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The Impact of Group-to-Group Exchange (GGE) Method in Grammar Learning

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Abstract. *This study examines the pedagogical efficacy of Group-to-Group Exchange (GGE) method in enhancing grammar acquisition among 20 eighth grade students of a junior high school in Banyuwangi, Indonesia for a period of 8 weeks. By employing concurrent mixed-methods design, quantitative data was gathered via standardized classroom observations by measuring Johnson and Johnson's five cooperative-learning elements and, pre- and post-test grammar assessments developed from the official school syllabus and cross-checked against CEFR rubrics by subject teachers. Qualitative insights were derived from semi-structured interviews with students and their instructors. Observation scores averaged 4.20 on a 5-point Likert scale, indicating high levels of collaborative engagement. Paired-sample t-tests revealed a statistically significant improvement in grammar proficiency (pre-test M = 50.50 vs. post-test M = 69.25; Δ = +18.75, SD = 7.76, t(19) = –10.81, p < .001), with a large effect size (Cohen's d ≈ 2.41). Interview themes highlighted increased motivation, peer-supported scaffolding, and positive shifts in classroom dynamics.. Triangulation of these data sources validates GGE in promoting syntactic mastery, cultivating metacognitive awareness and learner autonomy. The findings advocate for the strategic integration of GGE within EFL curricula, to optimize cooperative grammar learning in contexts similar to Indonesian secondary schools.*

Keywords: *Active Learning, Cooeperative Learning EFL, Grammar Proficiency, Group-to-Group Exchange*

Abstrak. *Penelitian ini mengkaji efektivitas pedagogis metode Pertukaran Antar Kelompok (GGE) dalam meningkatkan penguasaan tata bahasa di kalangan 20 siswa kelas VIII sebuah sekolah menengah pertama di Banyuwangi, Indonesia, selama periode 8 minggu. Dengan menggunakan desain campuran konkomitan, data kuantitatif dikumpulkan melalui observasi kelas standar dengan mengukur lima unsur pembelajaran kooperatif Johnson dan Johnson, serta penilaian tata bahasa pra-tes dan pasca-tes yang dikembangkan dari kurikulum resmi sekolah dan dicocokkan dengan rubrik CEFR oleh guru mata pelajaran. Wawasan kualitatif diperoleh dari wawancara semi-terstruktur dengan siswa dan guru mereka. Skor observasi rata-rata 4,20 pada skala Likert 5 poin, menunjukkan tingkat keterlibatan kolaboratif yang tinggi. Uji t sampel berpasangan menunjukkan peningkatan yang signifikan secara statistik dalam kemampuan tata bahasa (pra-tes M = 50,50 vs. pasca-tes M = 69,25; Δ = +18,75, SD = 7,76, t(19) = –10,81, p < 0,001), dengan ukuran efek besar (Cohen's d ≈ 2,41). Tema wawancara menyoroti peningkatan motivasi, dukungan teman sebaya dalam pembelajaran, dan perubahan positif dalam dinamika kelas. Triangulasi sumber data ini memvalidasi GGE dalam mempromosikan penguasaan sintaksis, mengembangkan kesadaran metakognitif, dan otonomi belajar. Temuan ini mendukung integrasi strategis GGE dalam kurikulum EFL untuk mengoptimalkan pembelajaran tata bahasa kooperatif dalam konteks serupa dengan sekolah menengah di Indonesia.*

Kata kunci: *Active Learning, Cooeperative Learning EFL, Grammar Proficiency, Group-to-Group Exchange*

1. LATAR BELAKANG

Learning English grammar in Indonesia presents multifaceted challenges, due to entrenched pedagogical traditions and systemic constraints. Many EFL classrooms—especially those in rural and semi-urban contexts—continue to rely heavily on teacher-centred instruction and students occupy passive roles. This approach limits learners' active engagement with grammatical structures, constraining opportunities for meaningful language use and peer

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interaction. Such educational practices have tangible repercussions at the macro level: in the Education First English Proficiency Index (EF EPI) 2024, Indonesia ranked 80th out of 113 nations. Low proficiency reflects individual learners' struggles with syntax acquisition and highligthts systemic issues—insufficient teacher training in interactive methods, large class sizes, and resource limitations—that perpetuate traditional modes of instruction. Consequently, perpetuating a cycle in which students seldom exercise critical thinking or collaborative problem-solving when constructing grammatically correct sentences. Hence, the persistent teacher-centred orientation is both a symptom and a catalyst of underperformance, necessitating innovative pedagogical interventions that can more effectively scaffold students' syntactic development through active, participatory, and socially mediated experiences.

Previous scholars have extensively documented the efficacy of cooperative learning paradigms—such as Student Teams Achievement Divisions (STAD), Jigsaw, and Think-Pair-Share—in bolstering grammatical competence and communicative fluency. Meta-analyses and controlled trials across diverse cultural contexts consistently reveal that structured peer interaction, mutual accountability, and positive interdependence yield significant gains in test scores and learner motivation (Odehova, Nevska & Perlova, 2022; Khan & Akhtar, 2017; Zarifi & Taghavi, 2016). These models share core features: heterogeneous grouping, task interdependence, and teacher facilitation that orients students toward shared goals. These research has gravitated towards the aforementioned widely recognized frameworks, leaving lesser-known strategies underexplored such as the Group-to-Group Exchange (GGE) method—characterized by initial intra-group learning followed by inter-group dissemination and synthesis—has been examined primarily in non-linguistic domains such as biology and social studies. While these studies attest to GGE's capacity to enhance conceptual understanding, its specific application to EFL grammar instruction remains uncharted. The scarcity of research on GGE in language pedagogy raises a research opportunity: by investigating this collaborative format within the grammar classroom, educators may uncover novel pathways to amplify student engagement to enhance English grammar leanring.

Vygotsky's sociocultural theory posits that learning emerges through socially mediated processes, wherein interaction with more capable peers or interlocutors within one's Zone of Proximal Development (ZPD) facilitates the internalization of complex skills. The GGE model uses these theoretical constructs by orchestrating cycles of peer tutoring, reciprocal teaching, and collaborative reflection. According to Gillies (2016), cooperative learning not only fosters academic achievement but also allows learners to articulate their reasoning, confront

alternative perspectives, and assume collective responsibility for group outcomes. In GGE, initial group deliberations enable members to consolidate individual comprehension; subsequent exchanges across groups demand that each learner re-express and recontextualize grammatical concepts for unfamiliar peers, thereby reinforcing their understanding. This dialogically rich environment allows grammar to be negotiated, contested, and co-constructed.

Although the GGE method holds theoretical significance, empirical evidence in learning English as a foreign language (EFL) in Indonesia remains limited. Its impact has been less explored in a local context characterized by heterogeneous classes, uneven teacher preparation, and constrained resources. This study, conducted with eighth-grade students in Banyuwangi, addresses the research question: "How does the Group-General Exchange (GGE) method influence students' grammar learning?" The objective is to analyse the impact of employing the GGE method on students' grammar learning within a classroom setting. By testing GGE in this context, this study seeks to bridge the gap between classroom theory and practice and generate evidence that can guide context-sensitive adaptations in cooperative learning for grammar instruction.

2. KAJIAN TEORITIS

Teaching Models –Teacher-Centered vs Student-Centered

1. Definition

A teaching model serves as a strategic blueprint for the systematic delivery of instructional content, shaping not only the sequence of topics but also the roles of instructors and learners within the educational ecosystem. Within the domain of language acquisition, two paradigmatic approaches prevail:

a) Teacher-Centred

In this arrangement, the teacher is the most important person in the classroom and the main source of knowledge. Lessons are usually characterised by lectures, didactic presentations of rules and examples, and a one-way flow of information. The teacher sets the agenda, establishing objectives, pacing the delivery of material and orchestrating class discourse. Drawing on behaviourist and information-processing theories, this model prioritises clarity of presentation and uniformity of learning experiences (Brown, 2001). It is effective in contexts that require the large-scale dissemination of foundational content, ensuring that all students receive the same input. However, the centralisation of authority can inadvertently cultivate learner passivity, diminish opportunities for hands-on experimentation and reduce intrinsic motivation to engage with the language beyond memorising surface-level rules.

b) Student-Centred

Grounded in constructivist principles as outlined by Piaget (1952) and sociocultural theorists like Vygotsky (1978), the student-centered approach reimagines learners as active creators of knowledge. In this approach, educators serve as facilitators, designing collaborative activities such as problem-solving workshops, peer instruction cycles, and project-based initiatives. These activities encourage students to negotiate meaning, articulate hypotheses, and apply grammatical concepts in authentic communication contexts. Key mechanisms include the Zone of Proximal Development (ZPD), where learners engage with tasks slightly beyond their independent capabilities with guided support. Scaffolding strategies gradually transfer cognitive responsibility from teacher to student (Ellis, 2006; Gillies, 2016). By situating grammar within interactive, learner-driven activities, this model aims to enhance metacognitive awareness, boost self-efficacy, and reduce affective barriers such as language anxiety.

2. Advantages and Disadvantages

A comparative analysis, based on Markina & Molla (2022) findings, highlights the trade-offs associated with each approach.

a) Teacher-Centred

Teacher-centered education offers several advantages, such as an organized educational pathway with clearly defined lesson plans and sequenced content, which reduces cognitive load by providing predictable frameworks. This approach also enhances operational efficiency through direct instruction, streamlining the introduction of new grammatical forms and enabling the rapid achievement of curriculum objectives. Additionally, centralized control in the classroom fosters consistent behaviour expectations, minimizing off-task behaviours. However, teacher-centered education also has its disadvantages such as learner passivity, which can limit students' own questions and exploratory discourse. Another disadvantage is engagement deficits, which can arise from reduced peer collaboration which is crucial for naturalistic language practice. Lastly, overreliance on rote learning and repetitive drills can lead to motivational erosion, reducing student enthusiasm and hindering long-term retention.

b) Student-Centred

Collaborative tasks and peer teaching, through active participation, foster a shared responsibility and continuous feedback environment, encouraging students to actively engage in the learning process. Taking ownership of the learning process leads to intrinsic motivation, resulting in deeper retention of language structures. However, for the teacher to design authentic, scaffolded activities requires a substantial initial investment in materials, rubrics,

and differentiation strategies, making it a time-consuming process. Additionally, without careful facilitation, discussions may stray from the intended grammar objectives, potentially diluting the instructional focus and leading to curriculum drift. This approach may not be as effective in small group sizes where peer interaction and socialization is constrained.

3. The Context of EFL in Grammar Learning

In the realm of English as a Foreign Language (EFL) education, mastering grammar serves as the foundation for facilitating authentic communication, as emphasized by the Common European Framework of Reference for Languages (CEFR), which prioritizes functional competence and real-world language use over abstract rule recall (Council of Europe, 2001). Within this framework, grammar functions not as an end in itself but as an instrumental tool that propels learners toward both fluency—the ability to use language spontaneously and coherently—and accuracy—the precise application of forms in context. In deductive sequences, the teacher explains grammatical concepts, such as tense formation or clause structure, providing learners with a clear conceptual scaffold. Conversely, inductive segments immerse students in authentic texts, dialogues, or multimodal inputs, prompting them to infer patterns, test hypotheses, and negotiate meaning collaboratively. This integrative approach aligns with cognitive-interactionist theories, which suggest that explicitly presented rules and stimulated input contribute to the internalization of complex language structures. Moreover, this hybridized pedagogy resonates with Vygotskian notions of scaffolding and zone of proximal development (ZPD), where socially mediated guidance gradually transfers cognitive responsibility to learners. Ultimately, by situating grammar instruction within a communicative, contextually rich environment, EFL programs can effectively bridge the gap between mechanical rule application and the dynamic demands of real-life English usage.

4. Practical Implementation of Deductive and Inductive Approaches

Translating this theoretical framework into classroom practice involves deliberately designing teaching sequences that alternate between explicit rule presentation and exploratory pattern discovery. In a typical lesson, instructors might begin with a concise deductive exposition, for example, framing the morphological markers of the past perfect tense, accompanied by illustrative sentences and visual timelines. This initial phaseequips learners with an analytical lens to scrutinize subsequent examples. Subsequently, the teacher transitions to inductive tasks, presenting learners with authentic materials, such as excerpts from blogs, news articles, or recorded conversations, in which past perfect constructions naturally occur. Students work in small groups to identify recurring forms, formulate provisional rules, and

compare their hypotheses with the deductive schema previously introduced. These collaborative ventures are further enriched by guided reflection, where learners articulate their reasoning, confront anomalies, and receive corrective feedback. Donato & Brooks (2015) emphasize that this cyclical movement between "teach" and "discover" phases fosters deeper cognitive engagement as learners are compelled to reconcile theory with authentic usage. By embedding grammar within purposeful communicative activities, such as role-plays and problem-solving discussions, educators not only reinforce structural comprehension but also cultivate learners' ability to transfer grammatical competence to diverse contexts, from peer presentations to academic essay writing.

5. Cooperative Learning & Group-to-Group Exchange (GGE)

a) Conceptual Framework

Cooperative learning, described by Johnson & Johnson (1998), is an instructional paradigm where learners collaborate to achieve shared academic goals. This model is based on five interconnected elements. First, positive interdependence ensures that each student's success depends on the group's collective success. Individual contributions are integrated into a shared product or outcome. Second, individual accountability requires learners to demonstrate mastery of assigned content, preventing them from relying solely on more capable peers. Third, face-to-face promotive interaction involves students engaging directly through questioning, explaining, and feedback to enhance understanding. Fourth, interpersonal and social skills development emphasizes communication strategies, conflict resolution, and leadership, which are crucial for effective collaboration. Finally, group processing and evaluation encourages learners to reflect on their interactions, assess the effectiveness of their strategies, and plan improvements for future tasks. True cooperative dynamics arise when group members actively analyse, debate, and refine their ideas, rather than simply distributing tasks. The GGE method further enhances these cooperative principles by facilitating structured interchange of group-generated knowledge. Each group not only constructs its own understanding but also serves as both a teacher and a learner when sharing insights with peer groups.

b) The GGE Method Mechanism

The Group-to-Group Exchange (GGE) method is a sophisticated cooperative learning approach that divides instructional content into distinct segments and distributes them to multiple small groups. During the initial phase, each group thoroughly examines its assigned topic. This intra-group phase promotes cognitive elaboration as learners articulate, inquire, and reconcile divergent understandings under the guidance of peer facilitators. In the interchange

phase, groups reorganize into cross-group pairings or clusters, where they engage in reciprocal teaching and instruction on their respective topics. This reciprocal pedagogy compels every student to assume the dual role of instructor—articulating and contextualizing content—and learner—asking clarifying questions and evaluating peer explanations. This oscillation between teaching and learning positions cultivates metacognitive monitoring as students become acutely aware of their knowledge gaps and strategies for remediation. Drawing on Vygotsky's (1978) sociocultural theory, the GGE mechanism embodies the principles of scaffolding within the ZPD. Peer "more knowledgeable others" guide learners toward tasks they could not yet accomplish independently. The iterative cycles of explanation, questioning, and feedback embedded in GGE simultaneously reinforcing grammatical accuracy and communicative proficiency.

c) The Merits of GGE Method in Light of Empirical Evidence

Putri (2023) found that after eight weeks of implementing the Grammar Grouping Exercise (GGE), an average grammar accuracy increases of 15% was achieved. This demonstrates the effectiveness of peer teaching in clarifying grammar concepts before students apply them independently. Sarwono (2018) also reported a 20% reduction in error rates on written assignments. This suggests that cross-group feedback helps students identify and correct their mistakes.

3. METODE PENELITIAN

This pedagogical research analysis adopts a pragmatic paradigm (Johnson & Johnson, 2007), consisting of a mixed-methods approach validated by concurrent triangulation (Creswell & Plano Clark, 2018), to gain an in-depth understanding of the impact of implementing GGE method on grammar learning. A quantitative analysis was done to measure intensity of cooperative learning element implementation through observation. Improvements in students' grammar skills was assessed using pre-tests and post-tests. A qualitative approach was employed to explore teachers' and students' perceptions via semi-structured interviews.

1. Respondents

The research was conducted at a junior high school in Banyuwangi Regency, East Java. 20 eighth-grade students, selected using homogeneous sample method to ensure. This school was chosen because it still uses traditional teaching methods and teachers reported that the grammar proficiency of eighth-grade students was relatively low.

2. Data Collection

The data collection techniques used in this study included the following: (1) direct observation of student group activities (based on the rubric of Johnson & Johnson, 1998); (2)

semi-structured interviews with teachers and three student representatives per group; (3) grammar assessments in the form of pre- and post-tests, based on the syllabus and cross-checked against CEFR rubrics by subject teacher

3. Data Analysis

The data analysis procedures were executed concurrently and supplemented each other: (1) Data acquired from observations were analysed descriptively and quantitatively; (2) Interview data were analysed using thematic analysis techniques based on the Braun & Clarke (2006) framework, which includes the processes of coding, identifying themes, and drawing conclusions from patterns of findings; (3) Grammar test data were analysed using a paired sample t-test to determine the significance of differences in learning outcomes before and after the application of the GGE method. The findings are then validated through methodological triangulation, yielding meaningful and actionable conclusions.

4. Research Procedure

Before initiating the study, the researcher conducted a series of preparatory activities, including designing research instruments, validating materials and coordinating with the school to obtain permission to conduct the research. Once all logistical and ethical preparations had been completed, the implementation phase began, involving the following stages.

First, a diagnostic assessment was administered to the students to determine their general English proficiency level. This stage aimed to identify students' baseline competence and ensure that groups could be formed with relatively balanced proficiency levels.

Next, a pre-test on grammar mastery was conducted in the subsequent meeting. This assessment measured students' current grammatical proficiency to evaluate changes in learning outcomes after the GGE method was implemented.

Thirdly, the researcher implemented the GGE instructional model. Students were divided into small groups to discuss and teach each other the assigned grammatical topics collaboratively before exchanging their understanding with other groups. Each group analysed their tasks, formulated responses and presented their perspectives to the class.

Fourthly, throughout the learning process, the teacher acted as a facilitator, providing guidance, clarification and feedback whenever students encountered difficulties. At the same time, the researcher conducted systematic classroom observations to document behavioural and interactive patterns among students during the implementation of the GGE. This qualitative approach ensured the triangulation of the collected data.

Finally, a post-test was administered at the end to measure students' grammatical proficiency following the use of the GGE method. The pre- and post-test results were analysed

using quantitative procedures, particularly paired-sample t-tests, to determine whether the GGE approach produced a statistically significant improvement compared to the traditional method. Additionally, semi-structured interviews were conducted with students of each group and the teacher to complement the observational data and gain deeper insight into their experiences and perceptions of the GGE method. These interview and observation data were then analysed using thematic analysis (Braun & Clarke, 2006), to identify recurring themes and patterns that either supported or challenged the quantitative findings.

This multi-method approach is in line with the principles of data triangulation (Denzin, 1978; Patton, 1999) and ensures that the study's results provide a comprehensive understanding of the impact of the GGE method on grammar learning in the Indonesian EFL context.

4. HASIL DAN PEMBAHASAN

1. Results

Data was collected using three methods: observation, assessment (pre- and post-tests) and interviews. The results are presented according to the method used: quantitative for observation and assessment, and qualitative for interviews.

Table 1. Observation Gain Score per Aspect

Aspects.	Mean	Interpretation
Promotive Interaction	4.50	Very High
Social Skills	4.25	Very High
Group Processing	4.25	Very High
Positive Interdependance	4.00	High
Individual Accountability	4.00	High
Overall Mean	4.20	High

The observation data from Table 1 shows that all the indicators (aspects) of cooperative learning, such as promotive interaction, social skills, group processing, positive interdependence, and individual accountability, were implemented effectively during the GGE learning process. The average scores for the five main indicators were in the 4.0–4.5 range on the 1–5 Likert scale, falling into the high-to-very-high category. This suggests that students were actively engaged in group activities and collaborating to complete tasks. Additionally, promotive interaction scored the highest and directly aligns with Vygotsky's principle of socially mediated learning.

Table 2. Observation Gain Score per Group

Group	Criteria	Score
A	4.40	Very High
B	4.20	High

C	4.20	High
D	4.00	High

Based on Table 2, the pack was led by Group A (4.40, Very High), with strong peer coaching and reflection being demonstrated. Groups B and C (4.20, High) displayed a solid yet slightly less intense interaction. Group D (4.00, High) achieved collaborative goals but didn't reach the "Very High" zone. This can worth investigating in qualitative follow-ups. The consistently 'high' to 'very high' scores confirm that the GGE setup created the cooperative conditions vital for deep learning. This climate likely supports the grammar-proficiency.

Table 3. Thematic Analysis of Interview

Theme	Subthemes / Key Concepts	Representative Quotes	Participants (n)
T1 Enjoyment & Engagement	Positive emotions, comfort, excitement	"It was very exciting"	10/12 Students
T2 Peer-Supported Grammar Learning	Understanding grammar through peer support	"Group members were all supporting me to understand"	9/12 Students
T3 Collaborative Practices	Discussion, work-sharing, peer feedback	"We do discussion and peer-to-peer feedback"	12/12 Students
T4 Motivation & Confidence Boost	Increased motivation, confidence gains	"I'm feeling more confident"	8/12 Students
T5 Barriers to Full Participation	Passive members, low vocabulary, miscommunication	"Some did not participate" / "Low vocab makes me hard to speak English"	7/12 Students
T6 Desired Adjustments & Support	Preference for self-selected members; smaller groups; teacher facilitation	"Wanna choose our own members"	9/12 Students
T7 Teacher Perspective	Active learning, partial passiveness; classroom management benefits; resource limitations	"They were more active, but sometimes partially passive"	1 Teacher

In Table 3, we showcase the frequent themes generated based on the responses recorded from the students. From this, we are able to identify the meaningful insights The breakdown of the results from the table are defined are discussed as below:

a) T1: Enjoyment & Engagement: 83% of students reported positive emotions—"very exciting", "enjoyable", "comfortable" indicating that GGE created an engaging

classroom climate. This aligns with the social interdependence theory of Johnson & Johnson (1998).

b) T2: Peer-Supported Grammar Learning: 75% of students reported quoted as "helped me understand better" and "peer-to-peer feedback" show grammar understanding improved via peer scaffolding (Vygotsky, 1978).
c) T3: Collaborative Practices: 100% of students mentioned that it was a group effort that required collaboration to derive the answer or discussion among peers to further understand the questions. Discussion and task-sharing confirm positive interdependence.
d) T4: Motivation & Confidence Boost: 66% of students referenced that this form of learning increased motivation and confidence, supporting Gillies (2016) findings that cooperative learning enhances language self-efficacy.
e) T5: Barriers to Full Participation: 58% of students implied that there were some challenges they faced, namely - passive members, limited vocabulary, and miscommunication. This was further support by the observation from the Teacher interview who observed partial passiveness in some students.
f) T6: Desired Adjustments & Support: 75% of students provided similar feedback that they favoured autonomy in member selection and smaller groups for deeper interaction. They also commented on the need for enhanced teacher facilitation to reduce confusion of instructions and provide clarity.
g) T7: Teacher Perspective: The teacher viewed GGE as useful for class management but noted some students remained passive. Future strategies include addressing resource limitations and motivating the less cooperative students.

These insights support the hypothesis that GGE positively impacts grammar learning and provide practical guidance for refining cooperative learning models in EFL classrooms.

Table 4. Result of Pre- and Post-Test

	Student	Pre-test Score	Post-test Score	Difference
Group A	Student A1	45	80	35
	Student A2	50	75	25
	Student A3	50	65	15
	Student A4	50	60	10
	Student A5	45	60	15
	Average Score A:	48	68	20
Group B	Student B1	50	65	15
	Student B2	50	60	10

	Student B3	55	70	15
	Student B4	55	70	15
	Student B5	50	75	25
	Average Score B:	52	68	16
Group C	Student C1	55	75	20
	Student C2	50	80	30
	Student C3	50	70	20
	Student C4	55	70	15
	Student C5	45	75	30
	Average Score C:	51	74	23
Group D	Student D1	55	70	15
	Student D2	50	60	10
	Student D3	45	75	30
	Student D4	55	65	10
	Student D5	50	65	15
	Average Score D:	51	67	16

Table 4 shows the assessment scores for the four groups that took part in the GGE intervention for learning grammar. All groups showed positive gains: Group A improved from a mean pre-test score of 48 to a post-test score of 68 ($\Delta = 20$); Group B improved from a mean pre-test score of 52 to a post-test score of 68 ($\Delta = 16$); Group C improved from a mean pre-test score of 51 to a post-test score of 74 ($\Delta = 23$); and Group D improved from a mean pre-test score of 51 to a post-test score of 67 ($\Delta = 16$). Group C achieved the largest mean gain, suggesting that specific peer-exchange configurations methods may have optimised its learning environment. In contrast, groups B and D exhibited identical improvements despite differing starting points. This suggests learner characteristics (e.g. prior proficiency and motivation) likely moderated their outcomes. These results support the GGE intervention, while highlighting the need to determine which dynamics drive maximal grammar acquisition.

Table 5. Paired Samples Statistics

Test	Mean	N	Std. Deviation	Std. Error Mean
Pre-test	50.50	20	3.50	0.78
Post-test	69.25	20	6.38	1.43

In Table 5, the mean score on the pre-assessment was 50.50 (SD = 3.50, SE = 0.78), whereas the mean score on the post-assessment increased substantially to 69.25 (SD = 6.38, SE = 1.43). The unequal standard deviations imply greater variability in post-test performance, reflecting differential assimilation of grammar structures via GGE. Furthermore, the larger standard error in the post-assessment indicates that, although average gains were substantial, there was greater divergence in individual performance after the intervention.

Table 6. Paired Samples Test

Pair	Mean Difference	Std. Deviation	t	df	Sig. (2-tailed)
Pair 1. Pre- & Post-Test	-18.75	7.76	-10.81	19	< .001

In Table 6, inferential analysis via a paired samples t-test confirms that the observed gains from the pre- to post-assessment are statistically significant, leading to the rejection of the null hypothesis (H_0) that the GGE method has no effect on students' grammar learning. The mean difference of –18.75 points (SD = 7.76) yielded a t-value of –10.81 with 19 degrees of freedom and a p-value of less than 0.001. This large effect size (Cohen's $d \approx -18.75/7.76 \approx -2.41$) indicates that the GGE intervention had a significant impact on grammar proficiency. The extremely low p-value rules out chance as an explanation and affirms that peer-mediated exchanges systematically enhanced learner performance.

Table 7. Triangulation Matrix

Construct / Theme	Observation (Likert 1–5)	Assessment (Pre–Post Gain)	Interview (Themes & Subthemes)	Triangulation Interpretation
1. Engagement & Promotive Interaction	Promotive Interaction: 4.50 (Very High)	Mean gain: +18.75 (SD 7.76), p < .001	"Enjoyment & Engagement" (83% found it "very exciting" and "comfortable")	**Convergence**: All sources confirm high engagement; GGE clearly boosts promotive interaction and enthusiasm.
2. Collaborative Practices & Social Skills	Social Skills: 4.25 (Very High); Group Processing: 4.25 (Very High)	Groups A–C gained 16–23 points	"Collaborative Practices" (100% reported active discussion and peer feedback)	**Convergence**: Peer collaboration and social skills consistently support grammar gains.
3. Grammar Understanding	–	Pre-test: 50.50 → Post-test: 69.25 (Δ +18.75)	"Peer-Supported Grammar Learning" (75% said "it helped me understand better")	**Convergence**: Assessment and interviews both show GGE enhances understanding via peer scaffolding.
4. Motivation & Confidence	Individual Accountability: 4.00 (High)	Post-test variability: SD 6.38 (shows individual differences)	"Motivation & Confidence Boost" (66% felt more self-assured)	**Convergence & Complementarity**: Quantitative data show varied outcomes; qualitative data confirm overall confidence boost.

5. Participation & Barriers	Positive Interdependence: 4.00 (High)	Group D lowest gain: Δ +16	"Barriers to Full Participation" (58% noted passive members, vocab gaps, miscommunication)	**Convergence**: Lower interdependence groups faced participation barriers, reflected in both scores and student narratives.
6. Group Variability	Group A: 4.40 (Very High); B/C: 4.20 (High); D: 4.00 (High)	Highest gain: Group C (Δ +23); Lowest: Group D (Δ +16)	–	**Complementarity**: Between-group differences highlight areas to optimize exchange dynamics.
7. Desired Adjustments & Supports	–	–	"Preferences for self-selection," "More teacher facilitation," "Resource support needed"	**Complementarity**: Interview feedback pinpoints refinements to GGE not captured by quantitative data.

The triangulation of observational, assessment, and interview data done in Table 7 reveals a robust pattern of convergence around student engagement, collaborative practices, and grammar comprehension under the GGE model. The results of the observational scores indicate exceptionally high levels of promotive interaction (M = 4.50 on a 5-point Likert scale), social skills (M = 4.25), and group processing (M = 4.25). These levels correlate directly with significant gains in grammar proficiency (mean pre-to-post gain = +18.75, SD = 7.76, $p < .001$). Interviews also support these findings: An overwhelming majority of participants, 83 percent in fact, described the activities as "very exciting" and "comfortable," while a full 100 percent reported active peer discussion and feedback, and a significant 75 percent credited peer scaffolding with deepening their grammatical understanding. This alignment across three distinct data sources constitutes clear convergence (Denzin, 1978) and affirms that the GGE method fosters an interactive learning environment that translates directly into measurable improvements in student performance. This consistency confirms the study's internal validity and highlights the pedagogical effectiveness of structured cooperative learning formats in enhancing the affective and cognitive aspects of grammar acquisition.

2. Insights

By embedding Johnson & Johnson's (1998) five essential elements of cooperative learning: positive interdependence, individual accountability, promotive interaction, social skills, and group processing within a multi-group rotation format, GGE catalyses iterative

scaffold diffusion. Each group's insights feed into the next, intensifying both knowledge construction and learner engagement. Unlike single-group or dyadic models, this cross-group cycle creates a dynamic learning ecology where cognitive co-construction and affective support circulate continuously. This refinement suggests that the diversity of group exchanges are as critical as the structural design itself. This can be seen in the variance of the group D score in Table 4.

3. Limitations

Purposive sampling in interviews (with 12 out of 20 participants) and single-observer coding may introduce selectivity and observer bias and the the observing teacher may not have recorded every nuance of every interaction required for a comprehensive trait analysis. The eight-week observation period may not capture the long-term retention of grammatical knowledge.

5. KESIMPULAN DAN SARAN

The findings of this study demonstrate that implementing GGE method in an Indonesian junior high school setting yields substantive gains in both learner engagement and grammatical competence. Quantitative analyses revealed a marked increase in cooperative-learning behaviours with observation scores averaging above 4.2 on a 5-point scale, while paired-sample t-tests confirmed a statistically significant improvement in grammar proficiency (Δ = +18.75 points, $p < .001$). Qualitative insights corroborated these outcomes, highlighting elevated student motivation, dynamic peer scaffolding, and a more interactive classroom climate. By triangulating observational, assessment, and interview data, this research affirms that GGE fosters syntactic mastery and cultivates metacognitive awareness and learner autonomy—outcomes that are essential for sustainable language development in EFL contexts. Future investigations should examine long-term retention of grammatical skills and explore adaptability across diverse educational environments. Overall, this study offers compelling evidence that cooperative learning frameworks like GGE can be strategically integrated into grammar instruction to produce measurable, transformative effects on student learning outcomes.

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