

Research Article

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Author for correspondence:

Isnaini Eddy Saputro

✉ isnaini1291@students.unnes.ac.id

✉ Faculty of Language and Arts (Universitas Negeri Semarang, Indonesia)



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Promoting Achievement in English Vocabulary Among EFL Undergraduate Students Using Kagan's Cooperative Learning Approach

Isnaini Eddy Saputro^{ID}, Rudi Hartono^{ID}, Mursid Saleh^{ID}, Abdurrachman Faridi^{ID}

Abstract

Background/purpose. This study examines how well EFL students perform in English language learning using Kagan's Cooperative Learning Approach (KCLA). Conventional teaching approaches frequently fail to actively involve students, which lowers achievement. With an emphasis on teamwork and active engagement, this study seeks to ascertain whether KCLA may provide EFL students with a more successful learning approach.

Materials/methods. In a quasi-experimental study design, a control group that used traditional teaching techniques was contrasted with an experimental group that used Kagan's Cooperative Learning Approach. Pre- and post-intervention vocabulary tests were given over ten sessions to evaluate achievement in English vocabulary learning.

Results. According to the results, students in the KCLA group fared noticeably better than those in the control group in terms of achievement in English vocabulary proficiency. According to statistical analysis, the experimental group's mean scores and standard deviation were significantly more significant than the control group. The improvements were ascribed to high cognitive engagement, teamwork, and active involvement, all made possible by Kagan's CLA.

Conclusion. The results showed that students in the KCLA group fared noticeably better than those in the control group in terms of achievement in English vocabulary proficiency. According to statistical analysis, the experimental group's mean scores and standard deviation were significantly higher than those of the control group. The improvements were ascribed to high cognitive engagement, teamwork, and active involvement, all made possible by Kagan's CLA.

1. Introduction

The ability to create and understand words is the first step in learning a language, and it serves as the basis for successful communication. English is a universal language necessary for intercultural communication, job progress, and academic success. According to Bakteshi and Avdiu (2024), undergraduate English instruction equips students with the needs of the global workplace. Expanding English instruction in Indonesian institutions is essential to this need since it will improve students' ability to communicate formally and informally (Saputro et al., 2024).

Learning new words is essential to become proficient in English. Students who lack a sufficient vocabulary struggle with writing, pronunciation, reading comprehension, and effective communication (Uchihara et al., 2022). All language abilities are supported by a strong vocabulary, which also helps students to express ideas coherently (Saputro et al., 2024; Nation & Coxhead, 2014). However, acquiring vocabulary is still a significant obstacle for undergraduate students, especially in non-EFL programs, where a lack of vocabulary impairs academic performance and classroom participation (Mateo-Valdehita & Diego, 2021; Türkmen & Cesur, 2024). Many students struggle to articulate their thoughts, form sentences, and comprehend English-language literature, which undermines their confidence and prevents them from practicing their receptive and productive vocabulary (Sharma, 2022). Enhancing vocabulary retention and learning outcomes has been proposed by incorporating 21st-century abilities, including critical thinking, communication, creativity, and teamwork, into English training (Ratama et al., 2021).

Effective teaching techniques are required to address these issues. Kagan's Cooperative Learning Approach (KCLA), which uses interactive, structured activities, successfully encourages vocabulary development. Studies show that by encouraging positive interdependence and active participation, the cooperative learning (CL) approach improves student motivation, engagement, and overall learning accomplishment (Saputro et al., 2024; Namaziandost et al., 2019). The approach is a potential way to teach English in Indonesian institutions since it can be modified for different subject areas and student populations (Beiki et al., 2020).

To fill this gap, this study recommends investigating how Kagan's CL approach affects EFL undergraduate students' vocabulary achievement compared to conventional teaching techniques. It also assesses how well Kagan's cooperative learning strategy improves undergraduate EFL students' vocabulary achievement. By offering empirical proof of cooperative learning's suitability for university-level English instruction, this study adds to the expanding research literature on the subject. The results provide insightful information for teachers looking to improve language competency and vocabulary acquisition through interactive, student-centered teaching methods.

2. Literature Review

2.1. Kagan's Cooperative Learning Approach

Spencer Kagan was one of the experts who found Kagan's cooperative learning with the term of structure. The objectives include putting students in diverse groups to collaborate, improve the educational process, and practice skills and information that apply to a wide range of students in various grade levels and learning preferences (Thinley et al., 2021). The term structure describes instruction structurally in the classroom that involves the teacher and students' interaction (Chophel & Norbu, 2021).

2.2. The Aims of Kagan's Cooperative Learning

The teacher uses the aims of Kagan's cooperative learning to monitor the learning process, the curriculum, and the student's time. Therefore, students are structured by adhering to the steps of the learning process (Thinley et al., 2021). Moreover, cooperative learning (CL) can help teachers and

students achieve several goals with extensive preparation and structure. The successful learning of students using Kagan's cooperative learning approach is described based on academic achievement. Cooperative learning helps the students develop their ideas, concepts, and opinions to achieve the learning aims (Tran et al., 2019).

Besides that, Kagan cooperative learning aims for social and personal development, in which students work cooperatively with different ethnic, racial, cultural, and paradigms to achieve various information and knowledge, build good communication, and develop leadership through a small group (Hengki et al., 2017). Then, Kagan's cooperative learning approach aims for language learning, in which the students gather in groups to discuss and share information related to the topic. Here is the language development process. The aspects of vocabulary, such as explaining, restating, analyzing, and reflecting, are used to support the interaction with each other (Andreu-Andres, 2016). The last aim of Kagan's cooperative learning approach is the management of the learning process related to teaching structurally, which enables the teacher to easily divide the students into different groups and control the students as a team. As a result, students might be engaged and trained to address the problem in the discussion material (Tinmaz, 2022). Kagan's cooperative learning approach has been employed mainly by pre- and intermediate-level teachers (Ambia, 2018). Those structures are helpful to the teachers and students in creating classroom interaction, particularly for the fan-n-pick structure (Ramadhan & Adawiyah, 2020).

Fan-n-pick is one of Kagan's structures that refers to a teaching strategy. The fan-n-pick structure guides students in cooperatively advancing their knowledge, cognitive abilities, and social skills. The fan-n-pick structure has advantages in creating a good learning environment, increasing learning psychology, and promoting learning achievement (Saputro et al., 2024). The students utilize the fan-n-pick in English vocabulary learning by forming a group of 4 students. Then, the students receive four cards that contain four questions in each card. The students start to play the cards with student A handling the cards, student B picking one of the cards and reading the question, student C answering the question in 5 minutes, and student D concluding. The students play the card by changing the turns until the questions on the card are completed (Nurdianasari et al., 2017; Hadi et al., 2018; Silvia & Zuhriyah, 2024; Wahyuni et al., 2019).

2.3. Five Components of Kagan's Cooperative Learning

The teacher must adhere to the five components of Kagan's cooperative learning approach to facilitate the learning process when teaching English. The five components support effective teaching and learning. It is a compilation of a few studies regarding those elements (Harjono, 2011; Nguyen et al., 2021; Abdulwahhab & Hasyim, 2020; Astuti & Lammers, 2017).

Positive Interdependence: Students must understand their responsibilities to succeed as a group. Each student works hard to complete the group assignment by exchanging information and maintaining.

Individual Accountability: Students Participate in the class and comprehend the content. Besides that, the students participate in a class or a discussion group by offering thoughts on the assignment's outcome.

Group Processing: Investigating students' understanding through formative assessment by eliciting their opinions and reflections. Each group member demonstrates their attainment of learning objectives by comprehending the subject matter and explaining to the class the importance of cooperation.

Social Skills: The capacity to collaborate to succeed in the educational process. Moreover, developing the students' leadership, decision-making, confidence, communication, and problem-solving skills to help them gain social skills.

Face-to-Face Interaction: Students Interact with the team and learn in small groups. Students who communicate face-to-face can help each other succeed by offering ideas (arguments, suggestions, and more), resolving issues, and thinking about how the team understands the subject.

2.4. The Advantages of Kagan's Cooperative Learning

The five elements of Kagan's CL approach relate to the advantages of Kagan's Cooperative learning approach. The studies found the advantages of Kagan's cooperative learning approach from Akramy et al. (2022), Tran & Lewis (2012), and Jahanbakhsh et al. (2019). They explained that Kagan's cooperative learning approach has the advantage of helping students learn by allowing them to practice using their experiences and skills to think critically to obtain information through group learning. To finish the assignment, the Students can use words to communicate their thoughts, including viewpoints, and develop their social skills through teamwork and sharing ideas and perspectives. The students are directed to respect their teammates' answers. Overall, the findings indicate that cooperative learning promotes interpersonal relationships, fosters the development of high-order thinking skills, and strengthens peer relationships and motivation. In groups, students can learn independently and become self-sufficient learners. Kagan's structure is a feasible way to address individual variations because it uses students' varied skills to enhance their social, psychological, and cognitive performance (Li & Lam, 2013). Studies found that almost all English teachers employed Kagan's cooperative learning approach in the process of instructing and acquiring knowledge since Kagan's structures concentrate on the progress of modern teaching strategies following the students' needs in acquiring English vocabulary (Singay, 2018; Keramati & Gillies, 2022; Hong et al., 2022; Shana et al., 2019; Zhou et al., 2023).

2.4.1. Teaching Vocabulary

Students who learn English, especially with basic skills like vocabulary, go through an acquisition process that helps them recognize and use new words. This process supports developing receptive and productive language skills essential for mastering other aspects of English. According to Dobakhti et al. (2020), vocabulary is incorporated into speaking, writing, listening, and reading. Those are the four primary vocabulary categories that students acquire. These categories are separated into receptive (reading and listening) and productive (speaking and writing) skills. Teaching vocabulary effectively is crucial, particularly for kids with trouble learning it. To effectively teach vocabulary to English as a Foreign Language (EFL) students, Rungwaraphong (2020) highlighted using images, code-switching, and mixing basic English vocabulary with the student's native tongue. According to Pratiwi et al. (2024), teaching vocabulary is one of the most challenging aspects of teaching English, but it is also essential for helping students communicate more effectively. Additionally, expanding one's vocabulary directly improves other English language proficiency while assisting pupils in reaching their language learning objectives. Teaching vocabulary effectively involves a structured approach with six key steps: explaining and describing, restating and repeating, creating and applying, interacting and discussing, reflecting and applying knowledge in context (Manyak et al., 2021). Therefore, Kagan's CL structure was selected for its structured interaction format, which supports linguistic and cognitive development. Among several cooperative learning models, fan-n-pick stands out for its simplicity and ability to foster engagement, particularly in large or mixed-level classes (Silvia & Zuhriyah, 2024). This aligns with the needs of the participants and the goal of increasing vocabulary achievement through meaningful interaction.

3. Methodology

Given the objectives and scope of this study, a quasi-experimental design was selected to address the research challenges, particularly in conflict areas where students' classroom attendance was inconsistent due to their living conditions. This design, which included a pretest, instructional

interventions, and a posttest, allowed for comparing non-randomized groups using existing classes without disrupting the learning process (Chophel & Norbu, 2021).

The quasi-experimental design employed a pretest-posttest approach involving two intact classes to avoid disrupting regular instructional routines. Non-random assignments are common in educational contexts with ethical and practical limitations. The experimental group received instruction via the fan-n-pick strategy under Kagan's Cooperative Learning (CL) framework, while the control group engaged in conventional vocabulary instruction using mapping and flashcard-based techniques. Both groups covered seven topics, and a posttest was administered to evaluate vocabulary knowledge gains after the intervention. The pretest scores measured students' initial vocabulary knowledge, while the posttest scores assessed their vocabulary retention and improvement. The comparison of mean scores helped determine the effectiveness of Kagan's cooperative learning structures in enhancing students' vocabulary acquisition (Fraenkel et al., 1993).

Table 1. Pre and Post-Tests Control Group Design

Experimental	Pretest	Intervention with Kagan's cooperative learning fan-n-pick	Post-test
Control	Pretest	Intervention with word mapping	Post-test

3.1. Participants

In this study, fifty-two female non-EFL students who were enrolled in the primary school teacher education study program at Southwest Papua of *Universitas Pendidikan Muhammadiyah Sorong*, Indonesia, received general English instruction. When conducting the survey, they were between 18 and 24. There were 52 students divided into two groups, namely experimental and control groups. Each group consisted of 26 students. Students in the experimental group were trained using Kagan's structure of fan-n-pick. Meanwhile, they were in the control group and practiced using word mapping as the conventional teaching strategy.

3.2. Data Collection Procedure

A standardized vocabulary test was adapted from Watcyn-Jones (2000), Jones & Johnston (2002), and Corrales (2011) to assess vocabulary acquisition. The test consisted of multiple-choice questions for assessing word meaning, synonyms, and antonyms, word-matching tasks for pairing words with definitions or images, and word association tasks for linking words to relevant contexts. The pre-test was administered before the intervention to measure baseline vocabulary knowledge, while the post-test assessed improvement after ten weeks of instruction. To ensure the test's reliability, Cronbach's alpha (α) was calculated to measure the internal consistency of test items. A higher alpha value (closer to 1.0) indicates excellent reliability, meaning the test items consistently measure vocabulary proficiency. After collecting pre-test and post-test responses, the reliability analysis was conducted using SPSS 25. The results indicate that the pre-test ($\alpha = 0.79$) and post-test ($\alpha = 0.85$) demonstrate acceptable reliability, meaning that the test items were internally consistent and effectively measured vocabulary knowledge. Additionally, two English language experts (Ph.D. holders with TESOL certification) reviewed the test content for validity, ensuring that items were aligned with thematic vocabulary learning objectives. Based on expert feedback, minor revisions were made to improve clarity and cultural relevance.

Both groups received identical thematic vocabulary lessons under different teaching methods during the ten instructional weeks of the study. In the experimental group (fan-n-pick), students

engaged in collaborative activities, where they identified vocabulary themes (e.g., family members, professions), expanded the word network with synonyms, antonyms, and contextual examples in sentences, and discussed their sentences regarding connections between words in small cooperative groups. Meanwhile, the control group received instruction using traditional word mapping, including vocabulary mapping and flashcard drills to memorize vocabulary, rather than interactive techniques such as fan-n-pick. The lecturer conducted drills and direct explanations without interactive mapping. Furthermore, both groups completed vocabulary exercises aligned with the course syllabus, and the post-test measured vocabulary testing immediately after the intervention. The test items were adapted and validated based on the standard frameworks provided in Watcyn-Jones (2000), Jones & Johnston (2002), and Corrales (2011), covering essential vocabulary themes aligned with CEFR A2-B1 level, including categories like family, occupations, and descriptive adjectives.

3.3. Data Analysis

The current research used descriptive data, including the pre-test and post-test mean scores and standard deviations, to determine the impact of Kagan's structure of fan-n-pick on English proficiency. Inferential statistics were used to determine whether the pre-test and post-test results showed no differences between the experimental and control groups. The SPSS 20 was utilized to analyze the vocabulary acquisition of Kagan's structure versus conventional teaching strategy in each area by determining parametric tests (normality, paired sample t-test, independent sample t-test). The t-test was enclosed by subject (Paired Sample t-test) and among-subject (independent t-test) to distinguish between the students' pretest and post-test means scores of the two groups to assess how well Kagan's cooperative learning approach instructed vocabulary to participants in two classes (Fraenkel et al., 1993). An independent sample t-test was conducted on the pre-test scores to assess the equivalence of the two groups before treatment. The results showed ($t_{\text{value}} = 4.067/P\text{-value} = 0.000$), indicating a significant difference between groups before the intervention.

4. Results

4.1. Normality Test

A Shapiro-Wilk test was conducted using SPSS 25 to determine whether the students' vocabulary scores were normally distributed.

Table 2. Normality test of experimental and control groups

No	Classes	Statistics	Significant
1	Pre-test EG	0.96	0.45
	Post-test EG	0.93	0.06
2	Pre-test CG	0.94	0.16
	Post-test CG	0.93	0.07

The results, shown in Table 2, indicated that the pre-test and post-test scores of both the experimental group (EG) and the control group (CG) were normally distributed, as their significance values were above 0.05, except for the post-test of the experimental group ($p = 0.06$) and the post-test of the control group ($p = 0.07$), which were slightly below the threshold but still within an acceptable range for normality assumptions in small sample sizes.

4.2. Comparative Analysis of English Vocabulary Achievement

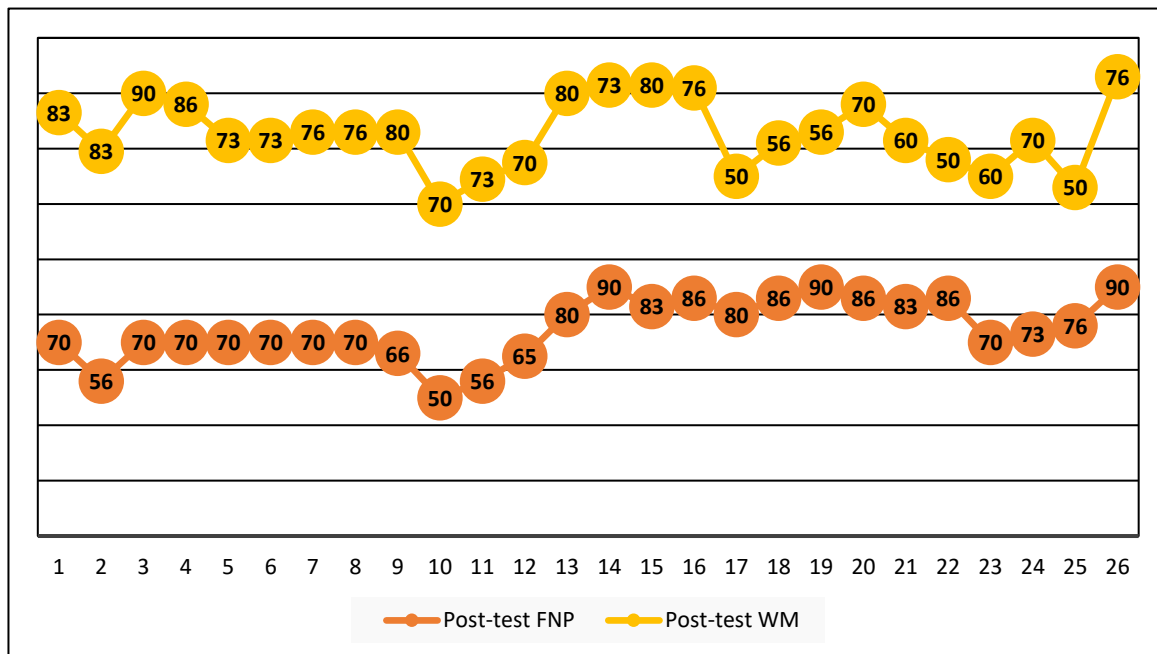
A paired sample t-test and independent sample t-test were employed to compare the effectiveness of Kagan's Cooperative Learning Approach (KCLA) fan-n-pick strategy and the word mapping teaching strategy on vocabulary retention and English learning achievement. The results are summarized in Table 3.

Table 3. Summary of English vocabulary achievement and statistical analysis

Group	Pre-test Mean (SD)	Post-test Mean (SD)	Mean Difference	t-test (p- value)
KCLA-FNP (Experimental)	44 (16)	75 (11.1)	30	2.976 (0.004)
Word Mapping (Control)	28 (9.9)	71 (11)	42	

The experimental group (KCLA-FNP) showed that the pre-test mean score was 44 (SD = 16), while the post-test mean score increased to 75 (SD = 11.1), showing a mean difference of 30 points. Meanwhile, the control group (Word Mapping) presented that the pre-test mean score was 28 (SD = 9.9), while the post-test mean score increased to 71 (SD = 11), with a mean difference of 42 points. The statistical analysis revealed a t-value of 2.976 with a p-value of 0.004, indicating a statistically significant improvement in vocabulary retention. While the raw gain in the control group appears numerically larger (from 28 to 71), the higher starting point of the experimental group and the statistical significance was more significant in the experimental group ($p = 0.004$), indicating more substantial evidence of and consistent enhancement in vocabulary retention. The discrepancy may be attributed to the higher baseline in the experimental group, potentially resulting in a ceiling effect that limited the raw score gain. Additionally, the structured interaction promoted by the fan-n-pick strategy likely led to more consistent and measurable learning outcomes. It confirmed that Kagan's CL approach had a more significant impact on English vocabulary achievement than the traditional word mapping strategy. The students' scores after treatment in both groups increased statistically significantly, although their mean score in the KCLA class was more effective than in the control class. This implies that the result was a statistically significant distinction between the KCLA and word mapping teaching strategy. It can be inferred that the experimental (Kagan's structure) students were more motivated to learn English than the control class before conducting treatment. Students in class control scored considerably lower than those in class experimental. As expected by the researchers, the students who received KCLA fan-n-pick instruction performed better than those who trained using the word webbing. It means that the null hypothesis (H_0) is rejected. In contrast, the alternative hypothesis (H_a) is accepted: KCLA-fan-n-pick significantly and positively affects students' vocabulary retention and learning achievement.

Finally, it was determined that the fan-n-pick of Kagan's cooperative learning approach successfully improved the achievement of English learning for primary school teacher education students who received a score of 90 for several students on the after-treatment test. Hence, the assessment of the post-test scores of both groups is illustrated in Figure 1 to show the proficiency of both groups.

Figure 1. Experimental and Control Groups' Post-Test Scores

According to Figure 1, after ten sessions using Kagan's CL fan-n-pick (FNP) strategy, students in the experimental group showed a notable improvement in vocabulary retention. Their post-test scores ranged from 50 to 90, with several students achieving the highest 90. The average score for this group was 75 across 26 participants. In contrast, students in the word mapping control group demonstrated lower final scores than those in the Kagan CL approach group. Their post-test scores ranged between 50 and 88, with only one student achieving a score of 90. The average score in this group was 71 across 26 participants. This research implies that active learning techniques, like fan-n-pick, improve cognitive participation and engagement, which raises vocabulary acquisition and retention.

5. Discussion

The quasi-experimental design reveals that the independent sample t-test of t-count (2.976) was higher than t-table (1.676) at the significant level of $P < 0.004$. It shows that students who received instruction utilizing KCLA fan-n-pick and those who did not showed a substantial difference in their vocabulary retention and learning achievement in English. Kagan's CL approach is one of the teaching strategies designed to promote vocabulary retention following the students' interaction and engaging them in becoming active in learning. Kagan's CL approach of fan-n-pick shows positive accomplishment in improving social interaction, strengthening vocabulary understanding, motivation, active participation, developing critical thinking skills, and increasing vocabulary retention and self-confidence. It is supported by Saputro et al. (2024) that fan-n-pick encourages social contact, involvement, engagement, and adaptability while being easy to use and accessible in humanitarian crisis settings.

In addition, the findings of the t-test analysis show that Kagan's CL approach of fan-n-pick significantly improves students' motivation to learn English by showing their vocabulary acquisition of post-test scores. Singay (2020) and Silvia and Zuhriyah (2024) found that interactive and structured peer engagement in vocabulary learning improves retention and comprehension. The current study demonstrates that Kagan's CL approach of fan-n-pick greatly enhances vocabulary learning accomplishment for all students. Students in the experimental group showed higher vocabulary retention and more tremendous enthusiasm and confidence in using English. This enhancement is

similar to other studies and is particularly advantageous for improving vocabulary learning results. These results consistently show that Kagan's CL fan-n-pick approach improves students' vocabulary scores. It has emphasized the benefits of cooperative learning in improving language skills. (Ambia, 2018; Silvia & Zuhriyah, 2024; Saputro et al., 2024).

The increase in their learning achievement demonstrated that every student in the experimental group was following the fan-n-pick steps. The students practiced vocabulary by brainstorming about the subject, classifying the words concerning the problems, identifying related words, and using the words to create new sentences. Thus, those activities support their knowledge practice and autonomous learning to practice English learning vocabulary productively in terms of speaking and writing ideas to promote their learning motivation that impacts their English scores. After that, they followed the next step, discussing their results by correcting and praising them. It is agreed by Silvia and Zuhriyah (2024) that students who learn English vocabulary through the FNP structure can engage emotionally and intellectually in group activities by talking about the subject, supporting teammates, exchanging ideas, working together, and assessing the challenges faced by the team members.

This research considers fan-n-pick as a teaching method that yields valuable data on how well Kagan's CL approach motivates students to acquire English vocabulary and advance their English learning success. According to the analysis of the data from English learning using word mapping, the English vocabulary learning achievement of the students is lower than that of students taught through Kagan's CL approach of FNP. The average score of students in the word mapping is 71, compared with the average FNP of 75. The result interpreted that word mapping is unsuitable for teaching vocabulary to students to increase vocabulary acquisition. The current study acknowledges that students favor Kagan's cooperative learning approach when using fan-n-pick as a teaching strategy. They believe learning vocabulary using Kagan's CL approach is fun. It is supported by Singay (2020), who stated that Kagan's structures are an effective teaching method that affects students' motivation and interest in learning new vocabulary and establishing a constructive learning environment by encouraging group memorization of the words rather than individual study. Then, Silvia and Zuhriyah (2024) pointed out that students enjoy their involvement in using the fan-n-pick method to do their group projects. They are expected to collaborate by contributing their thoughts and viewpoints to class discussions. These results are consistent with Nation and Coxhead's (2014) theory that vocabulary growth is best achieved through meaningful interaction and repeated exposure. Kagan's CL approach facilitates this process by promoting peer discussion, question-based learning, and interactive problem-solving.

A comparison of the score distribution indicates that the experimental group's performance was generally higher than the control group. The test after intervention in the fan-n-pick group showed scores obtained by 26 students ranging from 50 to 90, which, if averaged, was 75. In contradiction with students in the control class, the highest score was around 50 to 88, which, if averaged, was 71 earned by 26 students. The effectiveness of Kagan's CL approach shows that all students in groups generally support group members who have difficulty expressing themselves academically or emotionally. The more extended score range in the experimental group suggests that Kagan's CL fan-n-pick method enhanced vocabulary retention and English learning achievement more effectively. These findings confirm that active and cooperative learning strategies significantly improve EFL students' vocabulary retention and academic performance. The learners work on broadening their minds to generate valuable concepts in which students learn English vocabulary using FNP by cooperating in reading the questions, responding, and concluding the answer to the topic. Silvia and Zuhriyah (2024) support that the fan-n-pick method worked well for vocabulary instruction. Therefore, English teachers are strongly advised to use the fan-n-pick method when teaching

vocabulary to train students in analyzing, reasoning, and delivering speaking vocabulary and writing vocabulary.

In summary, the independent sample test results and the paired sample t-test calculation demonstrated that both classes have different mean English learning achievement scores, with students in class A as the experimental class being higher than those in class B. The significant improvement in students' vocabulary achievement highlights the need for interactive and student-centered teaching approaches in EFL classrooms. Since vocabulary acquisition is essential for developing speaking, reading, listening, and writing skills, integrating cooperative learning strategies such as KCLA-FNP into EFL curricula can enhance students' overall language proficiency. It happens on Kagan's cooperative structure steps in which students learn English vocabulary to develop their thinking skills by taking notes, memorizing the words, creating sentences of the words, and voicing their ideas orally or written. According to Astuti (2019), students always practice, analyze, and reason to gain vocabulary they may use in speaking, writing, and reading. Like Panggabean and Kesuma (2017), high-achieving students successfully learn English by writing phrases, reciting them aloud, and taking notes to aid with concept memorization. Recent studies support the effectiveness of Kagan's CL structures in enhancing student engagement and language acquisition. For instance, Zhou et al. (2023) and Silvia and Zuhriyah (2024) highlight the benefits of peer-supported vocabulary development. The increased interactivity, accountability, and scaffolding offered by CL strategies like fan-n-pick provide a framework that not only reinforces vocabulary retention but also supports learners' confidence and participation in EFL contexts

In brief, this research suggests that Kagan's CL approach of fan-n-pick might be crucial to teaching English at a higher level. in Southwest Papua, Indonesia, because its findings show that Kagan's cooperative learning approach, fan-n-pick, was better than word mapping as traditional teaching in promoting vocabulary retention and English learning achievement. Even though Kagan's CL approach of fan-n-pick is the earliest implemented for pre-service teachers in higher education at Southwest Papua, Indonesia, it is also suitable for intermediate students to develop their thinking skills, communication, knowledge-building, and social skills that relate to the 4C's (critical thinking, communication, creativity, and collaboration skills) of 21st-century learning for several disciplines. No research asserted that Kagan's cooperative learning approach (KCLA) of fan-n-pick in promoting English vocabulary acquisition was more effective for undergraduate students, particularly in learning achievement that reflected their learning motivation. This study has practical implications for higher education in Indonesia, particularly in regions with limited language learning resources. The adaptability of Kagan's cooperative structures makes it suitable for diverse classroom settings, including large or mixed-ability groups. The fan-n-pick structure promotes vocabulary recall, verbal expression, negotiation of meaning, and peer teaching as key factors in language acquisition. The teacher may find it particularly useful in classes with low active participation, as it scaffolds communication in a low-stress, highly interactive environment. The findings suggest that implementing KCLA-FNP can bridge gaps in traditional vocabulary instruction, making English learning more engaging and effective. Consequently, this becomes the novelty of the study's Kagan's cooperative learning approach of fan-n-pick research in promoting vocabulary retention and achieving English learning among primary school teacher education students.

6. Conclusion

The study provides empirical evidence that Kagan's CL approach, particularly the fan-n-pick strategy, significantly enhances vocabulary retention and learning achievement. Unlike word mapping, fan-n-pick promotes deeper cognitive engagement, fosters active learning, and encourages student collaboration. Kagan's CL approach was considered valuable for teaching undergraduate students vocabulary. It has assisted the students in learning English vocabulary by developing their thinking, communication, and social skills, groups, and learning processes that involve classifying and

analyzing words, constructing sentences, deciphering their meaning, discussing the outcomes, and reflecting on the content based on their comprehension. Hence, Kagan's CL approach makes transferring the lecturer-to-student learning model easier when fan-n-pick is implemented correctly with five components that support the teaching process.

7. Suggestion

The English teachers who employed Kagan's CL approach assisted in managing the classroom quickly and trained the undergraduate students to acquire English vocabulary, particularly in regions with limited language learning resources, which were never provided in the English classroom. Future research should explore long-term retention effects and the applicability of KCLA-FNP across different proficiency levels and educational contexts. Additionally, it is recommended that upcoming studies look more closely at the fan-n-pick technique, including the students' and teachers' responses toward the implementation in English courses, as many areas still have not been covered in this study. Future researchers were advised to include Kagan's CL approach in the English language curriculum as a component of the teaching approach to promote peer interaction and collaborative practice among students. Future research is advised to use mixed-methods designs, which combine qualitative and quantitative data in a single study. This kind of study helps to comprehend research situations truthfully and comprehensively.

Declarations

Author Contributions. I.E.S.: Write an introduction and literature review, analyze datasets, and write a discussion. R.H.: Write the abstract and interpret the results. M.S.: Write and decide the research methodology. A.F.: Write conclusions and references. All authors have read and approved the publication of the article's final version.

Conflicts of Interest. The authors declare no conflict of interest.

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Ethical Approval. Before the implementation of the study, approval was obtained from the faculty and primary school teacher education study program with number 044/I.3.AU/SKet/FABIO/B/2024 to ensure that the study adhered to ethical standards and respected the privacy and confidentiality of all participants.

Data Availability Statement. The data supporting the results reported in this study are available upon request from the corresponding author.

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References

- Abd Karim, R., & Awaludin, F. A. (2020). Developing primary school students' English communication skills and team building through the fan-n-pick learning model. *European Journal of English Language Teaching*. <https://doi.org/10.46827/ejel.v0i0.2976>
- Abdulwahhab, M. L., & Hashim, B. H. (2020). The effect of cooperative learning strategy on engagement in architectural education. In *IOP Conference Series: Materials Science and Engineering* (Vol. 881, No. 1, p. 012004). IOP Publishing. <https://doi.org/10.1088/1757-899X/881/1/012004>

- Akramy, S. A., Noori, A. Q., Orfan, S. N., & Hashemi, A. (2022). Effective techniques of teaching vocabulary in Afghan EFL classrooms. *Asian-Pacific Journal of Second and Foreign Language Education*, 7(1), 23. <https://doi.org/10.1186/s40862-022-00151-8>
- Ambia, C. (2018). Improving the vocabulary mastery of the eight-year students of SMP Negeri 13 Parepare through the fan-n-pick technique. *La Parole: Journal of Language Teaching and Pedagogy*, 1(2), 85–93. <https://doi.org/10.31850/laparole.v1i2.2424>
- Andreu Andrés, M. Á. (2016). Cooperative or collaborative learning: Is there a difference in university students' perceptions? *Revista Complutense de Educación*. https://doi.org/10.5209/rev_RCED.2016.v27.n3.47398
- Astuti, N. (2019). Language learning strategies used by high and low achievers in speaking classes in the English language education study program (Doctoral dissertation). Universitas Brawijaya.
- Astuti, P., & Lammers, J. C. (2017). Making EFL Instruction More CLT-Oriented through Individual Accountability in Cooperative Learning. *TEFLIN Journal: A Publication on the Teaching & Learning of English*, 28(2). <http://dx.doi.org/10.15639/teflinjournal.v28i2/236-259>
- Battu, R., & Beesupogu, V. (2015). Enhancing the regional medium students' vocabulary using self-directive learning techniques. *American Research Journal of English and Literature*, 1(1), 8-11. <https://doi.org/10.21694/2378-9026.15026>
- Beiki, M., Raissi, R., & Gharagozloo, N. (2020). The differences between Iranian EFL teachers' perceptions and their instructional practices regarding the cooperative learning. *Cogent Arts & Humanities*, 7(1), <https://doi.org/10.1080/23311983.2020.1847420>
- Bekteshi, E., & Avdiu, E. (2024). Literature in English as a foreign language: A case study with higher education students. *Novitas-ROYAL (Research on Youth and Language)*, 18(2), 61–75. <https://doi.org/10.5281/zenodo.13623965>
- Bilen, D., & Tavil, Z. M. (2015). The effects of cooperative learning strategies on vocabulary skills of 4th-grade students. *Journal of Education and Training Studies*, 3(6), 151-165. <https://doi.org/10.11114/jets.v3i6.1062>
- Chophel, Y. (2021). Effect of Kagan cooperative learning structures on learning achievement: An experimental study. *International Journal of Multidisciplinary Research and Explorer*, 1(9), 124-132. <https://doi.org/10.1022/IJMRE.2021318451>
- Çolak, E. (2015). The effect of cooperative learning on the learning approaches of students with different learning styles. *Eurasian Journal of Educational Research*, 59, 17–34. <https://doi.org/10.14689/ejer.2015.59.2>
- Dobakhti, L., Zohrabi, M., & Tadayyon, P. (2020). An investigation into the usability of rote and mnemonic strategies for vocabulary education among elementary EFL learners. *Teaching English Language*, 14(2), 301-321. <https://doi.org/10.22132/TEL.2020.119162>
- Fraenkel, J., Wallen, N., & Hyun, H. (1993). *How to Design and Evaluate Research in Education* 10th ed. McGraw-Hill Education.
- Hadi, S., Soetjipto, B. E., & Rahayu, W. P. (2018). Implementation collaboration of learning model jigsaw and fan-n-pick to improve student motivation and learning outcomes. *Journal of Education and Practice*, 9(12), 14-19. <https://core.ac.uk/download/pdf/234641541.pdf>
- Harjono, H. S. (2011). Is cooperative learning better than individual learning in reading comprehension workshops? *Tekno-Pedagogi: Jurnal Teknologi Pendidikan*, 1(1). <https://doi.org/10.22437/teknopedagogi.v1i1.666>

- Hengki, H., Jabu, B., & Salija, K. (2017). The effectiveness of cooperative learning strategy through English village for teaching speaking skills. *Journal of Language Teaching and Research*, 8(2), 306-312. <http://dx.doi.org/10.17507/jltr.0802.12>
- Hong, Y., Chen, L. G., Huang, J. H., Tsai, Y. Y., & Chang, T. Y. (2022). The impact of cooperative learning method on the learners' oral proficiency of the training program for English tourist guides. *Frontiers in Psychology*, 13, 866863. <https://doi.org/10.3389/fpsyg.2022.866863>
- Jahanbakhsh, A. A., AliAsgariZamani, M., & Garman, Z. (2019). CIRC and STAD in Iranian context: Through the five elements to cooperative learning of lexical collocations. *Cogent Arts & Humanities*, 6(1), 1692469. <https://doi.org/10.1080/23311983.2019.1692469>
- Keramati, M. R., & Gillies, R. M. (2022). Perceptions of undergraduate students on the effect of cooperative learning on academic achievement. *Journal of Applied Research in Higher Education*, 14(1), 440-452. <https://doi.org/10.1108/JARHE-07-2020-0239>
- Li, M., & Lam, B. H. (2013). Cooperative learning, vol. 1 The Hong Kong Institute of Education, 33.
- Llamosas Corrales, L. E. (2011). Teaching vocabulary learning strategies: a vocabulary improvement program (VIP) for EFL beginner students from Centro Cultural Peruano Norteamericano Arequipa. <https://hdl.handle.net/11042/1797>
- Manyak, P. C., Manyak, A. M., & Kappus, E. M. (2021). Lessons from a decade of research on multifaceted vocabulary instruction. *The Reading Teacher*, 75(1), 27-39. <https://doi.org/10.1002/trtr.2010>
- Namaziandost, E., Shatalebi, V., & Nasri, M. (2019). The Impact of Cooperative Learning on Developing Speaking Ability and Motivation Toward Learning English. *Journal of Language and Education*, 5(3), 83-101. <https://doi.org/10.17323/jle.2019.9809>
- Nation, P., & Coxhead, A. (2014). Vocabulary size research at Victoria University of Wellington, New Zealand. *Language Teaching*, 47(3), 398-403. <https://doi.org/10.1017/S0261444814000111>
- Nguyen, C., Trinh, T., Le, D., & Nguyen, T. (2021). Cooperative learning in English language classrooms: teachers' perceptions and actions. *Anatolian Journal of Education*, 6(2), 89-108. <https://doi.org/10.29333/aje.2021.628a>
- Nurdianasari, N., Fattah, H., & Budi, E. S. (2017). The Implementation of Quiz-Quiz-Trade and Fan-N-Pick Learning Model to Enhance Social Skills and Cognitive Learning Outcome of Social Studies. *International Journal of Humanities and Social Science Invention*, 6(6), 81-85. <http://dx.doi.org/10.6007/IJARBSS/v7-i6/3005>
- Pratiwi, D. I., & Waluyo, B. (2022). Integrating task and game-based learning into an online TOEFL preparatory course during the COVID-19 outbreak at two Indonesian higher education institutions. *Malaysian Journal of Learning and Instruction (MJLI)*, 19(2), 37-67. <https://doi.org/10.32890/mjli2022.19.2.2>
- Ramadhan, A., & Adawiyah, S. L. R. (2020). The effect of Word webbing structure on the student's vocabulary mastery. *Vision Journal*, 16(2). <https://doi.org/10.30829/vis.v16i2.812>
- Ratama, I. P., Padmadewi, N. N., & Artini, L. P. (2021). Teaching the 21st century skills (4Cs) in English literacy activities. *Journal of Education Research and Evaluation*, 5(2), 223-233. <https://doi.org/10.23887/jere.v5i2.30849>
- Rungwaraphong, P. (2020). Using glosses for vocabulary assistance in Thai EFL reading classes: An investigation of preferences, effective types and elements. *Electr. J. Foreign Lang. Teach*, 17, 301-317. <http://dx.doi.org/10.56040/pyrw1726>

- San Mateo-Valdehíta, A., & de Diego, C. C. (2021). Receptive and productive vocabulary acquisition: effectiveness of three types of tasks. Results from French students of Spanish as second language. *Onomázein*, (51), 37-56. <https://doi.org/10.7764/onomazein.51.05>
- Saputro, I. E., Hartono, R., Saleh, M., & Faridi, A. (2024). Vocabulary acquisition perceptions using Kagan's fan-n-pick among Papua and non-Papua Students for Sustainable Development Goals in Indonesia. *Evolutionary Studies in Imaginative Culture*, 8, 373-387. <http://dx.doi.org/10.70082/esiculture.vi.697193-220>
- Shana, Z., Lahiani, H., & Mahmoud, S. (2020). The effects of Kagan structures on UAE sixth grade students' performance of reading comprehension: a pilot study. *Education*, 3-13, 48(8), 988-999. <https://doi.org/10.1080/03004279.2019.1687555>
- Sharma, V. (2022). Letting the struggling Saudi EFL readers take lead: How teachers transform English language instruction. *Journal of Language Teaching and Research*, 13(3), 533-540. <https://doi.org/10.17507/jltr.1303.09>
- Silvia, A., & Zuhriyah, M. (2024). The Effectiveness of Using Fan-N-Pick Strategy towards Students' Vocabulary Mastery. *EJI (English Journal of Indragiri): Studies in Education, Literature, and Linguistics*, 8(2), 307-322. <https://doi.org/10.61672/eji.v8i2.2729>
- Singay. (2020). An investigation into using Kagan cooperative learning model to enhance English oral communication ability of Bhutanese students. *PASSA: A Journal of Language Teaching and Learning*, 59(1), 20-47. <https://doi.org/10.58837/chula.pasaa.59.1.2>
- Thinley, K. D., Ghalley, D. M., & Tshering, D. (2021). The Impact of Kagan's Cooperative Learning Structure (KCLS) on Grade 9 Students towards English Language Learning. *Contemporary Education and Teaching Research*, 2(2), 21-26. <https://doi.org/10.47852/bonviewCETR2021020206>
- Tinmaz, H., & Ozturk, Y. E. (2022). Analysis of student attitudes towards cooperative learning in a collectivist culture: a case of South Korea. *Higher Education, Skills and Work-based Learning*, 12(6), 1154-1168. <https://doi.org/10.1108/HESWBL-12-2021-0237>
- Tran, V. D., Nguyen, T. M. L., Van De, N., Soryaly, C., & Doan, M. N. (2019). does cooperative learning may enhance the use of students' learning strategies? *International Journal of Higher Education*, 8(4), 79-88. <https://doi.org/10.5430/ijhe.v8n4p79>
- Türkmen, G. N., & Cesur, K. (2024). Internationalization of a regional children's song for teaching English to young learners. *Novitas-ROYAL (Research on Youth and Language)*, 18(1), 1-17. <http://doi.org/10.5281/zenodo.10876861>
- Uchihara, T., Eguchi, M., & Clenton, J. (2022). The contribution of guessing from context and dictionary use to receptive and productive vocabulary knowledge: A structural equation modelling approach. *Language Teaching Research*. <https://doi.org/10.1177/13621688221122138>
- Wahyuni, S. N., Taufiq, W., Santoso, D. R., Mat, K. S., & Teh, M. Z. M. (2019). Word webbing is an effective technique for teaching descriptive writing. *International Journal of Academic Research in Progressive Education and Development*, 8(2), 286-297. <http://dx.doi.org/10.6007/IJARPED/v8-i2/5814>
- Watcyn-Jones, P., & Johnston, O. (2002). Test Your Vocabulary. Book 3. Pearson Education Limited.
- Watcyn-Jones, P. (2000). Test your vocabulary. Book 1. Pearson Education Limited.

Zhou, T., Wang, H., & Li, D. (2023). Focusing on the value of cooperative learning in physical education: A bibliometric analysis. *Frontiers in Psychology*, 14, 1300986. <https://doi.org/10.3389/fpsyg.2023.1300986>

About the Contributor(s)

Isnaini Eddy Saputro is a doctoral candidate in the English Education Department at Universitas Negeri Semarang (UNNES), Indonesia. She is an English lecturer at Universitas Pendidikan Muhammadiyah Sorong, Indonesia. Her research interests include teaching strategy, teaching English as a foreign language, teaching for young learners, and discourse.

Email: Isnaini1291@students.unnes.ac.id

ORCID: <https://orcid.org/0009-0008-2215-7478>

Rudi Hartono is a professor in the English Department of the Faculty of Languages and Arts at Semarang State University, Indonesia. His research interests are in translation studies.

Email: rudi.hartono@mail.unnes.ac.id

ORCID: <https://orcid.org/0000-0001-9331-8744>

Mursid Saleh was a professor in the English Language and Education Department at the Faculty of Languages and Arts of Semarang State University, Indonesia. His notable publications include works on the context of English foreign language.

Email: gusmur176@gmail.com

ORCID: <https://orcid.org/0000-0002-4049-5322>

Abdurrahman Faridi is a professor in the English language and Education Department at the Faculty of Languages and Arts of Semarang State University. His main area of interest is teaching English as a foreign language.

Email: abdurrahmanfaridi568@gmail.com

ORCID: <https://orcid.org/0000-0002-8438-0340>

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