional teaching methods. These findings suggest that the flipped classroom-STAD approach effectively enhanced students' comprehension of the blood circulatory system.

Further supporting the benefits of flipped classroom methods, a study by Putri et al. (2022) compared student motivation in learning the human circulatory system using traditional teaching versus a flipped classroom model facilitated through Google Classroom. This quasi-experimental study, involving pretests and posttests, analyzed the data using questionnaires and *t*-tests. The researchers found that the flipped classroom method with Google Classroom significantly increased students' motivation to learn compared to conventional teaching techniques. The results highlight the motivational advantages of integrating technology and flipped learning in instructional design. Taken together, these studies suggest that the combination of flipped classrooms and cooperative learning strategies, such as STAD, not only enhances academic performance across various subjects but also fosters greater student motivation and engagement. This instructional model appears to provide more effective learning experiences compared to traditional approaches, as it allows students to actively collaborate, receive timely feedback, and engage with content in a more dynamic and interactive manner.

Materials and Methodology

Research Design

To address the first research question on the impact of using the Flipped Classroom model and the STAD technique on academic performance and retention, this quasi-experimental study was conducted with 16 first-year Thai Bachelor of Education students in English. The selection of this group was based on their role as student teachers preparing for careers in education. These students were specifically selected because of their need to develop a strong understanding of morphology and syntax, with a focus on parts of speech, which are foundational to teaching English effectively. As future educators, it is crucial that they master these elements of language to provide quality instruction in grammar and language structure to their own students. The study involved administering pretests

immediate posttests and delayed posttests each consisting of 60 items. The tests assessed students' knowledge and application of English grammar, focusing on the types and functions of words, including nouns, verbs, adjectives, prepositions, conjunctions, and pronouns. The tests evaluated the ability to identify and use these parts of speech correctly, such as recognizing noun types and their functions, applying verb tenses, identifying adjective forms and placement, understanding prepositional phrases, using conjunctions to connect ideas, and ensuring correct pronoun usage with proper antecedent agreement. Questions included multiple-choice and sentence completion with multiple-choice options. A pretest was given to assess students' baseline knowledge, specifically their ability to identify and apply the types and functions of words, including nouns, verbs, adjectives, prepositions, conjunctions, and pronouns, followed by instruction using the Flipped Classroom model combined with the STAD technique. A posttest was administered immediately after the intervention to evaluate learning outcomes, and a delayed posttest was conducted two weeks later to assess retention. The results from the pretest, immediate posttest, and delayed posttest were compared to analyze the effectiveness of the instructional methods.

To explore the second research question on the level of students' satisfaction with the implementation of the Flipped Classroom model and the STAD technique in their English morphology and syntax class, a 20-item questionnaire was developed based on concepts from previous studies (Afrilyasanti et al., 2017; Karyadi et al., 2020; Lin et al., 2017; Morgan et al., 2015). These studies emphasized key aspects of the flipped classroom, including active engagement, skill development, collaborative learning, and real-life problem-solving. Although the prior research did not provide explicit questionnaires, these themes served as a foundation for designing the questionnaire to effectively assess student satisfaction. The questionnaire was designed to measure students' satisfaction with the teaching approach that combines the Flipped Classroom model and the STAD method. It used Likert-scale items to capture perceptions across various aspects, including engagement, personalization, collaboration, critical thinking, academic performance, and overall satisfaction. It was administered in class immediately after the posttest.

Instrument Validation

To ensure the quality and reliability of the test, a systematic validation process was undertaken. First, five experts in the field of education and language assessment reviewed the questionnaire items. Using the Item-Objective Congruence (IOC) index, the experts evaluated each item for relevance, clarity, and alignment with the study's objectives. Items with IOC values of 0.50 or higher were retained, while those with lower values were revised or removed.

Following the expert evaluation, the revised test was piloted with a group of students who were not part of the actual sample group. The pilot study aimed to identify

any ambiguous or unclear items and to assess the overall structure and timing of the test. Feedback from the pilot participants was used to make further refinements to the test items.

For quantitative validation, key metrics such as the difficulty index and discrimination index were calculated. Analysis showed that the difficulty index for the test items ranged from 45% to 58%, confirming that the items were neither too easy nor too difficult.

The discrimination index, which measures the ability of an item to differentiate between high- and low-performing students, was also computed. A discrimination index value of 0.3 or higher is generally regarded as acceptable. All items in the test achieved values above the threshold, indicating that they effectively differentiated between students with varying levels of understanding.

Additionally, the reliability of the test was assessed using the Kuder-Richardson Formula 20 (KR-20), which is specifically designed for dichotomously scored items (e.g., multiple-choice questions). The KR-20 value was calculated to be 0.88, indicating a high level of reliability.

Cronbach's alpha validated the questionnaire assessing students' satisfaction with the two techniques, yielding an acceptable internal consistency result of 0.81. Before its use, the questionnaire was reviewed by the five aforementioned experts to ensure content validity. Each item was evaluated using IOC index, with items requiring an IOC value of 0.50 or higher to be retained. Out of the initial set of items, three were removed due to low IOC values, leaving 20 items with IOC values above 0.50.

The questionnaire categorized satisfaction levels on a Likert scale as follows: scores between 1.00 and 1.99 indicated low satisfaction, scores between 2.00 and 2.99 reflected moderate satisfaction, and scores between 3.00 and 4.00 represented high satisfaction.

Conceptual Framework

The proposed framework integrated the Flipped Classroom model and STAD to enhance students' understanding of English morphology and syntax, focusing on parts of speech and their syntactic functions. Grounded in constructivism and cooperative learning theories, this approach leveraged pre-class individual learning and in-class collaborative activities to foster deeper engagement and retention. The details of the framework are as follows:

Table 1
Conceptual Framework, Instructional Framework, and Breakdown of Steps

1. Conceptual Framework

Model	Theoretical Basis	Application	Interactive Element
Flipped Classroom Model	Constructivism and Active Learning.	Students engage in video-based pre-class activities to build foundational knowledge on types of parts of speech and their syntactic functions.	Pre-class activities encourage students to take notes, prepare questions, and identify points of confusion for resolution.
Student Teams-Achievement Divisions (STAD)	Cooperative Learning and Social Constructivism.	Small teams collaborate on syntax and parts of speech tasks, promoting active discussion and problem-solving.	Teams foster peer teaching, ensuring mutual understanding and accountability while building syntactic knowledge.

2. Instructional Framework (Loop of Instruction)

Step	Objective	Activities	Interactive Element
Step 1: Homeroom Time	Introduce Flipped Classroom and STAD techniques.	<ul style="list-style-type: none"> - Present an overview of the models using case studies. - Facilitate interactive sessions where students discuss expectations and concerns. 	<ul style="list-style-type: none"> - Promotes student engagement and sets a collaborative tone.
Step 2: Out-of-Class Activities (Flipped Classroom)	Enable pre-class preparation.	<ul style="list-style-type: none"> - Students watch videos on parts of speech and take structured notes. - Prepare questions for discussion. 	<ul style="list-style-type: none"> - Fosters independent engagement and reflection. - Prepares students for collaborative in-class activities.
Step 3: In-Class Activities (STAD Loop)	Foster collaborative learning through teams and expert groups.	See the breakdown of activities.	Builds collaboration, accountability, and mastery through peer and whole-class teaching.

Breakdown of Step 3: In-Class Activities (STAD Loop)

Sub-Step	Objective	Activities	Interactive Element
Team Formation	Ensure diverse group dynamics.	<ul style="list-style-type: none"> - Form teams with students of varied skill levels. 	Teams build rapport and leverage diverse perspectives.

Sub-Step	Objective	Activities	Interactive Element
Team Discussions	Review pre-class material collaboratively.	<ul style="list-style-type: none"> - Teams discuss parts of speech and their functions. - Address areas of confusion collectively. 	Encourages collaborative problem-solving and peer support.
Expert Groups Formation	Deep specialization.	<ul style="list-style-type: none"> - Regroup into expert groups, each focusing on a specific part of speech. - Prepare explanations, examples, and teaching points. 	Experts collaborate to refine understanding and prepare teaching points.
Collaboration in Expert Groups	Strengthen mastery of content.	<ul style="list-style-type: none"> - Practice teaching within expert groups. - Peer review ensures accuracy and clarity of content. 	Promotes peer feedback and enhances comprehension.
Expert Group Teaching	Share knowledge with the entire class.	<ul style="list-style-type: none"> - Groups present their topics with definitions, examples, and functions. - Classmates engage through questions and feedback. 	Encourages active participation and feedback for deeper understanding.
Teacher Input	Provide expert guidance.	<ul style="list-style-type: none"> - Supplement presentations with clarification and corrective feedback. - Facilitate class-wide discussions. 	Reinforces concepts and ensures accuracy.
Interactive Whole-Class Activities	Reinforce learning collaboratively.	<ul style="list-style-type: none"> - Sentence construction tasks applying parts of speech. - Error correction as team competitions. 	Engages students in real-time problem-solving and collaboration.
Small Group Collaboration	Apply knowledge to syntactic contexts.	<ul style="list-style-type: none"> - Teams solve exercises collaboratively. - Examples include writing sentences or analyzing grammatical errors. 	Encourages shared responsibility and application of concepts.
Assessments	Measure understanding and retention.	<ul style="list-style-type: none"> - Immediate Posttest: Conducted at the end of class. - Delayed Posttest: Administered two weeks later. 	Evaluates both immediate learning outcomes and long-term retention.

Results

This section provides an analysis of the impact of the flipped classroom model and the STAD technique on students' learning outcomes, retention, and satisfaction. The focus is on how these instructional approaches influence both short-term learning outcomes, long-term retention, and overall student satisfaction with the combined methods.

Impact of Flipped Classroom and STAD Technique on Students' Learning Outcomes: Pretest, Posttest, and Delay Posttest Analysis

This section presents the learning outcomes of students assessed at three different time points: before the intervention (pretest), immediately after the intervention (posttest), and two weeks after the intervention (delayed posttest). The goal was to evaluate not only the immediate learning gains resulting from the Flipped Classroom model and STAD technique, but also the retention of knowledge over time.

Table 2

Comparative Analysis of Pretest, Posttest, and Delayed Posttest Scores Using the Flipped Classroom Model and STAD Technique

Learning Outcomes	Mean	S.D.	Median	Min	Max	Z	P-value
Pretest	25.25	7.08	23.50	12.00	39.00		
Posttest	52.81	6.92	55.00	30.00	57.00	-3.521	.000
Delayed Posttest	51.75	8.28	54.00	25.00	57.00		

Table 2 combines the results of the pretest, immediate posttest, and delayed posttest, showing key descriptive statistics such as mean scores, standard deviations (S.D.), medians, and minimum and maximum values for each assessment. The data reflect significant improvements in students' learning outcomes from the pretest to the posttest, with a slight decrease in performance observed in the delayed posttest, administered 2 weeks after the immediate posttest. Specifically, pretest scores had a mean of 25.25, with a wide range of scores from 12 to 39, indicating lower levels of prior knowledge. After the intervention, posttest scores showed a marked improvement, with a mean score of 52.81 and scores ranging from 30 to 57, indicating that the instructional intervention had a strong impact on student learning.

Two weeks after the posttest, the delayed posttest showed a slight decline in mean scores (51.75) compared to the immediate posttest, but scores remained relatively stable, with a range of 25 to 57. This suggests that the majority of students retained most of the

knowledge gained during the intervention. The slight drop in performance in the delayed posttest is typical in retention studies, and it indicates that while some knowledge was lost over time, the impact of the instructional process persisted.

To assess the statistical significance of the observed improvement, a Wilcoxon Matched Pairs test was performed on the pretest and posttest data. The Z-score of -3.521 and the P-value of 0.000 indicate that the difference between the pretest and posttest scores is statistically significant at the 0.05 level. This confirms that the increase in students' performance was a result of the instructional intervention rather than random variation.

Table 3
Student Satisfaction with the Flipped Classroom and STAD Technique

Description	Mean	S.D.
1. The Flipped Classroom model has fostered a higher level of engagement and active participation during in-class exercises compared to traditional lecture-based instruction.	3.69	0.48
2. The Flipped Classroom model, combined with STAD, has allowed for a more personalized and self-paced learning experience, catering to individual learning styles and preferences.	3.69	0.48
3. The implementation of the STAD method and the Flipped Classroom model has nurtured a growth mindset, encouraging continuous learning and improvement among students.	3.69	0.48
4. The incorporation of the Flipped Classroom model with STAD has increased my happiness and satisfaction compared to conventional lecture-based instruction.	3.63	0.50
5. Based on my experience, I strongly believe that other students would benefit from the implementation of the STAD method and the Flipped Classroom model.	3.63	0.50
6. The Flipped Classroom model, when integrated with STAD, has allowed for a more interactive and dynamic learning environment, promoting active student engagement.	3.63	0.50
7. The STAD method and the Flipped Classroom model have provided opportunities for immediate feedback and clarification, enhancing the learning process and addressing misconceptions in a timely manner.	3.56	0.51
8. My interest in and motivation for learning have increased as a direct result of the STAD method and the Flipped Classroom model.	3.50	0.52
9. The collaborative nature of the STAD method, integrated with the Flipped Classroom model, has facilitated effective teamwork and communication skills development.	3.50	0.52
10. The Flipped Classroom model and STAD have encouraged a deeper level of understanding and application of concepts, promoting higher-order thinking skills.	3.50	0.52
11. The implementation of the Flipped Classroom model and STAD has resulted in a noticeable improvement in my academic performance.	3.50	0.52
12. The combination of the Flipped Classroom model and STAD has fostered a sense of ownership and responsibility for my own learning journey.	3.50	0.52
13. The utilization of the STAD method and the Flipped Classroom model has encouraged collaborative problem-solving and critical thinking among peers	3.50	0.52

Description	Mean	S.D.
14. The combination of the Flipped Classroom model and STAD has created a supportive and inclusive learning environment, fostering a sense of belonging and community among students.	3.44	0.51
15. The Flipped Classroom model, in conjunction with STAD, has facilitated a deeper connection between theory and practice, enhancing the application of knowledge in real-world scenarios.	3.44	0.51
16. The integration of the Flipped Classroom model and STAD has significantly enhanced my understanding of the subject matter.	3.44	0.51
17. The STAD method and the Flipped Classroom model have provided opportunities for group learning and peer engagement, enhancing the overall learning experience.	3.38	0.50
18. The utilization of the STAD method and the Flipped Classroom model has greatly improved my critical thinking skills and problem-solving abilities.	3.38	0.50
19. The combination of the Flipped Classroom model and STAD has positively impacted my overall satisfaction with the learning experience.	3.38	0.50
20. The pre-classwork in the Flipped Classroom model has effectively prepared me for in-class activities, allowing for a more productive learning experience.	3.31	0.48
Overall mean	3.51	0.03

Table 3 presents a comprehensive analysis of student satisfaction with the combined use of the two techniques, measured through mean scores and S.D. The satisfaction levels are categorized into three ranges: low satisfaction (1.00-1.99), moderate satisfaction (2.00-2.99), and high satisfaction (3.00-4.00). Based on the results, all items received mean scores within the range of 3.31 to 3.69, which indicates high satisfaction across all evaluated areas. Three items consistently demonstrated the highest mean score, 3.69 (S.D. = 0.48) for the Flipped Classroom model, which promotes higher engagement and active participation, provides a more personalized and self-paced learning experience, and fosters a growth mindset that encourages continuous improvement.

These scores reflect students' strong approval of how the combination of Flipped Classroom and STAD positively influenced their learning experience and mindset. Other aspects of the learning model also received high satisfaction scores, including the increased happiness and satisfaction (mean = 3.63, S.D. = 0.50), improved teamwork and communication skills through collaboration (mean = 3.50, S.D. = 0.52), and the enhanced application of knowledge in real-world scenarios and understanding of the subject matter (mean = 3.44, S.D. = 0.51). These high ratings indicate that students found the methods effective not only for individual learning but also for collaboration and practical application. The statement about pre-classwork in the Flipped Classroom model, which prepares students for in-class activities, received the lowest mean score, 3.31 (SD = 0.48). While this score is still within the high satisfaction range, it suggests that some students might have found the preparatory work less impactful compared to other components of the method. Overall, the average satisfaction score across all items was 3.51 (S.D. = 0.03), indicating a strong overall positive response to the combined use of the Flipped Classroom and STAD techniques.

Conclusion and Discussion

This section summarizes and discusses the research findings.

Impact of the flipped classroom model and the STAD technique on learning outcomes

The findings regarding the impact of the Flipped Classroom model and the STAD technique on learning outcomes reveal a significant enhancement in student performance, as evidenced by the comparative analysis of pretest and posttest scores. The substantial increase in mean scores from the pretest to the posttest indicates that both instructional strategies effectively supported students in improving their understanding of English morphology and syntax, particularly focusing on types of parts of speech and their functions. This aligns with previous research that highlights the benefits of interactive and collaborative learning environments on student engagement and achievement. For instance, Leary et al. (2021) observed that cooperative learning approaches in STEM courses led to increased academic success and retention, suggesting that interactive instructional designs, such as the Flipped Classroom and STAD, can promote deeper learning. Similarly, Khanova et al. (2015) found that students generally prefer the Flipped Classroom format when implemented effectively, which may contribute to positive learning outcomes by fostering active engagement and collaboration.

While some studies (e.g., Jdaitawi, 2019) suggest that the Flipped Classroom model can promote self-awareness in students and improve communication and collaboration skills, these aspects were not directly measured in the current study. The focus of this research was on the effectiveness of the combined Flipped Classroom and STAD approaches in fostering academic achievement in the domain of English morphology and syntax. The improvements observed were reflected in the test scores and not in other areas, such as self-awareness or communication skills.

The retention of knowledge, assessed through a delayed posttest administered two weeks after the immediate posttest, revealed a slight decrease in mean scores; however, the scores remained relatively close to those of the immediate posttest. This suggests that while some knowledge may fade over time, the Flipped Classroom model still supports increased retention compared to traditional methods. In terms of long-term retention, studies have indicated that the Flipped Classroom can lead to sustained improvements in knowledge retention. For example, Day's research demonstrated that students in a Flipped Classroom not only performed better but also retained information more effectively over time compared to their peers in traditional settings (Day, 2018). Similarly, Noroozi et al. (2020) found that flipped instruction significantly enhanced learners' retention of grammatical knowledge, indicating that the benefits of this instructional strategy extend beyond immediate learning outcomes (Noroozi et al., 2020). The integration of the Flipped Classroom model and the STAD technique not only leads to immediate improvements in

learning achievement but also fosters an environment that enhances student engagement, collaboration, and retention of knowledge over time. This multifaceted approach to learning is supported by a growing body of literature that underscores the effectiveness of active learning strategies in educational settings.

Students' Satisfaction with the Integration of the Flipped Classroom Model and STAD Technique

The integration of the Flipped Classroom model with the STAD technique has received high levels of satisfaction from students, as evidenced by their positive ratings across the following key themes.

1) Enhanced Engagement and Active Participation

One of the most notable outcomes of this approach is the significant increase in student engagement and active participation during in-class activities. By shifting the focus from passive listening to active learning, the Flipped Classroom model encourages students to come to class prepared, fostering meaningful interactions and collaborative problem-solving. Research supports this shift, indicating that active learning environments contribute to improved academic performance and critical thinking skills (Bishop & Verleger, 2013). Additionally, the real-time feedback provided during STAD activities plays a crucial role in clarifying misconceptions, ensuring a deeper understanding of the subject matter. This dynamic classroom atmosphere aligns with the principles of student-centered learning, further enhancing satisfaction.

2) Personalized and Collaborative Learning

The combination of personalized and collaborative learning strategies emerged as another key factor contributing to student satisfaction. The Flipped Classroom model allows learners to engage with materials at their own pace, catering to diverse learning styles and individual preferences (Bergmann & Sams, 2012). When integrated with the STAD technique, this personalized learning experience is complemented by opportunities for teamwork and peer interaction. The cooperative structure of STAD fosters a sense of community and shared accountability, enhancing both academic achievement and essential soft skills such as communication and collaboration (Johnson et al., 2014; Slavin, 2015). Students expressed high satisfaction with this balance of independence and group learning, as it creates a more inclusive and supportive educational experience.

3) Development of Higher-Order Thinking and a Growth Mindset

This pedagogical approach has proven effective in promoting higher-order thinking and nurturing a growth mindset among students. The Flipped Classroom model provides opportunities for learners to analyze, evaluate, and apply knowledge in practical contexts, while the STAD technique emphasizes continuous improvement through collaborative efforts (Lage et al., 2000).

4) Student Satisfaction and Overall Experience

Overall, students expressed a high level of satisfaction with the integrated approach compared to traditional lecture-based instruction. The sense of ownership and responsibility instilled by the Flipped Classroom model, coupled with the engaging and cooperative elements of STAD, created an enjoyable and fulfilling learning environment. These findings align with studies showing that cooperative learning strategies not only enhance academic outcomes but also improve student motivation and engagement (Felder & Brent, 2009).

5) Challenges with Preparatory Work

Despite the overwhelmingly positive feedback, some challenges were noted regarding the preparatory work required for the Flipped Classroom model. While students acknowledged the importance of pre-class activities, some found them less engaging or directly impactful. This suggests the need for refinement in designing preparatory tasks to ensure alignment with in-class objectives and to effectively stimulate curiosity and motivation (Baker, 2000). Addressing this issue will be critical in maximizing the potential of this integrated approach and maintaining high levels of student satisfaction.

The integration of the Flipped Classroom model with the STAD technique has achieved high levels of student satisfaction across the mentioned key themes. By enhancing engagement, fostering collaboration, promoting higher-order thinking, and creating a supportive learning environment, this approach not only meets academic goals but also addresses students' emotional and social needs. However, attention to the design of preparatory activities is essential to ensure their full effectiveness. Future iterations of this model should focus on refining these areas to further optimize the learning experience.

Teaching and Learning Implications

The integration of the flipped classroom and STAD techniques has important implications for teaching English grammar and syntax in Thailand's EFL context.

1. Improved Learning of Complex Concepts: Flipped learning allows students to review grammar rules and syntax before class, freeing up class time for practical, interactive exercises. This shift helps students better grasp and retain complex concepts.

2. Collaborative Learning: STAD encourages teamwork and peer-supported learning, fostering a collaborative environment that helps students practice grammar in groups, boosting both understanding and confidence.

3. Increased Engagement: These methods create an interactive classroom where Thai students, who may be hesitant to participate, are actively involved in applying grammar and syntax, leading to greater engagement and motivation.

4. Development of Communication Skills: By explaining and correcting grammar in groups, students enhance their speaking and listening skills, crucial for real-life language use.

5. Catering to Learning Styles: The flexibility of the Flipped Classroom allows students to engage with grammar lessons at their own pace, accommodating different learning preferences and improving satisfaction.

6. Better Retention: These strategies support long-term retention of grammar rules better than traditional methods, with interactive learning helping students internalize and apply concepts effectively.

7. Preparation for Real-World Use: The combination of active learning and teamwork equips students with practical language skills, preparing them for real-world communication. Overall, the Flipped Classroom and STAD techniques enhance learning outcomes, engagement, and skill development in teaching English grammar and syntax to Thai students.

Limitations

One limitation of the study is the small sample size, with only 16 first-year Thai Bachelor of Education students participating, which may limit the generalizability of the findings to broader populations. Additionally, the study focused solely on teaching the types and functions of parts of speech, which may not fully represent the effectiveness of the Flipped Classroom and STAD techniques for other areas of English language learning. The short duration of the study, with assessments conducted immediately after instruction and two weeks later, may also not capture long-term retention or the sustained impact of the instructional methods. Lastly, the reliance on self-reported data for student satisfaction through surveys may introduce bias, as students could respond favorably due to the novelty of the teaching approach rather than its actual effectiveness.

Authors

Assistant Professor Dr. Natthaya Boonkongsaen is a lecturer in the English Program, Faculty of Education, Vongchavalitkul University, Nakhon Ratchasima, Thailand. Her research interests include English Language Teaching, Vocabulary Learning, Reading, and Communication Strategies. She has published extensively in these areas and is committed to improving English language education through innovative teaching and research practices.

Email: Nathaya_boo@vu.ac.th

Dr. Srisuda Patjan is a lecturer in Higher Graduate Diploma, Faculty of Education, Thaksin University, Songkhla, Thailand. Her academic focus lies in Research and Assessment. She is dedicated to enhancing educational quality through effective curriculum design and evidence-based evaluation methods.

Email: Srisuda.p@tsu.ac.th

Dr. Damrong Saensing is a lecturer in the English Program, Faculty of Education, Vongchavalitkul University, Nakhon Ratchasima, Thailand. His research interests include English Language Teaching, with a focus on pedagogical approaches that enhance language acquisition in EFL contexts.

Email: sansing1@hotmail.com

Ajarn Saengchoy Intrachak is a lecturer in the English Program, Faculty of Education, Vongchavalitkul University, Nakhon Ratchasima, Thailand. His research interests include English Language Teaching and gamification. His work explores how game-based strategies can improve language engagement and learning outcomes.

Email: sengchoy_int@vu.ac.th

References

Abeysekera, L., & Dawson, P. (2015). Motivation and cognitive load in the flipped classroom: Definition, rationale, and a call for research. *Higher Education Research & Development, 34*(1), 1-14.
<https://doi.org/10.1080/07294360.2014.934336>

Afrilyasanti, R., Cahyono, B. Y., & Astuti, U. P. (2017). Indonesian EFL students' perceptions on the implementation of flipped classroom model. *Journal of Language Teaching and Research, 8*(3), 476-484.
<https://doi.org/10.17507/jltr.0803.05>

Anwar, I., & Rosa, R. (2020). The role of morphological awareness and explicit morphological instructions in ELT. *Language Literacy: Journal of Linguistics Literature and Language Teaching, 4*(1), 28-37.
<https://doi.org/10.30743/ll.v4i1.1825>

Asaad, H. Q. M., Hasan, M. K., Alidoust, N., Shabdin, A. A., Ounissi, A., & Hossain, M. D. (2022). The impact of morphological awareness intervention in enhancing L2 postgraduate students' productive vocabulary breadth. *Education Research International, 2022*, Article ID 5930822. <https://doi.org/10.1155/2022/5930822>

Baker, J. W. (2000). The classroom flip: Using web course management tools to become the guide by the side. In Proceedings of the 11th International Conference on College Teaching and Learning (pp. 9–17). Florida Community College at Jacksonville.

Bergmann, J., & Sams, A. (2012). *Flip your classroom: Reach every student in every class every day*. International Society for Technology in Education.

Bishop, J., & Verleger, M. A. (2013, June). The Flipped Classroom: A Survey of the Research Paper presented at 2013 ASEE Annual Conference & Exposition, Atlanta, Georgia. 10.18260/1-2--22585.

Daulay, S. H., Dalimunte, M., & Ningrum, D. W. (2021). The importance of linguistics for teachers in English language teaching. *English Franca: Academic Journal of English Language and Education*, 5(2), 339-348. <https://doi.org/10.29240/ef.v5i2.2721>

Day, L. (2018). A gross anatomy flipped classroom effects performance, retention, and higher - level thinking in lower performing students. *Anatomical Sciences Education*, 11(6), 565-574. <https://doi.org/10.1002/ase.1772>

Felder, R. M., & Brent, R. (2009). Active Learning: An Introduction. *ASQ Higher Education Brief*, 2(4), 1-5.

Ghasemi, B., & Vaez-Dalili, M. (2019). Effect of three methods of morphological awareness on Iranian intermediate EFL learners' reading comprehension. *International Journal of Instruction*, 12(2), 623-638. <https://doi.org/10.29333/iji.2019.12239a>

Goodwin, A. P., Lipsky, M., & Ahn, S. (2012). Word detectives: using units of meaning to support literacy. *The Reading Teacher*, 65(7), 461-470. <https://doi.org/10.1002/trtr.01069> Hew, K. F. and Lo, C. K. (2018). Flipped classroom improves student learning in health professions education: a meta-analysis. *BMC Medical Education*, 18(1). <https://doi.org/10.1186/s12909-018-1144-z>

Jang, H. Y. and Kim, H. J. (2020). A meta-analysis of the cognitive, affective, and interpersonal outcomes of flipped classrooms in higher education. *Education Sciences*, 10(4), 115. <https://doi.org/10.3390/educsci10040115>

Jdaitawi, M. (2019). The effect of flipped classroom strategy on students' learning outcomes. *International Journal of Instruction*, 12(3), 665-680. <https://doi.org/10.29333/iji.2019.12340a>

Jensen, J. L., Kummer, T. A., & Godoy, P. D. d. M. (2015). Improvements from a flipped classroom may simply be the fruits of active learning. *CBE—Life Sciences Education*, 14(1), ar5. <https://doi.org/10.1187/cbe.14-08-0129>

Johnson, D. W., Johnson, R. T., & Smith, K. A. (2014). Cooperative learning: Improving university instruction by basing practice on validated theory. *Journal on Excellence in College Teaching*, 25(3&4), 85-118.

Kagan, S. (2021). The structural approach and Kagan structures. In N. Davidson (Ed.) *Pioneering perspectives in cooperative learning* (pp. 78-127). Routledge.

Karyadi, P. A., Paristiowati, M., & Afrizal. (2020). Analysis the 21st century skills of students in chemical equilibrium learning with flipped classroom-collaborative problem solving model. *JTK (Jurnal Tadris Kimiya)*, 5(1), 48-60. <https://doi.org/10.15575/jtk.v5i1.7971>

Khanova, J., Roth, M. T., Rodgers, J. E., & McLaughlin, J. E. (2015). Student experiences across multiple flipped courses in a single curriculum. *Medical Education*, 49(10), 1038-1048. <https://doi.org/10.1111/medu.12807>

Lage, M. J., Platt, G. J., & Treglia, M. (2000). Inverting the classroom: A gateway to creating an inclusive learning environment. *The Journal of Economic Education*, 31(1), 30-43.

Le, Q. T. (2023). Teaching and learning morphology in the English language curriculum: An exploration into belief and reality in Vietnam. *International Journal of TESOL & Education*, 3(2), 43-59. <https://doi.org/10.54855/ijte.23324>

Leary, M., Tylka, A., Corsi, V., & Bryner, R. (2021). The effect of first-year seminar classroom design on social integration and retention of stem first-time, full-time college freshmen. *Education Research International*, 2021, Article ID 4262905. <https://doi.org/10.1155/2021/4262905>

Lin, Y., Zhu, Y., Chen, C., Wang, W., Chen, T., Li, T., Li, Y., Liu, B., Lian, Y., Lu, L., Zou, Y., & Liu, Y. (2017). Facing the challenges in ophthalmology clerkship teaching: Is flipped classroom the answer? *Plos One*, 4(12), Article ID e0174829. <https://doi.org/10.1371/journal.pone.0174829>

Mayasari, A. D., Budiyanto, M., & Purnomo, A. R. (2022). The implementation of the flipped classroom-STAD model to improve student learning outcomes. *Pensa: eJurnal Pendidikan Sains*, 10(2), 240-245.

Morgan, H., McLean, K., Chapman, C., Fitzgerald, J., Yousuf, A., & Hammoud, M. (2015). The flipped classroom for medical students. *The Clinical Teacher*, 12(3), 155-160. <https://doi.org/10.1111/tct.12328>

Nanor, E., Mahama, A., & Hanson, R. (2024). Effect of stad model of cooperative learning on students' learning outcome on nomenclature of hydrocarbon. *International Journal of Scientific Research and Management (IJSRM)*, 12(03), 3264-3274. <https://doi.org/10.18535/ijsrn/v12i03.e103>

Noroozi, A., Rezvani, E., & Ameri-Golestan, A. (2020). The effect of flipped classrooms on L2 learners' development and retention of grammatical knowledge. *Turkish Online Journal of Distance Education*, 21(4), 14-30. <https://doi.org/10.17718/tojde.803344>

Putri, R. R., Khairil, K., & Safrida, S. (2022). The application of the flipped classroom model integrated with Google Classroom to the student's learning motivation. *Jurnal Penelitian Pendidikan IPA*, 8(1), 263-268. <https://doi.org/10.29303/jppipa.v8i1.1157>

Rohyami, Y., & Huda, T. (2020). The effect of flipped classroom cooperative learning on learning outcomes in the analytical chemistry course. In I. Fatimah, Muhaimin, & M. Musawwa (Eds.), *3rd International Seminar on Chemical Education: Trends, Applications, Changes in Chemical Education for the 4.0 Industrial Revolution, AIP Conference Proceedings Vol.2229*, Article ID 020008. AIP Publishing.

Shafiee Rad, H., Namaziandost, E., & Razmi, M. H. (2022). Integrating STAD and flipped learning in expository writing skills: Impacts on students' achievement and perceptions. *Journal of Research on Technology in Education*, 55(4), 710-726. <https://doi.org/10.1080/15391523.2022.2030265>

Slavin, R. E. (2014). Cooperative learning in elementary schools. *Education 3-13*, 43(1), 5–14. <https://doi.org/10.1080/03004279.2015.963370>.

Sulistyawati, E. E., Nugroho, A. A., & Bram, B. (2021). Morphological teaching strategies to enhance students' vocabulary knowledge and reading comprehension. *JET (Journal of English Teaching)*, 7(2), 179-190. <https://doi.org/10.33541/jet.v7i2.2472>

Tucker, C. R. (2012). *Blended learning in grades 4–12: Leveraging the power of technology to create student-centered classrooms*. Corwin.

Washburn, E., & Mulcahy, C. (2018). Morphology matters, but what do teacher candidates know about it? *Teacher Education and Special Education: The Journal of the Teacher Education Division of the Council for Exceptional Children*, 42(3), 246-262. <https://doi.org/10.1177/0888406418806649>