Research Article

The Effectiveness of Cooperative Learning Using Vocabulary Flashcards on Students' Mastery of English Adjectives

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Abstract: This article investigates the effectiveness of cooperative learning using vocabulary flashcards in improving students' mastery of English adjectives. The research was conducted due to students' limited vocabulary knowledge. The objective of this article was to examine whether the implementation of a cooperative learning model supported by vocabulary flashcards could enhance students' adjective mastery and learning engagement. A pre-experimental research design with a one-group pretest–posttest approach was employed. The participants consisted of 15 junior high school students enrolled in an English course. Data were collected through pretest, posttest, classroom observation, and a student response questionnaire. Quantitative data were analyzed using descriptive statistics and N-Gain analysis, while qualitative data were obtained from observation sheets and questionnaire responses. The findings indicate a noticeable improvement in students' posttest scores compared to their pretest results, with the mean N-Gain score categorized as moderately effective. In addition, observation data revealed high levels of student participation during cooperative learning activities. Questionnaire results further showed positive student responses toward the use of cooperative learning and vocabulary flashcards, particularly in terms of motivation, confidence, and ease of understanding English adjectives. These findings suggest that cooperative learning combined with vocabulary flashcards can effectively support students' vocabulary development and active engagement. In conclusion, the study provides empirical evidence that cooperative learning facilitates meaningful interaction and knowledge construction, supporting its implementation in English vocabulary instruction. However, future research is recommended to involve larger samples and comparative research designs to strengthen the generalizability of the findings.

Keywords: Cooperative Learning; English Adjectives; Student Response; Vocabulary Flashcards; Vocabulary Mastery.

1. Introduction

English sentences are constructed from various lexical elements that belong to different word classes, among which adjectives play a crucial role (Moreo et al., 2021). Adjectives function to provide descriptive meaning and nuance to entities, concepts, and living beings, enabling speakers to convey characteristics more precisely (Cameron et al., 2018). As Leech (2014) notes, describing the appearance or qualities of an object is often difficult without the use of adjectives, highlighting their central role in language use.

From a grammatical perspective, adjectives serve to qualify nouns by expressing qualities, conditions, or attributes. The term adjective originates from the Latin *ad jacere*, meaning "to add" which reflects its function of attributing characteristics to nouns (Panjaitan

& Elga, 2020). Many experts have proposed various definitions of adjectives. Rozakis (2013) explains that adjectives typically answer questions related to type, quality, or quantity and commonly appear before nouns or after linking verbs. Similarly, Tamara (2007) defines adjectives as grammatical elements that express the quality or state of an entity. In English, adjectives also occur in three degrees of comparison, namely positive, comparative, and superlative which allowing speakers to express basic qualities, comparisons, and extremes.

At the junior high school level, particularly in Grade IX, adjective instruction constitutes an essential component of English learning. Students frequently use adjectives to describe objects, people, animals, and to produce descriptive texts. However, previous studies indicate that students' use of adjectives at this level is often limited to basic forms, with insufficient mastery of more complex or grammatically derived adjectives.

Adjectives have been classified in different ways by linguists. While some classifications are based on morphological and semantic features (Tamara, 2007), others distinguish categories such as common, proper, compound, and indefinite adjectives (Rozakis, 2013). Additional classifications include demonstrative, quantitative, possessive, and qualitative adjectives (Thomson & Martinet, 2015). Considering those variations, the present study focuses on qualitative adjectives, as they are most frequently used in simple descriptive text and are highly relevant to junior high school learners.

To address limitations in adjective mastery, effective and engaging instructional approaches are required. Cooperative learning has been widely recognized as an approach that promotes active participation through peer interaction, discussion, and collaborative meaning-making (Slavin, 2005). When combined with interactive instructional media such as vocabulary flashcards, cooperative learning can further enhance students' engagement and vocabulary development (Berliani & Katemba, 2021). Research in language learning contexts suggests that cooperative learning contributes positively to vocabulary acquisition, retention, and conceptual understanding by fostering active involvement in the learning process (Permatasari, 2022; Seknun et al., 2023).

Despite its potential, learning adjectives remains challenging for many students. Difficulties include distinguishing adjectives from adverbs, errors in adjective order and placement, confusion between *-ing* and *-ed* forms, and incorrect use of comparative and superlative structures (Bolton, 2021). Studies conducted at the junior high school level further report that limited vocabulary knowledge, low motivation, and monotonous instructional practices hinder students' mastery of adjectives (Kurniasari, 2023).

Although previous studies have emphasized the importance of adjective mastery in vocabulary development and descriptive writing (Davies et al., 2022; Siregar & Dongoran, 2020) and have demonstrated the effectiveness of flashcards in vocabulary learning (Akbar et al., 2025), research integrating cooperative learning with vocabulary flashcards specifically for teaching English adjectives remains limited. Addressing this gap, the present study aims to examine students' mastery of English adjectives before and after the implementation of cooperative learning assisted by vocabulary flashcards and to analyze the effectiveness of this approach. The findings are expected to contribute to applied linguistics research and offer pedagogical insight for improving adjective instruction in EFL classrooms.

2. Literature Review

Previous studies consistently demonstrate that flashcards are effective in enhancing English vocabulary learning across educational levels. Research grounded in visual learning, cognitive theory, and dual coding theory confirms that flashcards strengthen memory retention, motivation, and learner engagement (Wati et al., 2020). Empirical evidence from experimental and classroom-based studies shows significant gains in students' vocabulary mastery, particularly when flashcards are integrated into interactive activities such as games, repetition, and retrieval practice (Arnas et al., 2025; Theo & Rokhmaniyah, 2025). Several studies also highlight the pedagogical value of flashcards in developing descriptive writing, through visual support and contextualized learning (Nur'aini et al., 2025; Akbar et al., 2025). However, most of those studies focus on general vocabulary acquisition or early language learning, without examining specific word classes or deeper linguistic characteristic.

A smaller body of research has begun to integrate flashcards with cooperative learning models, emphasizing the role of social interaction in vocabulary development. Studies employing cooperative approaches such as Think-Talk Write and Teams Games Tournament report improvements not only in learning outcomes but also in students' motivation and participation, supporting the principles of social constructivism (Feranty et al., 2024; Nur'aini

et al., 2025). Nevertheless, those studies largely prioritize quantitative achievement scores and instructional outcomes, while paying limited attention to the linguistic complexity of vocabulary acquisition, particularly adjective mastery, which plays a central role in descriptive texts. Moreover, few studies adopt a mixed-methods approach to capture both measurable learning gains and qualitative insights into classroom interaction. Addressing those gaps, the present study examines the effectiveness of cooperative learning combined with vocabulary flashcards in improving junior high school students' mastery of English adjectives, employing a mixed-methods design to provide a more comprehensive understanding of both learning outcomes and learning processes.

3. Proposed Method

This article employed a mixed-methods approach with a convergent parallel design to examine the effectiveness of cooperative learning assisted by vocabulary flashcards in improving students' mastery of English adjectives. Quantitative and qualitative data were collected simultaneously to obtain a comprehensive understanding of learning outcomes and classroom interaction. The participants were all 15 students of Cheerful English Education that located at Palapa Street 45, Sidakarya, Denpasar Selatan, consisting of 14 female and 1 male students. A saturated sampling technique was applied, in which the entire population served as the research sample. Data were collected through pretest, posttest, classroom observation, and a student response questionnaire. The pretest and posttest consisted of 30 items covering five aspects of adjective mastery: lexical meaning (English-Indonesian), synonyms, antonyms, lexical meaning (English-English), and word use in simple present tense sentences.

Quantitative method was used to analyze the data, that is, to measure learning improvement and instructional effectiveness using descriptive statistics and the N-Gain formula. Students' test scores were calculated based on a standardized vocabulary assessment rubric adapted from Sinaga (2023), which assigns differentiated score weights according to the level of task difficulty (see Table 1).

Table 1. English Vocabulary Mastery Assessment Rubric (Sinaga, 2023).

Assessed Aspect	Assessment Criteria (Number of Correct Answers)	Score
Word Meaning (English-Indonesian) *Put the adjectives into the correct categories and identify their meanings.*	10 items	20
	9 items	18
	8 items	16
	7 items	14
	6 items	12
	5 items	10
	4 items	8
	3 items	6
	2 items	4
	1 item	2
	No correct answers	0
Synonyms *Match the adjectives with their synonyms.*	5 items	15
	4 items	12
	3 items	9
	2 items	6
	1 item	3
	No correct answers	0

Antonyms *Match the adjectives with their antonyms.*	5 items	15
	4 items	12
	3 items	9
	2 items	6
	1 item	3
	No correct answers	0
Word Meaning (English-English) *Match the adjectives from Part A with the appropriate definitions.*	5 items	25
	4 items	20
	3 items	15
	2 items	10
	1 item	5
	No correct answers	0
Word Use (Sentence Construction) *Write five simple present tense sentences describing people, animals, and objects based on the given pictures.*	5 correct sentences	25
	4 correct sentences	20
	3 correct sentences	15
	2 correct sentences	10
	1 correct sentence	5
	No correct sentences	0

Students' individual scores were calculated by dividing the obtained score by the maximum possible score and multiplying the result by 100 as follows.

$$\text{Score} = \frac{\text{Student's obtained score}}{\text{Maximum possible score}} \text{ x } 100$$

The scores were then classified into proficiency levels ranging from excellent to very poor based on established evaluation standards adapted from Nurgiyantoro (2010) (see Table 2).

Table 2. Student's Proficiency Categories (Nurgiyantoro, 2010).

Score Range	Category	Grade
90-100	Excellent	A
80-89	Good	B
65-79	Fair	C
55-64	Poor	D
0-54	Very Poor	E

Statistical analysis was conducted by calculating the mean score of all students using the following formula:

$$\bar{x} = \frac{\Sigma\, x}{n}$$

Where:
$\bar{x}$ = Mean score
Σx = Total score obtained by all students
n   = Number of test participants

After comparing students' pretest and posttest results by the formula as written above, an N-Gain analysis was conducted to determine the effectiveness of the cooperative learning model assisted by vocabulary flashcards. The N-Gain value was calculated using Hake's (1999) formula as follows:

$$\text{N-Gain} = \frac{\text{Skor Posttest} - \text{Skor Pretest}}{\text{Skor Ideal} - \text{Skor Pretest}} \text{ x } 100\%$$

The effectiveness levels were interpreted based on Hake's (1999) criteria, classifying the results as ineffective, less effective, moderately effective, or effective (see Table 3).

Table 3. N-Gain Effectiveness Categories (Hake, 1999).

Percentage (%)	Interpretation
≤40	Ineffective
41-55	Less Effective
56-75	Moderately Effective
≥76	Effective

Students' learning activities during the instructional treatment were observed using an observation checklist (see Table 4), while students' perceptions of the learning model and media were gathered through a questionnaire administered at the end of the treatment.

Table 4. Student Activity Observation Checklist (Nurhidayah, 2012).

Observation Indicators	Students (%)	Notes
Paying attention to the teacher's explanation		
Interacting with group members		
Responding to the teacher's questions		
Actively participating in learning activities using vocabulary flashcards		

To calculate the level of students' participation, this article adopted the formula proposed by Trianto (2011) as follows:

$$\text{AP} = \frac{\Sigma P}{\Sigma \rho} \, 100\%$$

Where:
AP   = Percentage of participation
ΣP   = Number of students who performed the observed activity
$\Sigma\rho$ = Total number of students

Qualitative data obtained from classroom observations and questionnaire were analyzed descriptively to identify patterns of student engagement, interaction, and learning behavior. Both data sets were then integrated at the interpretation stage to examine convergence or complementarity between quantitative gains and qualitative classroom evidence. This integration enabled the article to explain not only the effectiveness of the instructional model, but also how cooperative learning supported by vocabulary flashcards facilitated students' mastery of English adjectives. This article applied the theory of constructivism (Vygotsky, 1978) as a grand theory and theory of adjective formation (Plag, 2002) and vocabulary comprehension (Harmer, 2007) as supporting theories.

4. Results and Discussion

This section presents the results of this article on students' mastery of English adjectives before and after the implementation of cooperative learning assisted by vocabulary flashcards. The quantitative findings are followed by qualitative descriptions derived from classroom observations and questionnaire. The discussion subsequently relates these results to relevant theories of adjective formation and vocabulary comprehension.

Students' Mastery of English Adjectives at Cheerful English Education before the Implementation of Cooperative Learning Assisted by Vocabulary Flashcards

This section presents students' mastery of English adjectives prior to the implementation of cooperative learning assisted by vocabulary flashcards. Data obtained from the pretest were analyzed quantitatively and qualitatively to describe students' initial proficiency at Cheerful English Education before the instructional treatment.

Quantitative Analysis of Students' Pretest Results

Table 5. Students' Pretest Results.

Students' Code	Word Meaning (English-Indonesian) Score	Syno-nyms Score	Anto-nyms Score	Word Meaning (English-English) Score	Word Use Score	Students' Score	Category
S1	6	3	6	5	5	25	Very Poor
S2	4	3	3	10	10	30	Very Poor
S3	8	3	6	5	10	32	Very Poor
S4	8	6	3	5	5	27	Very Poor
S5	4	9	3	5	5	26	Very Poor
S6	6	3	3	5	10	27	Very Poor
S7	8	6	3	5	5	27	Very Poor
S8	6	3	6	5	10	30	Very Poor
S9	8	3	3	5	5	24	Very Poor
S10	8	3	3	5	10	29	Very Poor
S11	4	3	3	5	5	20	Very Poor
S12	10	3	3	5	5	26	Very Poor
S13	8	3	3	5	10	29	Poor
S14	4	3	3	5	5	20	Very Poor
S15	6	6	3	5	10	30	Very Poor
Total						402	
Mean						26,80	Very Poor
Lowest Score						20	
Highest Score						32	

Based on Table 5, the class mean score indicates that students' pretest performance was 26.80, with the highest score is 32 and the lowest score is 20. Based on the proficiency categories, this mean score falls into the very poor level.

Qualitative Analysis of Students' Pretest Results

The following section presents the process of adjective formation and students' mastery of English adjectives based on the five assessment aspects described in the previous section.

Word Meaning (English to Indonesian)

In this section, students were required to classify adjectives into positive and negative categories and subsequently identify the meaning of each adjective in Indonesian. The following section presents explanations and variations in students' answers.

Table 6. Variations in Students' Pretest Answers on English-Indonesian Word-Meaning.

No.	Item	Adjective Formation Process	Students' Answer Variation	Correct Answer
Put these adjectives in the correct group and find their meaning				
1	Faithful	Suffixation faith (N) + -ful → faithful (Adj.)	(+) *ceria*	(+) *setia*
2	Arrogant	It is a pure adjective, with no affixation process involved.	(-) *keras kepala*	(-) *sombong, angkuh*
3	Happy	It is a pure adjective, with no affixation process involved.	(+) *senang*	(+) *senang, bahagia*
4	Brave	It is a pure adjective, with no affixation process involved.	(+) *kuat* (+) *berani*	(+) *berani*
5	Angry	It is a pure adjective, with no affixation process involved.	(-) *marah*	(-) *marah*
6	Careless	Suffixation care (N) + -less → careless (Adj.)	-	(-) *tidak hati-hati, ceroboh*
7	Harmful	Suffixation harm (N) + -ful → harmful (Adj.)	-	(-) *berbahaya*
8	Naughty	It is a pure adjective, with no affixation process involved.	(-) *genit*	(-) *nakal*
9	Imperfect	It is a pure adjective, with no affixation process involved.	(-) *tidak sempurna*	(-) *tidak sempurna*
10	Honest	It is a pure adjective, with no affixation process involved.	(+) *jujur*	(-) *jujur*

Table 6 presents students' ability to classify adjectives based on their formation process and provide correct meanings. Out of 10 adjectives, three of those adjectives, namely *faithful*, *careless*, and *harmful* are formed via suffixation, while the remaining seven are pure adjectives with no affixation. Students generally showed a good understanding of adjective meanings for pure adjectives such as *happy*, *brave*, *angry*, *imperfect*, and *honest*, correctly providing their Indonesian equivalents. However, variations in answers were observed for adjectives formed through suffixation, indicating some difficulty in recognizing affixation processes. Overall, students demonstrated stronger semantic recognition than morphological analysis.

Synonym

In this section, students were required to match adjectives that have similar meanings. This task assessed students' cognitive knowledge at the comprehension level (Harmer, 2007).

Table 7. Variations in Students' Pretest Answers on Synonym.

No.	Item	Adjective Formation Process	Students' Answer Variation	Correct Answer	Adjective Formation Process
Match the adjectives with their synonyms.					
Synonyms: (a) rude; (b) mad; (c) powerful; (d) brave; (e) well-known					
1	Strong	It is a pure adjective, with no affixation process involved.	- *Well-known* - *Brave* - *Mad*	*Powerful*	Suffixation *power (N) + -ful* → *powerful (Adj.)*
2	Impolite	Prefixation *im- + polite (Adj.)* → *impolite (Adj.)*	- *Mad* - *Brave* - *Powerful*	*Rude*	It is a pure adjective, with no affixation process involved.
3	Angry	It is a pure adjective, with no affixation process involved.	- *Mad* - *Powerful* - *Brave*	*Mad*	It is a pure adjective, with no affixation process involved.
4	Famous	Suffixation *fame (N) + -ous* → *famous (Adj.)*	- *Well-known* - *Brave* - *Mad*	*Well-known*	It is a pure adjective, with no affixation process involved.
5	Courageous	Suffixation *Courage (N) + -ous* → *courageous (Adj.)*	- *Mad* - *Powerful* - *Well-known*	*Brave*	It is a pure adjective, with no affixation process involved.

The table presents students' ability to match adjectives with their synonyms while considering their morphological formation. Among the five adjectives, two of those adjectives, namely s*trong* and *famous* are derived through suffixation, one of them, namely *impolite* through prefixation, and the remaining adjectives, such as a*ngry* and *courageous* are pure adjectives without affixation. The data show that students were able to correctly identify synonyms only for *angry* (mad) and f*amous* (well-known), whereas other items (*strong, impolite, courageous*) were consistently mismatched. This indicates that students' semantic recognition is limited, particularly for adjectives formed by affixation, and suggests the need for targeted instruction on both morphological awareness and synonym comprehension.

Antonym
In this section, students were required to match adjectives with their opposite meanings. This task was designed to assess students' cognitive knowledge at the comprehension level, particularly their ability to recognize and distinguish antonym relationships among English adjectives.

Table 8. Variations in Students' Pretest Answers on Antonym.

No.	Item	Adjective Formation Process	Students' Answer Variation	Correct Answer	Adjective Formation Process
Match the adjectives with their antonyms.					
Synonyms: (a) lazy; (b) cruel; (c) impolite; (d) arrogant; (e) faithless					
1	Humble	It is a pure adjective, with no affixation process involved.	- *Cruel* - *Lazy* - *Faithless* - *Impolite*	*Arrogant*	It is a pure adjective, with no affixation process involved.
2	Diligent	It is a pure adjective, with no affixation process involved.	- *Lazy* - *Cruel* - *Impolite*	*Lazy*	It is a pure adjective, with no affixation process involved.
3	Kind	It is a pure adjective, with no affixation process involved.	- *Arrogant* - *Lazy* - *Impolite*	*Cruel*	It is a pure adjective, with no affixation process involved.
4	Loyal	It is a pure adjective, with no affixation process involved.	- *Impolite* - *Arrogant* - *Cruel*	*Faithless*	Suffixation *faith (N) + -less* → *faithless (Adj.)*
5	Polite	It is a pure adjective, with no affixation process involved.	- *Faithless* - *Impolite* - *Lazy*	*Impolite*	Prefixation *im- + polite (Adj.)* → *impolite (Adj.)*

The table above presents students' performance in matching adjectives with their antonyms. Among the five items, namely *humble, kind,* and *loyal* were answered incorrectly by all participants, while *diligent* (lazy) and *polite* (impolite) were correctly identified by all. This pattern indicates that students were able to recognize antonyms only for items with more familiar or transparent opposites, whereas adjectives requiring morphological awareness or less familiar vocabulary were frequently mismatched. The data suggest that semantic recognition of antonyms is stronger than morphological analysis among students, highlighting the need for targeted instruction in affixation and less familiar vocabulary.

Word Meaning (English-English)
In this section, students were instructed to identify the meanings of each English adjective. This task assessed comprehension at the semantic level. The following table presents the variation of students' pretest answers in the English-English meaning section.

Table 9. Variations in Students' Pretest Answers on Word-Meaning (English-English).

No.	Item	Students' Answer Variation	Correct Answer
Match some of the adjectives from part A to the correct description.			
1	Someone who always supports and stays faithful to a person or group	- Faithful - Honest - Brave	Faithful
2	Someone who is not afraid to face danger or difficult situations	- Arrogant - Harmful - Angry - Naughty	Brave
3	Someone who always tells the truth	- Honest - Faithful	Honest
4	Someone (usually a child or animal) who behaves badly or does not follow rules	- Harmful - Imperfect	Naughty
5	Someone who does things without paying attention	- Angry - Harmful	Careless

The table presents students' performance in matching adjectives with their correct descriptions. Among the five items, namely someone who always supports and stays faithful to a person or group and someone who always tells the truth were correctly identified by all participants, while someone who is not afraid to face danger or difficult situations, someone who behaves badly or does not follow rules, and someone who does things without paying attention were answered incorrectly by most participants. This pattern indicates that students were able to recognize adjectives only when they were familiar or conceptually transparent, whereas adjectives requiring more contextual understanding or less familiar vocabulary were frequently mismatched. The data suggest that semantic recognition of descriptive adjectives is stronger than contextual or inferential analysis among students, highlighting the need for targeted instruction to improve comprehension of less familiar adjectives.

Word Use

In this section, students were required to write five simple nominal sentences based on the given pictures, using adjectives to describe people, animals, and objects. This task assessed students' cognitive skills at the application level and focused on the syntactic aspect of language, particularly sentence structure. The analysis revealed two main types of errors in students' sentences, namely spelling errors and inappropriate word choice. The following section presents the task and categorizes the identified errors in writing simple sentences.

Table 10. Variations in Students' Pretest Answers on Word Use.

No.	Item	Students' Answer Variation	Correct Answer
Write five sentences which telling about the qualities of people, animals, and things based on the pictures.			
1	Big	- The elephant is big - It is big - Ellepent is big - The big animal	The elephant is big
2	Beautiful	- Tree is beautiful - It is beautiful - This is beautiful - The view is beautiful	The view is beautiful
3	Clever	- The girl is clever - She is clever - The teacher are clever - The teacher is clever	The teacher is clever
4	Friendly	- She is friendly - They are friendly - The children are friendly	The children are friendly
5	Dangerous	- It is dangerous - The fire is dangerous - The fair is dangerous - The firefighter is dangerous	The fire is dangerous

The table illustrates students' performance in writing simple nominal sentences using adjectives to describe people, animals, and objects. Overall, most students were able to construct grammatically acceptable sentences; however, two recurring types of errors were identified, namely spelling errors and inappropriate word choice. Spelling errors appeared in words such as *ellepent* instead of *elephant* and *fair* instead of *fire*, indicating limited orthographic accuracy. In addition, word choice errors were found in sentences like *the firefighter is dangerous*, where the adjective was semantically inappropriate for the intended object. Despite these errors, many students demonstrated correct use of sentence patterns and adjectives, suggesting developing competence in syntactic structure and adjective usage, although further reinforcement is needed to improve lexical accuracy and semantic appropriateness.

Students' Mastery of English Adjectives after the Implementation of Cooperative Learning using Vocabulary Flashcards

This section presents students' mastery of English adjectives after the implementation of cooperative learning using vocabulary flashcards. The data were collected through observation and a posttest and are analyzed using both quantitative and qualitative approaches. The following discussion outlines the results.

Implementation of the Cooperative Learning Model Using Vocabulary Flashcards

The treatment was conducted in three sessions, each lasting one hour (10.00-11.00 a.m.), in accordance with the tutoring schedule at Cheerful English Education, Denpasar. Each session followed five stages of cooperative learning as proposed by Hayati (2010). The lessons began with preliminary activities, including greeting, a short prayer, attendance checking, clarification of learning objectives, student motivation, and the organization of students into small groups.

During the main instructional phase, the teacher introduced the topic *adjectives for describing people, animals, and things* using vocabulary flashcards as the instructional medium. Students were encouraged to ask questions and actively participate in group discussions to clarify their understanding. At the end of each session, the teacher summarized the lesson, awarded points to actively engaged students, informed the class about the topic for the next meeting, provided encouragement to less active learners, and concluded the lesson with a closing greeting.

Analysis of Students' Participation Based on Observation Results

The learning process was observed directly by the researcher using a structured observation sheet adapted from Nurhidayah (2012). The observation focused on students' attention to the teacher's explanations, interaction within groups, responses to questions, and active participation during cooperative learning activities using vocabulary flashcards. The results of students' activity observations across three sessions are presented in the following table.

Table 11. Results of Students' Activity Observation During the Treatment.

No.	Observation Indicators	Total Numbers of Students (%)	Notes
1	Paying attention to the teacher's explanation	100%	All students paid attention to the teacher's explanation.
2	Interacting with group members	100%	All students interacted positively with their group members.
3	Responding to the teacher's questions	66.67%	Five students did not actively participate in answering the teacher's questions during the learning process, as they remained silent throughout the class activities.
4	Actively participating in learning activities using vocabulary flashcards	100%	All students actively participated in the learning activities using vocabulary flashcards.

The observation data indicate a high level of student engagement during the implementation of cooperative learning using vocabulary flashcards. All students demonstrated full attention to the teacher's explanation and interacted positively with their group members, reflecting effective collaboration and classroom involvement. Active participation in flashcard-based learning activities was also observed among all students. However, participation in responding to the teacher's questions was slightly lower, with 66.67% of students actively responding, while five students remained silent during this stage. Overall, the findings suggest that the learning model successfully fostered student engagement, although opportunities for encouraging more verbal participation during question-and-answer sessions remain necessary.

Quantitative Analysis of Students' Posttest Results

After the treatment using cooperative learning with vocabulary flashcards, students were administered a posttest to measure their final level of English adjective mastery. The posttest items differed from the pretest to ensure more valid measurement results. Students' answers were analyzed using Sinaga's (2023) scoring rubric, and the total scores were classified based

on Nurgiyantoro's (2010) proficiency categories. The following table presents the students' posttest scores.

Table 12. Students' Posttest Results.

Students' Code	Word Meaning (English-Indonesian) Score	Syno-nyms Score	Anto-nyms Score	Word Meaning (English-English) Score	Word Use Score	Students' Score	Category
S1	12	12	15	15	20	74	Fair
S2	14	12	15	15	20	76	Fair
S3	16	9	12	10	20	67	Fair
S4	12	12	12	15	25	76	Fair
S5	18	12	15	10	25	80	Good
S6	16	9	9	20	20	74	Fair
S7	14	9	12	15	20	70	Fair
S8	18	9	15	15	15	72	Fair
S9	14	9	9	20	15	67	Fair
S10	14	12	9	15	15	65	Fair
S11	16	9	9	15	20	69	Fair
S12	14	12	12	20	25	83	Good
S13	14	12	9	20	20	75	Fair
S14	14	6	15	20	10	65	Fair
S15	14	6	15	15	15	65	Fair
Total						**1078**	
Mean						**71,86**	**Fair**
Lowest Score						**65**	
Highest Score						**83**	

The posttest results show a clear improvement in students' mastery of English adjectives compared to the pretest results. The mean score increased substantially from 49.53 (very poor category) in the pretest to 71.86 (fair category) in the posttest, indicating overall progress after the implementation of cooperative learning using vocabulary flashcards. In the pretest, most students were classified as very poor or poor, whereas in the posttest, the majority reached the fair category, with several students achieving good performance.

Improvements were observed across all assessed aspects, including word meaning (English-Indonesian), synonyms, antonyms, word meaning (English-English), and word use. The most notable gains appeared in word use and English-English word meaning, suggesting enhanced ability to apply adjectives contextually. Although a few students still demonstrated limited progress in certain aspects, the overall comparison between pretest and posttest data indicates that the instructional intervention contributed positively to students' adjective mastery.

Qualitative Analysis of Students' Posttest Results

The posttest results indicate that although some errors were still observed, students' scores showed clear improvement compared to the pretest. The following analysis outlines the errors based on variations in students' answers drawn from three performance levels: high, moderate, and low.

A. Word Meaning (English to Indonesian)

In this section, students were required to classify adjectives into positive and negative categories and subsequently identify the meaning of each adjective in Indonesian. The following section presents explanations and variations in students' answers.

Table 13. Variations in Students' Posttest Answers on English-Indonesian Word Meaning.

No.	Item	Adjective Formation Process	Students' Answer Variation	Correct Answer
Put these adjectives in the correct group and find their meaning.				
1	Polite	It is a pure adjective, with no affixation process involved.	(+) sopan (+) santun	(+) sopan (+) santun
2	Unhappy	Prefixation *un- + happy (Adj.) → unhappy (Adj.)*	(-) tidak senang	(-) tidak senang
3	Noisy	Suffixation *noise (N) + -y → noisy (Adj.)*	(-) ribut (-) berisik	(-) ribut (-) berisik
4	Reliable	Suffixation *rely (V) + -able → reliable (Adj.)*	(+) bisa dipercaya (+) bisa diandalkan (+) bertanggung jawab	(+) dapat dipercaya/diandalkan
5	Naughty	It is a pure adjective, with no affixation process involved.	(-) nakal	(-) nakal
6	Careless	Suffixation *care (N) + -less → careless (Adj.)*	(-) ceroboh (-) tidak peduli (-) malas	(-) ceroboh
7	Harmful	Suffixation *harm (N) + -ful → harmful (Adj.)*	(-) berbahaya (-) menyakitkan	(-) berbahaya
8	Impatient	Prefixation *im- + patient (Adj.) → impatient*	(-) tidak sabar (-) tidak sakit	(-) tidak sabar
9	Hopeless	Suffixation *hope (N) + -less → hopeless (Adj.)*	(-) putus asa (-) tidak berharap (-) gagal	(-) putus asa
10	Courageous	*Suffixation* *courage (N) + -ous → courageous (Adj.)*	(+) berani	(+) berani

The table shows that students generally demonstrated better comprehension of adjective meanings and formations, although some semantic inaccuracies were still evident. Most items were answered correctly with appropriate positive or negative classifications, such as *polite*, *noisy*, *naughty*, and *courageous*, indicating clear understanding of their core meanings. Variations appeared mainly in adjectives formed through affixation, such as *reliable*, *careless*, and *hopeless*, where some students provided contextually related but semantically imprecise answers (e.g., *bertanggung jawab* for *reliable* or *malas* for *careless*). These variations suggest partial understanding of derivational morphology and semantic scope. Overall, the data indicate that students were able to identify adjective meanings and polarity more accurately, while difficulties remained in distinguishing closely related concepts and interpreting affixed adjectives precisely.

Synonym

Table 14. Variations in Students' Posttest Answers on Synonym.

No.	Item	Adjective Formation Process	Students' Answer Variation	Correct Answer	Adjective Formation Process
Match the adjectives with their synonyms.					
Synonyms: (a) friendly; (b) happy; (c) strong; (d) angry; (e) loud					
1	Joyful	Suffixation *joy (N) + -ful → joyful (Adj.)*	- *Happy* - *Friendly* - *Loud* - *Angry*	*Happy*	It is a pure adjective, with no affixation process involved.
2	Powerful	Suffixation *power (N) + -ful → powerful (Adj.)*	- *Strong* - *Loud* - *Angry* - *Happy*	*Strong*	It is a pure adjective, with no affixation process involved.
3	Kind	It is a pure adjective, with no affixation process involved.	- *Friendly* - *Happy* - *Loud*	*Friendly*	Suffixation *Friend (N) + -ly → friendly (Adj.)*
4	Noisy	Suffixation *noise (N) + -y → noisy (Adj.)*	- *Loud* - *Angry* - *Strong*	*Loud*	It is a pure adjective, with no affixation process involved.
5	Furious	It is a pure adjective, with no affixation process involved.	- *Angry* - *Loud* - *Happy*	*Angry*	It is a pure adjective, with no affixation process involved.

The table shows that students' answers in matching adjectives with their synonyms still varied, indicating partial comprehension of synonym relationships. Several items, such as *joyful-happy*, *powerful-strong*, *noisy-loud*, and *furious-angry*, were generally identified correctly, although students also selected distractors that were semantically related but not synonymous (e.g., *friendly*, *loud*, or *happy*). In the case of *kind*, most students correctly associated it with *friendly*, yet alternative answers suggest confusion between general positive traits and precise synonymy. Overall, the findings indicate that while students demonstrate emerging understanding of adjective synonyms, their semantic discrimination remains limited and requires further reinforcement.

Antonym

Table 15. Variations in Students' Posttest Answers on Antonym.

No.	Item	Adjective Formation Process	Students' Answer Variation	Correct Answer	Adjective Formation Process
Match the adjectives with their antonyms.					
Synonyms: (a) calm; (b) quiet; (c) sad; (d) patient; (e) weak					
1	Loud	It is a pure adjective, with no affixation process involved.	- *Quiet* - *Calm* - *Weak*	*Quiet*	It is a pure adjective, with no affixation process involved.
2	Furious	It is a pure adjective, with no affixation process involved.	- *Calm* - *Quiet* - *Sad*	*Calm*	It is a pure adjective, with no affixation process involved.
3	Joyful	Suffixation *joy (N) + -ful → joyful (Adj.)*	- *Sad* - *Calm* - *Quiet*	*Sad*	It is a pure adjective, with no affixation process involved.
4	Powerful	Suffixation *power (N) + -ful → powerful (Adj.)*	- *Weak* - *Patient* - *Quiet*	*Weak*	It is a pure adjective, with no affixation process involved.

5	Impatient	Prefixation im- + patient (Adj.) → impatient (Adj.)	- Patient - Calm - Sad	Patient	It is a pure adjective, with no affixation process involved.

The table shows students' performance in matching adjectives with their correct antonyms. Those data show that students demonstrated partial understanding of antonym relationships, as most items elicited varied answer choices. For items such as loud-quiet, joyful-sad, powerful-weak, and impatient-patient, the correct antonyms were generally identified, although several students selected semantically related but incorrect options, such as calm or quiet. In the case of furious, some students confused emotional contrast by choosing quiet or sad instead of calm. These patterns indicate that while students have begun to recognize basic oppositional meanings, their understanding of precise antonym relationships among English adjectives is still developing.

Word Meaning (English-English)

Table 16. Variations in Students' Posttest Answers on Word Meaning (English-English).

No.	Item	Students' Answer Variation	Correct Answer
Match some of the adjectives from part A to the correct description.			
1	Someone who shows good manners and respect toward others.	- Polite - Reliable - Courageous	Polite
2	Someone who has no hope or belief that something good will happen.	- Hopeless - Unhappy - Careless	Hopeless
3	Someone who is easily annoyed when having to wait or face delays.	- Impatient - Angry - Careless	Impatient
4	Something or someone that causes damage, injury, or negative effects.	- Harmful - Noisy - Careless	Harmful
5	Someone who feels sad, dissatisfied, or not pleased.	- Unhappy - Hopeless - Naughty	Unhappy

Those data indicate that students were generally able to identify adjectives based on contextual descriptions, although some confusion was still evident. For Item 1, most students correctly associated good manners with *polite*, while alternative choices such as *reliable* and *courageous* suggest partial overlap in positive traits. In Item 2, *hopeless* was appropriately selected, but the presence of *unhappy* and *careless* shows that some students relied on general negative meanings rather than precise definitions. A similar pattern appears in Item 3, where *impatient* was correctly identified, yet *angry* was chosen by some students, indicating semantic closeness. For Item 4, students largely recognized *harmful* as the correct descriptor, though distractors like *noisy* and *careless* reflect surface-level associations. In Item 5, *unhappy* was correctly matched, while *hopeless* and *naughty* reveal lingering difficulty in distinguishing emotional states from behavioral traits.

Word Use

Table 17. Variations in Students' Posttest Answers on Word Use.

No.	Item	Students' Answer Variation	Correct Answer
Write five sentences which telling about the qualities of people, animals, and things based on the pictures.			
1	Small	- The lady bird is small. - The kumbang is small. - Enimal is small.	The lady-bird is small.
2	Joyful	- The students are joyful. - They were joyful. - Student is joyful. - They are joyful.	The students are joyful.
3	Powerful	- The man is powerful. - Men is powerful. - He is powerful. - He's powerful.	The man is powerful.
4	Heavy	- The box is heavy. - He is heavy. - Thing is heavy.	The box is heavy.
5	Noisy	- The sound is noisy. - The man is noisy. - He is noisy. - He's noisy.	The man is noisy.

The table presents students' written performance in producing simple sentences using adjectives to describe people, animals, and things. The data show that most students were able to construct grammatically acceptable sentences using the target adjectives. Common sentence patterns such as "The lady-bird is small," "The students are joyful," and "The man is powerful" were produced correctly by several students, indicating adequate understanding of basic sentence structure and adjective use.

However, several writing errors were still identified, particularly in spelling, subject-verb agreement, and word choice. Errors such as "Enimal is small", "Men is powerful", and "The box in heavy" reflect difficulties with spelling accuracy and correct use of auxiliary verbs. In addition, some sentences showed inappropriate subject selection, for example describing people with adjectives more suitable for objects. These findings indicate that while students demonstrated developing ability in adjective usage at the sentence level, further practice is needed to improve grammatical accuracy and lexical precision.

The Effectiveness of Implementing a Cooperative Learning Model Using Vocabulary Flashcards

The effectiveness of the cooperative learning model using vocabulary flashcards was examined through N-Gain analysis and an analysis of students' responses to the questionnaire.

Effectiveness of the Cooperative Learning Model Using Vocabulary Flashcards Based on N-Gain Analysis

Tabel 18. The Counting Result of N-Gain Analysis.

No.	Students' Code	Pretest' Score	Posttest' Score	Posttest - Pretest	Ideal Score - Pretest Score	N-Gain	Notes
1	S1	25	74	49	75	65,33%	Moderately Effective
2	S2	30	76	46	70	65,72%	Moderately Effective
3	S3	32	67	35	68	51,48%	Less Effective
4	S4	27	76	49	73	67,13%	Moderately Effective
5	S5	26	80	54	74	72,93%	Moderately Effective
6	S6	27	74	47	73	64,39%	Moderately Effective
7	S7	27	70	43	73	58,91%	Moderately Effective
8	S8	30	72	42	70	60,00%	Moderately Effective
9	S9	24	67	43	76	56,58%	Moderately Effective
10	S10	29	65	36	71	50,71%	Less Effective
11	S11	20	69	49	80	61,25%	Moderately Effective
12	S12	26	83	57	74	77,03%	Effective
13	S13	29	75	46	71	64,79%	Moderately Effective
14	S14	20	65	45	80	56,25%	Moderately Effective
15	S15	30	65	35	70	50,00%	Less Effective
Mean						**61,50%**	**Moderately Effective**

The N-Gain analysis indicates that the implementation of cooperative learning using vocabulary flashcards resulted in a moderately effective improvement in students' mastery of English adjectives. The mean N-Gain score of 61.50% falls within the *moderately effective* category, showing a meaningful increase in students' posttest scores compared to their pretest performance. Most students demonstrated moderate learning gains, while one student achieved a high level of effectiveness, and a smaller number showed lower gains. These variations suggest differences in individual learning pace and initial ability levels.

Those findings support the theoretical claim of cooperative learning, which emphasizes that learning in small groups enhances students' understanding through peer interaction, discussion, and knowledge sharing. Cooperative learning allows students to negotiate meaning, clarify misunderstandings, and reinforce concepts collaboratively, thereby facilitating deeper comprehension of the learning material. Consequently, the moderate

effectiveness observed in this article reflects the positive contribution of group-based learning in improving students' cognitive understanding of English adjectives.

Analysis of Students' Questionnaire Responses after the Implementation of the Cooperative Learning Model Using Vocabulary Flashcards

Tabel 19. The recapitulated results of students' questionnaire responses after the treatment.

No.	Statement	Opinion Choice	Students' Amount	Percentage
1	I enjoy using the cooperative learning model with vocabulary flashcards to improve my mastery of English adjectives.	Strongly Disagree	0	-
		Disagree	3	20%
		Hesitant	3	20%
		Agree	3	20%
		Strongly Agree	6	40%
2	In my opinion, the cooperative learning model with vocabulary flashcards motivates me to study English adjectives more actively.	Strongly Disagree	0	-
		Disagree	3	20%
		Hesitant	3	20%
		Agree	6	40%
		Strongly Agree	3	20%
3	Learning English adjectives with group members helps me become more skilled in using English adjectives.	Strongly Disagree	0	-
		Disagree	0	-
		Hesitant	3	20%
		Agree	6	40%
		Strongly Agree	6	40%
4	The cooperative learning model with vocabulary flashcards does not increase my English adjective vocabulary.	Strongly Disagree	3	20%
		Disagree	3	20%
		Hesitant	6	40%
		Agree	3	20%
		Strongly Agree	0	-
5	The cooperative learning model with vocabulary flashcards makes it difficult for me to master English adjectives.	Strongly Disagree	0	-
		Disagree	10	66,67%
		Hesitant	5	33,33%
		Agree	0	-
		Strongly Agree	0	-
6	The cooperative learning model with vocabulary flashcards makes it easier for me to master English adjectives.	Strongly Disagree	0	-
		Disagree	3	20%
		Hesitant	3	20%
		Agree	6	40%
		Strongly Agree	3	20%
7	I am not enthusiastic about learning English with my group members.	Strongly Disagree	3	20%
		Disagree	9	60%
		Hesitant	3	20%
		Agree	0	-
		Strongly Agree	0	-
8	I am more confident in expressing my opinions when learning with my group members.	Strongly Disagree	0	-
		Disagree	3	20%
		Hesitant	3	20%
		Agree	6	40%
		Strongly Agree	3	20%
9	Learning English adjectives with my group members makes me reluctant to look up adjective meanings in the dictionary.	Strongly Disagree	5	33,33%
		Disagree	9	60,00%
		Hesitant	0	-
		Agree	1	6,67%
		Strongly Agree	0	-
10	Constructing simple English sentences using adjectives with my group members is very boring.	Strongly Disagree	6	40%
		Disagree	6	40%
		Hesitant	3	20%
		Agree	0	-
		Strongly Agree	0	-

The data in Table 19 show that most students demonstrated positive attitudes toward the implementation of the cooperative learning model using vocabulary flashcards. Students generally reported enjoyment, increased motivation, improved confidence, and better skills in mastering English adjectives through group-based learning activities. A large proportion of responses fell into the agree and strongly agree categories, indicating that collaborative learning supported students' engagement and understanding of the material.

Responses to negatively worded statements reveal a contrasting pattern. Most students expressed disagreement or strong disagreement with statements suggesting that the learning model was difficult, demotivating, boring, or discouraged independent vocabulary learning. This finding indicates that students did not perceive cooperative learning with vocabulary flashcards as an obstacle to learning, but rather as a supportive and enjoyable instructional approach.

These results align with theoretical perspectives on cooperative learning proposed by Vygotsky (1978) and Slavin (2005). From a sociocultural viewpoint, learning is facilitated through social interaction and peer collaboration, which allows students to develop their understanding with the support of others. In line with this, cooperative learning encourages positive interdependence, active participation, and mutual support among learners. The positive student responses in this article provide empirical evidence that cooperative learning supported by vocabulary flashcards can enhance students' motivation and knowledge of English adjectives.

5. Conclusions

This article investigated the effectiveness of cooperative learning assisted by vocabulary flashcards in improving students' mastery of English adjectives. The findings indicate a substantial improvement in students' learning outcomes, as evidenced by the increase in mean scores from the pretest (very poor level) to the posttest (fair level) and a mean N-Gain score of 61.50%, which falls into the moderately effective category. Qualitative data from classroom observations and questionnaires further confirm increased student engagement, motivation, confidence, and participation during group-based learning activities.

These results align with the research objectives and support the theoretical assumptions of cooperative learning proposed by Vygotsky (1978) and Slavin (2005), which emphasize the role of social interaction, peer collaboration, and positive interdependence in enhancing learners' understanding and knowledge construction. The integration of vocabulary flashcards provided visual support and contextual reinforcement, enabling students to better comprehend, apply, and use English adjectives across lexical, semantic, and syntactic aspects.

The article contributes to EFL pedagogy by providing empirical evidence that cooperative learning combined with vocabulary flashcards is an effective instructional strategy for teaching English adjectives, particularly in small-group learning contexts. This approach not only improves students' linguistic competence but also fosters positive learning attitudes and collaborative skills. However, this article is limited by its small sample size and short treatment duration. Future research is recommended to involve larger and more diverse participant groups, longer instructional periods, and comparative designs to further examine the long-term effectiveness of cooperative learning with various instructional media and linguistic targets.

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