

The Effectiveness of Jigsaw Strategy in Improving Senior High School Students' Argumentative Text Writing

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Abstract

This research aims to improve students' argumentative writing skills through the use of Jigsaw strategy. The researchers are intended to measure whether or not Jigsaw strategy will help students in improving their argumentative writing skills. This research employed quantitative research with pre-experimental research design. The research involved 33 participants of eleventh-grade students of Muhammadiyah 25 Senior High School, Tangerang Selatan. The data was collected through pre-test and post-test and were analyzed statistically. The analysis data revealed that the t-cal value (10.570) was higher than the t-table (2.037), at the 5% significance level. It indicated that the null hypothesis (H_0) was rejected and the alternative hypothesis (H_1) was accepted. Based on the results of the t-test calculation, this research concluded that Jigsaw is an effective strategy to in improving students' argumentative writing skills.

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1. Introduction

In the 21st century, English has undeniably emerged as the world's predominant language and serves as the principal lingua franca facilitating communication across diverse cultures (Narimanova, 2025). It is used as the language to communicate in economics, education, tourism, and amongst many other fields (Bekdas, 2015). In education area, most of the books and subjects are printed in the English language, English has become the language of instruction in the classroom to prepare students to thrive in the modern world (Reddy, 2016). Then, Rao (2019) pointed out that to travel to foreign country, one must know the language of the others to communicate with the people of that country. There should be a common language for the tourist to visit any country and English as an international language serves the purposes. The international travel agencies also aim at recruiting people who can communicate well with the international tourists in English. Furthermore, in economic area, the importance of globalization and its role in increasing the volume of international trade worldwide and decreasing the cost of telecommunication and travel (Alhendi, 2019). In conclusion, most people can speak English at least understand English. English skill will be most required to survive in era of global competition.

Students need to communicate and one way of communicating is through writing. Farizi (2019) portrays writing as a form of communication that creates a connection between readers and writers. To readers, writers provide something of real value to anyone who reads what they write. Olave (2023) argued that writing operates as a form of social communication: by engaging with others' writing, both the writer and the reader participate in a meaningful exchange. There are many texts taught in senior high school. Argumentative text is one of the compulsory types of text that must be mastered by tenth grade students of senior high school. Argumentative text is a text that is used to convince and influence the reader to believe and agree with the ideas that we believe. In line with Indriyhanes et al. (2023), in an argumentative text, it requires us to use a rational and logical way to show a fact is true or false, to convince the reader to react or not be react. Argumentative is a form of rhetoric that seeks to influence attitudes and opinions others so that they believe and finally act in alignment with what desired by the writer. Argumentation uses language to justify or refute a standpoint, with the aim of securing agreement in views (Eemeren, 2018). From the expert opinion above, argumentative text displays a case that aims to influence the reader.

However, in learning English, the text is the most highly complicated skill to attempt, especially by senior high school students in Indonesia, particularly grade XI students of SMA Muhammadiyah 25

Pamulang, South Tangerang. The condition occurred in the learning process such as: the students have difficulties to find support opinion in making argumentative text (cognitive challenges), developing the proper use of language feature in the essay (linguistic challenge), and have less motivation in writing. These problems had been researched by several prior studies. First, Yang (2022) found that in writing, many students lack of argumentation skills in which they needed to struggle explaining their opinions, reasons, and or evidence, and these dealt with their cognitive challenges. Second, Students often make grammar mistakes such as incorrect verb tenses or subject/verb agreement which reduce the clarity of the argument. In terms of vocabulary, they tend to repeat the same simple words instead of using more academic vocabulary, making their argument sounds weak (Lötscher et al., 2025). Besides, students experienced difficulties in using appropriate cohesive device and maintaining logical connection between ideas. Meanwhile, coherence problems occur when ideas are not logically organized, such as when paragraph discusses multiple ideas without a clear main point (Al Khotaba, 2022).

Third, teacher delivers material using the lecture method without any innovation in learning, so it is boring and the learning objectives have not been fully achieved (Paino & Hutagalung, 2022). Tronchoni et al. (2022) defines that lecture is a teaching method where an instructor is the central focus of information transfer. Students just focus on the teacher's explanation and do the task if the teacher gives exercise to the students. This makes students impressed passive hence it cannot stimulate them to develop creativity and express their feelings. Therefore, those three major problems should be solved using an effective strategy and the one proposed by the researchers in this current study is Jigsaw. Jigsaw is one of the techniques which is used in the implementation of cooperative learning, brings cooperation to the forefront by providing support to students working together and removing competition in the class (Karacop, 2017). Jigsaw is beneficial in teaching because learning is centered on peer interaction, students are active participants in learning process and thereby help to build interpersonal and interactive skills among students (Gillies, 2016).

This strategy was proven by previous research to be successful to make students active in the classroom and responsible for explaining the material that they got from their group. In jigsaw, every single student teaches something. This means that jigsaw is not only encourage students interacting and cooperating with the other friends, but also making every of them takes responsible to teach each other because each individual must learn the material to complete a task (Harahap et al., 2019). Jigsaw is similar with group-to-group exchange with an important difference in which every student tends to teach (Sitohang & Purnawarman, 2015). Jigsaw is groups with four students are set up. Each group member is assigned some unique material to learn and then to teach to his group members. To help in the learning, students across the class working on the same subtask get together to decide what is important and how to teach it (Hoerunnisa & Suherdi, 2017). After practice in this expert group, they go back to the home group and share the information that they got to all the group members.

Based on the background above, in this present research work, the researchers proposed Jigsaw as a strategy to improve students' argumentative writing skills and believed that this study will give positive contribution both to theories and practices of EFL teaching and learning, especially in English education context in Indonesia. The importance of how to make students able to write this argumentative writing will definitely expand EFL literatures in which all discussion were supported by relevant theories and the findings of prior researches. While in practice, both EFL teachers and students will get insights on how to implement Jigsaw as one of learning strategies in argumentative writing's classroom. This research was led by a research question: "Does the implementation of Jigsaw strategy improve students' argumentative writing ability". This question guided the researchers to measure whether or not the employment of Jigsaw strategy affected students' ability of writing argumentative text.

2. Method

The research was carried out in one semester that was in the odd semester of 2025/2026 academic year. It took place at SMA Muhammadiyah 25 Pamulang, South Tangerang. In this study, the researcher used quantitative research method. Apuke (2017) explained that quantitative method deals with quantifying variables that involve the use of numerical data in order to get results to answer the research question. One of the approaches in quantitative research method is the experimental approach as Majid (2017) described as a type of research that involves manipulating independent variables to observe their impact on a dependent variable. The researcher chose to use the pre-experimental design whereas a single group was subjected to pre-test (O1), treatment (T), and post-test (O2). The researchers used only one class in this study without any control group.

Total number of 271 students, registered in grade eleven, were the population in this research. These students were spread into 8 classes consisting of four majors, i.e., social, science, *tahfidz*, and engineering.

One class was selected as the sample through cluster sampling technique. The selected class was occupied by 33 students participating as the sample of this research.

The data of the study were collected by both pre-test and post-test which were firstly validated. These data were statistically analyzed using paired-sample t test to measure whether or not there was significant difference on students' argumentative text writing ability before and after they studied writing the text using Jigsaw strategy. Thus, the following statistical hypotheses used as the indicators to answer the research question:

- H_a : If the significance value (2-tailed) < 0.05 , the alternative hypothesis (H_a) was accepted and (H_0) was rejected.
 H_0 : If the significance value (2-tailed) > 0.05 , the null hypothesis (H_0) was accepted and (H_a) was rejected.

The statistical computation was done after conducting pre-requisite test of normality. Since the data were less than 50, according to total number of the sample, Kolmogorov-Smirnov was applied. The results of normality test revealed that data of the pre-test reached 0.200, while the post test was 0.171. In the significance level of 0.50 (5%), those two results were higher than 0.05, hence, all data of both pre-test and post-test. Therefore, the data were proceeded to the next statistical test.

3. Results And Discussion

As the purpose of this research to prove the impact of Jigsaw strategy on the ability of students' argumentative writing, the results of students' writing pre-test and post-tests' used as the main data are presented on Table 1.

Table 1
The results of students' pre and post-tests

NO.	Student	Pre-test Score	Post-test Score
01.	AR	71	89
02.	AAF	69	90
03.	AA	46	76
04.	AHA	69	75
05.	A	45	56
06.	ABA	71	78
07.	ANF	51	76
08.	AND	58	88
09.	EA	54	83
10.	FF	60	71
11.	FAA	36	75
12.	JD	65	78
13.	JHAP	66	84
14.	KTS	45	58
15.	LSH	40	89
16.	LA AF	46	70
17.	MK	59	78
18.	MIT	31	70
19.	MAW	30	64
20.	NAF	45	66
21.	NUN	59	75
22.	NF	73	84
23.	NFMP	69	76
24.	NM	78	83
25.	NBW	56	83
26.	RADO	76	94
27.	RF	58	89

28.	RSK	25	60
29.	RANA	69	78
30.	SDW	39	75
31.	SAZ	30	84
32.	ZH	54	84
33.	ZAT	53	73
Total		1796	2552
Mean		54.42	77.33

Based on the results above, it can be clearly seen that the students achieved better in the post-test in which on the average, they made up to 22.91 points improvement. In order to ensure that the achievement was influenced by the strategy applied or not, statistical paired-sample t-test was applied. Before that, both normality and homogeneity tests were firstly done as the requirements to use that statistical computation. One-Sample Kolmogorov-Smirnov test showed that all the data were in a generic and homogenous manner based on the sequence of the computation. The significance score was more than $\alpha = 0.05$, as evidenced by the significant (2-tailed) finding of $0.200 > \alpha (0.05)$ for the pre-test and $0.171 > \alpha (0.05)$ for the post-test. These numbers confirmed that all data of both pre- and post-tests were normally distributed. Therefore, the analysis data of Paired-Sample test was proceeded as presented on Table 2 below:

Table 2
Paired sample t-test

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Pre-test	-22.909	12.451	2.167	-27.324	-18.494	-10.570	32	.000
Post-test								

As the mean score reached by the students in the pre-test was 54.42, whereas in the post-test was 77.33, with $df (32) = -10.570$, $p < .000$ (two-tailed). The mean increase in test scores were 22.909 with a 95% confidence interval ranging from -27.32 to -18.49. The eta squared statistics (.78) indicated a large effect size. According to the paired sample t_{table} , t_{score} was -10.570 and significant (2-tailed) was $0.000 < \alpha (0.05)$. If the significance score is lower than $\alpha = 0.05$, it can be concluded that the difference is significant and it was proven that (H_0) was rejected and (H_a) was accepted. In other words, these findings confirmed that Jigsaw strategy affected students' argumentative writing skills. In order to see how strong its influence is, the Effect size analysis was then taken. The Eta test resulted .78 indicating that the effect of Jigsaw strategy on students was large.

The findings of this study align with a previous pre-experimental study entitled "The Effective Use of Jigsaw in Teaching Descriptive Text Writing" by Aprianti et al. (2017), highlighting the implementation of Jigsaw significantly improved students' writing achievement and active participation in the classroom. This study emphasized peer collaboration and individual accountability in Jigsaw groups encouraging students to generate ideas, organize arguments, and develop paragraph effectively. There is similarity with the results of this current study, where collaborative interaction and shared responsibility within small groups enhance students' performance and critical thinking in composing text.

6. Conclusion

The study found a significant increase in students' ability in argumentative writing due to the implementation of Jigsaw strategy. The mean increase in test scores was 22.909, with a 95% confidence interval ranging from -27.324 to -18.494. The statistical analysis indicated a large effect size, indicating the significant impact of these factors on students' writing abilities. According to the Paired-Sample t_{table} , t_{score} was -10.570 and significant (2-tailed) was $0.000 < \alpha (0.05)$. If the significance score is lower than $\square$

= 0.05, it can be concluded that the difference is significant and thus (Ho) was rejected and (Ha) was accepted.

Based on the results of this study above, several suggestions are addressed for future studies, namely: first, it is suggested that future research using control group to ensure if the changes in students' writing performance are entirely from the interventions of Jigsaw strategy. Second, it is also advised to future studies to add the instruments in data collection, for example; using interview or questionnaire, hence the quantitative results can be strengthened. Third, the researchers also assume that adding one or two more strategies to be compared with Jigsaw to get wider results.

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