

# The Use of Collaborative Strategies to Improve Students' Writing Ability and Self-Efficacy: A Mixed Method Study

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## The Use of Collaborative Strategies to Improve Students' Writing Ability and Self-Efficacy: A Mixed Method Study

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**Abstract:** This study explored the effects of collaborative writing strategies on students' writing skills and self-efficacy. The study used a mixed methods design combining quantitative and qualitative approaches. Several instruments were used in data collection, including questionnaires, writing tests, writing assessment rubrics, and semi-structured interviews. The participants were randomly divided into two groups: the experimental group and the control group, which comprised 62 students. Data from the questionnaire and writing tests were analyzed using one-way MANOVA and MANCOVA tests, while interview data were explored using thematic analysis techniques. Participants were randomly divided into two groups: the experimental group and the control group. The results showed that collaborative writing strategies could improve students' writing skills and self-efficacy. Moreover, the qualitative results showed that most students responded positively to using these strategies to improve their writing skills and self-efficacy.

**Keywords:** Collaborative strategy, writing ability, writing self-efficacy.

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### Introduction

The era of industrial revolution 4.0 to society 5.0 affects the educational aspect. First, current college graduates need to improve their skills constantly. However, the campus as an educational institution still needs to provide students with general competencies in addition to theory and applied knowledge through their scientific discipline (Meza & González, 2020). A general competency that plays an essential role in students' futures is writing skills (Fareed et al., 2016; Helaluddin et al., 2021; Ramon-Casas et al., 2018; Toprak & Yucel, 2020).

Most studies claim that writing is a complex activity for students. Even professionals have the same problems when it comes to finishing their writing. In particular, students learning a second language and those writing in their first language have difficulty writing (Berdanier & Lenart, 2020; Kavanoz & Yuksel, 2016). This result suggests that many students still need help writing high-quality texts (Graham et al., 2016; Jalaluddin, 2013; Wilson et al., 2017).

Many aspects can affect students' writing performance. That is, success in writing is determined not only by cognitive knowledge but also by other aspects that contribute to it. One of these aspects is the affective domain, which also affects the quality of one's writing (Teng et al., 2018; Tsao, 2021). In other words, the affective domain is also a factor that can hinder or facilitate the writing process. This domain is based on the fact that the emotional side of human feelings and learning achievement is strongly influenced by this trait (Sari, 2021). One aspect of the affective domain that influences writing ability is self-efficacy. The concept refers to the belief that everyone should be able to assess their abilities. Self-efficacy is the basic concept in cognitive and social theory that refers to the belief in one's ability to achieve goals (Bandura, 1977; Rante et al., 2020; Supartini et al., 2020; Zamfir & Mocano, 2020). This concept is also interpreted as a belief that can affect choices, performance, and the effort one puts forth to achieve set goals (Razek & Coyner, 2014).

Students with high self-efficacy are more likely to cope and succeed with learning difficulties (Widmer et al., 2014). In

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addition, Harahsheh (2017) asserts that student self-efficacy tends to be more consistent and never disappears. Not much different from the two statements, several authors also claim that students with high self-efficacy can achieve their academic goals more optimally, have good resilience, and cope with various campus problems (Arbabisarjou et al., 2016; Sagone & De Caroli, 2016).

Students' perceptions of their ability to complete the writing task also play an important role in learning to write. Self-efficacy in writing has been cited as one of the significant predictors of writing performance for students from elementary school through middle school and college. The predictor was able to significantly predict the achievement of writing performance as measured by a holistic essay writing score (Shell et al., 1989). Another empirical study also found a positive relationship between writing self-efficacy and writing performance (Daniels et al., 2019; Teng et al., 2018; Zumbunn et al., 2019).

Achieving good writing performance requires appropriate and adequate learning methods or strategies. A collaborative writing strategy is a suggested method for learning to write. This strategy can positively impact students' writing skills because it involves intensive peer interaction (Conner & Moulton, 2000; Lundstrom & Baker, 2009; Min, 2006). In addition to improving writing skills, other studies have claimed that these strategies can improve learning outcomes, problem-solving, information-seeking, and decision-making skills (Kieser & Golden, 2009; Lazonder, 2005; Smith, 2005).

A collaborative writing strategy is a writing activity of two or more group members to complete the task given to them (Eloia & Oskoz, 2010; Storch, 2011). This strategy is about helping students explore, discuss, collaborate, and develop their learning abilities (Dabao, 2012; Heidar, 2016; Talib & Cheung, 2017). This strategy was developed based on the views of the Vygotskians, who believed that students need to collaborate by contributing ideas for quality learning and growth (Smith & MacGregor, 2009; Suwantarathip & Wichadee, 2014; Veramuthu & Md Shah, 2020).

Several previous studies were conducted by researchers and showed mixed results regarding self-efficacy in writing. Generally, studies on writing self-efficacy can be divided into two directions: correlational and experimental. Earlier studies were more concerned with the correlation between different factors on self-efficacy, while other groups focused more on the effect of writing interventions on self-efficacy (Bruning & Kauffman, 2016; Grenner et al., 2021). For example, several studies have shown that self-efficacy is positively related to academic performance (Bartimote-Aufflick et al., 2016; Diseth et al., 2012; Richardson et al., 2012). Notably, previous studies have also claimed that self-efficacy is positively related to writing performance for college and high school students (Blankenstein et al., 2019; Pajares & Valiante, 1999).

Of the above studies, no researchers have examined the effects of collaborative writing strategy on writing ability and self-efficacy. Moreover, these various studies still focus on research with correlational and experimental designs. As far as the author is aware, no study on writing self-efficacy has been analyzed using two research approaches. Studies using two approaches can provide more comprehensive research findings (Ebadi & Rahimi, 2017, 2018; Park et al., 2021). For this reason, the authors are interested in expanding the research topic by analyzing the effect of collaborative writing strategy on writing skills and self-efficacy and photographing students' perceptions of their confidence in writing. Based on this description, the authors formulate two research questions for this study:

- 1) What effect does collaborative writing strategy have on students' writing skills and self-efficacy compared to groups using traditional methods?
- 2) What is the student's perspective on their self-efficacy in completing their writing assignments?

## Methodology

### Research Design & Participants

This study aims to analyze and explore the effect of a collaborative writing approach on improving students' writing skills and self-efficacy. To answer the above two research questions, the researchers used a sequential mix of methods in collecting and analyzing the data (Ebadi & Rahimi, 2017; Riazi & Candlin, 2014). In addition, this study applied the explanatory design of a mixed methods approach from qualitative findings that are useful in explaining and clarifying the results of previous quantitative analyses (Creswell et al., 2003). Two data collection and analysis stages were used in the same study to conduct an in-depth investigation (Bakla, 2020; Kazazoglu, 2020). In addition, this research design chose to explore contradictions and increase the reliability of research findings from different perspectives (Creswell & Plano-Clark, 2007).

Two classes from the Islamic Banking Study Program semester, one at UIN Sultan Maulana Hasanuddin Banten, Indonesia, were randomly selected and used as experimental and control classes. All participants were first-year students taking Indonesian language courses aged between 18 and 24. The total number of participants was 62, including 30 students in the experimental group and 32 in the control group. The characteristics of the participants in this study generally included (a) early semester students, (b) students with an Islamic banking background, (c) currently taking Indonesian language courses, and (d) aged 18 to 24 years old.

## *Instruments*

### *Essay Writing Test*

An essay writing test determines students' academic writing ability. This writing test was conducted twice, namely the pretest and the posttest, with the same type of test. The writing task in this study was to write an argumentative essay consisting of an opening paragraph, an essay body, and a closing paragraph (Oshima & Hogue, 2006). The recommended essay length was at least five paragraphs, with an estimated word count of 300-450. The study participants were asked to write an argumentative essay on Islamic banking in Indonesia, for which they were given 90 minutes.

### *Essay Writing Assessment Rubric*

The researcher used an academic writing assessment rubric to assess the participants' writings, specifically essay writing. The researcher developed this instrument by devising various rubrics to assess the writing of previous researchers (Winarti et al., 2021; Wu et al., 2019). There are four components in this assessment rubric, namely, (a) task achievement, (b) coherence and cohesion, (c) lexicon, and (d) grammatical accuracy. A score of 4 (maximum score) is given for each component that meets the standard. A score of 1 is given for components that are not met.

After the rubric was developed, the researcher measured the consistency of rubric scoring to avoid subjectivity and assessment bias. This measurement was referred to as inter-rater reliability (Panou, 2013). In this measurement, the researcher asked one of the instructors to participate in rating the students' writings. The researcher randomly selected ten student papers from the pretest and posttest sessions. The Pearson product-moment measure yielded a value of 0.90, indicating that the rubric has a consistency acceptable to both raters.

### *Writing Self-Efficacy Questionnaire*

Another instrument used in this research is the Writing Self-Efficacy Questionnaire, developed from previous research (Brunning et al., 2004; Hetthong & Teo, 2013). This questionnaire is a five-point Likert scale questionnaire that contains sixteen question items. The instrument consisted of three main items, namely ideation (five statement items), conventions (five statement items), and self-regulation (six statement items). This instrument was developed with response options ranging from "strongly agree" to "strongly disagree". Thus, the possible score of this questionnaire ranges from 16 (minimum score) to 80 (maximum score). Before the questionnaire was used, it was tested for validity and reliability. The test results showed that the questionnaire was feasible, with an internal consistency of 0.92 and an instrument validity of 0.91.

### *Semi-Structured Interview*

The semi-structured interview is an instrument used to collect qualitative data from participants. This interview explored students' perceptions and attitudes regarding collaborative strategies for developing writing skills and students' self-efficacy. Semi-structured interviews allowed researchers to delve deeper by adding several additional questions for confirmation, clarification, and elaboration (Bokiev & Ismail, 2021; Guthrie, 2019).

The researcher used the member-checking technique to determine the credibility of the interview data (Creswell, 2007; Morse et al., 2002). The researcher presented the interview results in a written draft and submitted it to the participants for review. In this technique, participants can ask to change or delete parts if they disagree with the interview results (Carlson, 2010).

## *Data Analysis*

### *Quantitative Analysis*

Quantitative data from the essay tasks and SESAW questionnaires (pretest and posttest) were analyzed using the SPSS 25 program. The researcher calculated the mean, standard deviation, t-test, and one-way multivariate analysis of variance (MANOVA) in the quantitative analysis. A paired-sample t-test was conducted to determine if the use of the collaborative writing method resulted in a significant increase in students' writing skills and self-efficacy. This test was also applied to the control group, who used the conventional method in learning to write. Finally, the researcher also conducted a one-way MANOVA test to control the influence of covariates on the posttest session for the control and experimental classes.



Qualitative Analysis

The qualitative data from the semi-structured interviews were analyzed using thematic analysis techniques. This thematic analysis also explored the different perspectives of the students, highlighted similarities & differences, and brought out unexpected insights (Braun & Clarke, 2006; Nowell et al., 2017). For example, interviews were transcribed and coded based on open-ended thematic coding to find the essential core variables of students' perceptions (Liu & Sadler, 2003).

Procedure

Quantitative and qualitative data collection and analysis techniques are used in this study. That is, two methods are used interchangeably in one research activity. The quantitative results previously obtained were then confronted with the qualitative results. Figure 1 shows an overview of the methods used in this research.

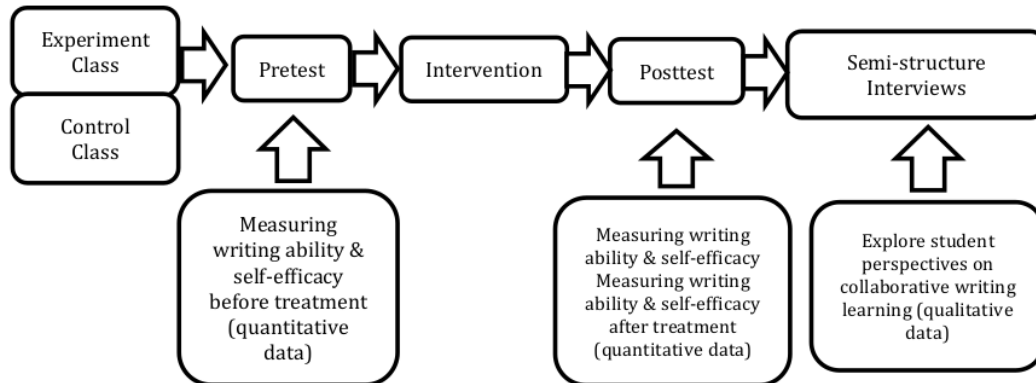


Figure 1. Research Procedure

During the quantitative data collection phase in the experimental group, the researcher used a collaborative writing strategy for learning. In the control group, on the other hand, the researcher applied the conventional writing strategy. The following table shows the learning stages of the two groups in detail.

Table 1. Treatment Procedures

Meeting	Stages	Collaborative Strategy	Conventional Strategy
1		<b>Pretest</b>	<b>Pretest</b>
2	Pre-writing	The lecturer divides the groups into 3 to 5 people. Each group discusses and organizes writing ideas. Each group member prepares their writing framework by sharing and discussing ideas.	The lecturer asks students to individually formulate writing ideas.
	Creating an outline	Each group member prepares their writing framework by exchanging ideas and discussing.	Students write individual writing outlines based on topics determined in the pre-writing phase.
3	Drafting	Each member writes their essay based on their developed draft. Students can discuss with their colleagues in a group.	Each student writes a text based on a draft prepared individually and is not allowed to discuss it.
4	Giving feedback	Each group responds to writing ideas and language used by other groups.	Each student reads and corrects his partner's writing related to writing ideas and language use.
5	Revising/editing	Each group revises and edits their writing based on the feedback given by other groups.	Each student revises his writing based on the response from his friend.
6,7,8	Teacher feedback & revising/editing	Each group member consults the draft with the lecturer. Each group member revises the draft, accompanied by brainstorming activities and discussions among group members.	Students consult the draft with the lecturer. Students revise/edit the draft independently.
9	Publishing	Each group presents its final draft as a PPT or poster presentation.	Each group presents its final draft as a PPT or poster presentation.
10		Posttest	Posttest

Based on these procedures, the teacher plays an essential role in learning by using collaborative writing strategies. In the teacher feedback stage, the teacher can give ideas and suggestions about students' writings. That is, the teacher provides suggestions on themes and text structures developed by the students without directing the text to a specific theme. Thus, the original ideas appearing in the text result from students' thinking. From the description of the process, it is clear that the teacher/researcher plays the role of facilitator, mentor, and motivator for the students.

## Results

### The Quantitative Analysis

#### Writing Ability & Writing Self-Efficacy

In the first phase of quantitative data analysis, the researcher examined the difference between students' pretest scores from the experimental and control groups. For this purpose, a one-way MANOVA was conducted based on writing skills and writing self-efficacy scores. Table 2 below shows the descriptive statistics of the test results.

Table 2. Descriptive Statistics (Pretest)

	Groups	Mean	Std. Deviation	N
Writing ability (Pretest)	Ex	8.03	1.159	30
	Co	8.41	1.012	32
Writing self-efficacy (Pretest)	Ex	42.50	3.674	30
	Co	43.97	5.089	32

Table 2 above shows a difference between the average pretest of the two groups, namely the experimental group with the collaborative and conventional strategies. It states that the writing ability and writing self-efficacy in the two groups are categorized as identical. In other words, the two groups have almost the same ability level and do not differ much.

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Table 3. Tests of Between-Subjects' Effects (Pretest)

Dependent variable	Type III sum of squares	df	Mean square	F	Sig.
Writing ability (Pretest)	2.1543 <sup>a</sup>	1	2.153	1.828	.181
Writing self-efficacy (Pretest)	33.402 <sup>b</sup>	1	33.402	1.676	.200

In addition, the researcher also conducted a one-way MANOVA test, as shown in Table 3. The table shows no significant difference between writing ability and writing self-efficacy in the experimental and control groups in the pretest session. Table 3 shows the results of the one-way MANOVA test to check the prerequisite of one-way MANCOVA. It tests two things: assumptions and homogeneity of covariance & homogeneity of regression. The test states that the linear relationship between the independent variables in the collaborative class and the covariate (pretest) is not significant. In addition, this test also proves that the interaction effect of the independent variables and the covariate is also not significant. Thus, this result shows that the assumption of one-way MANCOVA is met.

Table 4. Descriptive Statistics (Posttest)

	Groups	Mean	Std. Deviation	N
Writing Ability (Posttest)	Ex	12.27	2.033	30
	Co	10.09	1.088	32
Writing Self-efficacy (Posttest)	Ex	63.0000	4.87782	30
	Co	65.5625	5.70194	32

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Table 4 is the result of the one-way MANCOVA to test the impact of the collaborative class (experimental class) and conventional class (control class) in the posttest session for writing ability and self-efficacy after controlling for the pretest (covariate). The table also shows the unadjusted mean differences between the posttests of the two groups before controlling for covariates (pretest). These results indicate that the experimental group's average posttest on writing ability and self-efficacy is higher than in the control group. Learning to write with a collaborative strategy may be more effective than learning a control group with a conventional strategy.

Table 5. Multivariate Test Wilk's Lambda

Effect	Value	F	Hypothesis df	Error df	Sig.
Collaborative strategy and conventional	.012	2335.536 <sup>b</sup>	2.000	59.000	.000

Table 5 shows the multivariate test results using Wilk's Lambda. This test examines the effect of class using a collaborative strategy on writing ability and writing self-efficacy. The table also indicates that the class with the collaborative and the conventional strategies significantly improved writing ability and self-efficacy after controlling for the pretest.

Table 6. Tests of Between-Subjects' Effects (Posttest)

Dependent variable	Type III sum of squares	df	Mean square	F	Sig.
Writing ability (Posttest)	73.108 <sup>a</sup>	1	73.108	28.013	.000
Writing self-efficacy (Posttest)	641.673 <sup>b</sup>	1	641.673	22.676	.000

Table 6 shows the results of the test of the inter-aspect effect, which examines the difference between and the effect of classes using collaborative and conventional strategies on posttest scores of writing skills and student self-efficacy after controlling for pretest scores. Table 6 shows that collaborative-based classes significantly and positively impact the posttest scores of students' writing skills and self-efficacy after controlling for the pretest.

Table 7. Descriptive Statistics, Investigating the Amount of Adjusted Mean Differences of The Posttests of Both Groups After Controlling for The Pretests

Dependent Variable	Group	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
Writing ability post	Ex	8.03	.212	-4.952	-3.515
	Co	8.41	.179	-2.101	-1.274
Writing self-efficacy	Ex	63.00	.671	-22.915	-18.085
	Co	56.56	1.008	-15.131	-10.056

Table 7 shows the adjusted mean differences between the two groups after controlling for the pretest. Table 7 gathers that the adjusted mean of the posttest on writing ability and writing self-efficacy in the experimental group was better than in the control group.

Table 8. Pairwise Comparisons, Investigating the Exact Differences of The Posttests of Both Groups After Controlling for The Pretests

Dependent Variable	(I) Group	(J) Group	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval for Difference	
						Lower	Upper
Writing ability	Ex	Co	4.305	.728	.000	2.850	5.761
	Co	Ex	-4.305	.728	.000	-5.761	-2.850
Writing self-efficacy	Ex	Co	4.305	.728	.000	2.850	5.761
	Co	Ex	-4.305	.728	.000	-5.761	-2.850

Furthermore, Table 8 provides a breakdown of the effect sizes of the two groups. The table shows that the experimental group's posttest on writing ability and self-efficacy is better than the control group after controlling for the pretest. From these results, it is suggested that the experimental class that uses a collaborative strategy has an impact on the learning process that is more effective in improving students' writing skills and self-efficacy when compared to the control class. In addition, the experimental class with the collaborative strategy had a long-term impact on writing ability and self-efficacy. On the other hand, the control class had the opposite effect.

#### Writing Ability and Self-efficacy (Score Each Aspect)

Next, the researchers ran the one-way MANOVA and one-way MANCOVA tests to test the students' writing skills (task achievement, coherence & cohesion, lexicon, and grammatical accuracy). Furthermore, writing performance on self-efficacy ideation, conventions, and self-regulation) in the pretest session. The test results are presented in Table 9.

Table 9. Descriptive Statistics, Investigating the Amount of Mean Difference Between Pretest of Both Groups

	Groups	Mean	N	Std. Deviation	Std. Error Mean
Task achievement	Ex	2.0667	30	.69149	.12625
	Co	2.1875	32	.47093	.08325
Coherence and cohesion	Ex	1.9667	30	.41383	.07556
	Co	2.0938	32	.64053	.11323
Lexicon	Ex	1.9333	30	.58329	.10649
	Co	1.8750	32	.49187	.08695
Grammatical accuracy	Ex	2.0667	30	.58329	.10649
	Co	2.2500	32	.62217	.10999
Ideation	Ex	12.9667	30	1.56433	.28561
	Co	13.5625	32	1.98279	.35051
Conventions	Ex	13.6000	30	1.83077	.33425
	Co	13.6563	32	1.85975	.32876
Self-regulation	Ex	15.9333	30	2.24274	.40947
	Co	16.7500	32	2.51447	.44450

To test the differences in the pretest of the two groups on four aspects of writing ability and three aspects of writing self-efficacy, a one-way MANOVA was carried out. Table 9 shows descriptive statistics showing a subtle difference between the pretest means of the two groups. The table shows that the average score of the writing ability aspect in the experimental group is 8.03, and in control, the group is 8.41. It is similar to the total average score of the writing ability aspect, namely 8.0334 and 8.4063 (See Table 2).

Table 10. Tests of Between-Subjects' Effects, Investigating The Difference Between The Learners' Pretests on The Four Areas of Writing Ability and The Three Areas of Writing Self-Efficacy

Dependent variable	Type III sum of squares	df	Mean square	F	Sig.
Task achievement	.226 <sup>a</sup>	1	.226	.654	.422
Coherence & cohesion	.250 <sup>b</sup>	1	.250	.848	.361
Lexicon	.053 <sup>c</sup>	1	.053	.182	.671
Grammatical accuracy	.520 <sup>d</sup>	1	.520	1.428	.237
Ideation	5.497 <sup>e</sup>	1	5.497	1.710	.196
Conventions	.049 <sup>f</sup>	1	.049	.014	.905
Self-regulation	10.327 <sup>g</sup>	1	10.327	1.812	.183

Table 10 shows the results of the one-way MANOVA test, which states that there is no significant difference between the two groups' pretests on four aspects of writing ability and three aspects of writing self-efficacy. The one-way MANOVA was run to examine the differences between the posttests of the two groups in four areas of writing ability and three aspects of writing self-efficacy. On the other hand, this test was also run to control the pretest as a covariate.

Table 11. Descriptive Statistics, Investigating the Amount of Unadjusted Mean Differences Between the Posttests of Both Groups Before Controlling for The Pretests

	Groups	Mean	N	Std. Deviation	Std. Error Mean
Task achievement (Posttest)	Ex	3.17	30	.648	.111
	Co	2.53	32	.567	.107
Coherence and cohesion (Posttest)	Ex	2.97	30	.718	.112
	Co	2.38	32	.492	.108
Lexicon (Posttest)	Ex	3.07	30	.691	.113
	Co	2.34	32	.545	.110
Grammatical accuracy (Posttest)	Ex	3.13	30	.571	.115
	Co	2.84	32	.677	.111
Ideation (Posttest)	Ex	20.57	30	1.794	.366
	Co	17.44	32	2.184	.354
Conventions (Posttest)	Ex	20.30	30	1.784	.453
	Co	16.91	32	2.988	.438
Self-regulation (Posttest)	Ex	22.13	30	2.403	.466
	Co	22.19	32	2.688	.452

Table 11 shows the results of the unadjusted average difference test between the posttest of the two groups before controlling for the pretest. The table shows that the experimental group's average posttest on writing ability and self-



efficacy is better than the control group. However, this result does not apply to the self-regulation aspect because the score in the experimental class is lower than the control group.

Table 12. Multivariate Test

Effect	Value	F	Hypothesis df	Error df	Sig.
Coolaborative strategy and coventional	.005	1562.638 <sup>b</sup>	7.000	54.000	.000

Table 12 is the result of a test, multivariate using Wilk's Lambda, which investigates the impact of collaborative classroom strategies on the combination of writing ability and writing self-efficacy. The table shows that the class with the collaborative strategy (experimental) and the conventional class (control) significantly impact writing ability and self-efficacy after controlling for the pretest.

Table 13. Tests of Between-Subjects' Effects, Investigating the Impact of Posttests on The Dependent Variables

Dependent variable	Type III sum of squares	df	Mean square	F	Sig.
Task achievement (Posttest)	6.252 <sup>a</sup>	1	6.252	16.946	.000
Coherence and cohesion (Posttest)	5.420 <sup>b</sup>	1	5.420	14.476	.000
Lexicon (Posttest)	8.092 <sup>a</sup>	1	8.092	21.031	.000
Grammatical accuracy (Posttest)	1.298 <sup>d</sup>	1	1.298	3.289	.000
Ideation (Posttest)	151.613 <sup>e</sup>	1	151.613	37.708	.000
Conventions (Posttest)	178.336 <sup>f</sup>	1	178.336	28.996	.000
Self-regulation (Posttest)	.211 <sup>g</sup>	1	.211	.032	.000

Table 13 presents the inter-aspect effects that examine the differences between those investigating the impact of collaborative and conventional-based classrooms on the posttest of improving students' writing skills and writing self-efficacy after controlling for the pretest. The table shows significant differences between the posttests of the two groups on several aspects of writing ability (task achievement, coherence & cohesion, lexicon, grammatical accuracy) and three aspects of writing self-efficacy (ideation, convention, self-regulation). In other words, the data in the table indicate that the experimental group is superior to the control group. It is concluded from the value of  $F$ , which is smaller than 0.05, so that it can be stated that there is a significant difference between the two learning strategies on students' writing skills and self-efficacy.

Table 14. Descriptive Statistics, Investigating Amount of Adjusted Mean Differences Between The Posttests of Both Groups After Controlling for The Pretests

Dependent Variable	Group	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
Task achievement (Posttest)	Ex	3.167	.111	2.945	3.388
	Co	2.531	.107	2.316	2.746
Coherence and cohesion (Posttest)	Ex	2.967	.112	2.743	3.190
	Co	2.375	.108	2.159	2.591
Lexicon (Posttest)	Ex	3.067	.113	2.840	3.293
	Co	2.344	.110	2.124	2.563
Grammatical accuracy (Posttest)	Ex	3.133	.115	2.904	3.363
	Co	2.844	.111	2.622	3.066
Ideation (Posttest)	Ex	20.567	.366	19.834	21.299
	Co	17.438	.354	16.728	18.147
Conventions (Posttest)	Ex	20.300	.453	19.394	21.206
	Co	16.906	.438	16.029	17.783
Self-regulation (Posttest)	Ex	22.133	.466	21.200	23.066
	Co	22.250	.452	21.347	23.153

Table 14 shows the adjusted mean differences of the posttest of the two groups after controlling for the pretest. The table indicates that the adjusted mean of the posttest on four aspects of writing ability and three aspects of writing self-efficacy in the experimental class outperformed the students in the control group after controlling for the pretest.

Table 15. Pairwise Comparisons, Investigating the Exact Differences on The Posttests of Both Groups After Controlling for The Pretest

Dependent Variable	(I) Collab	(J) Collab	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Task achievement (Posttest)	Ex	Co	.635	.154	.000	.327	.944
	Co	Ex	-.635	.155	.000	-.944	-.327
Coherence & cohesion (Posttest)	Ex	Co	.592	.156	.000	.281	.903
	Co	Ex	-.592	.157	.000	-.903	-.281
Lexicon (Posttest)	Ex	Co	.723	.158	.000	.408	1.038
	Co	Ex	-.723	.159	.000	-1.038	-.408
Grammatical accuracy (Posttest)	Ex	Co	.290	.160	.075	-.030	.609
	Co	Ex	-.290	.159	.073	-.609	.030
Ideation (Posttest)	Ex	Co	3.129	.510	.000	2.110	4.148
	Co	Ex	-3.129	.506	.000	-4.148	-2.110
Conventions (Posttest)	Ex	Co	3.394	.630	.000	2.133	4.654
	Co	Ex	-3.394	.621	.000	-4.654	-2.133
Self-regulation (Posttest)	Ex	Co	-.117	.649	.858	-1.415	1.182
	Co	Ex	.117	.647	.857	-1.182	1.415

Table 15 details the effect sizes of the two groups, namely the experimental control groups. The table shows significant differences between the posttests of the two groups on four aspects of writing ability and three aspects of writing self-efficacy after eliminating the covariate effect (pretest). These results indicate that the experimental group is better than the control group. Thus, it can be stated that a class with a collaborative strategy is a more effective learning process in developing students' writing skills and writing self-efficacy compared to a class that uses a conventional strategy.

#### The Qualitative Analysis

The results of the qualitative analysis aimed to answer the second research question, which addresses students' attitudes and perceptions regarding the effects of collaborative strategies on writing skills and self-efficacy. The qualitative design aims to explain and clarify the quantitative findings of this study. In other words, this qualitative study generally aims to determine if the previous quantitative findings are consistent with the qualitative findings.

Students in the collaborative class were interviewed to describe and explain their experiences learning to write using the collaborative strategy. Participants in the control class were not included in the interview phase. Thirty students who had previously agreed to be available as interviewees participated in the interview. The results of the interviews were analyzed using thematic analysis techniques to find several significant themes in learning to write. Some of the themes of students' attitudes and perceptions are presented in Table 16.

Table 16. The Themes of Students' Perceptions and Attitudes towards The Effect of Collaborative Strategies on Writing Skills and Writing Self-Efficacy

No	Themes
1.	Feel happy to discuss with colleagues or brainstorm in determining ideas and writing outlines
2.	Have a positive feeling about consulting the instructor
3.	Feel confident in presenting your writing
4.	Feel helpful with feedback from friends from one group/another group.

In general, the research findings from this qualitative analysis indicate positive attitudes and perceptions about using collaborative strategies in the writing classroom. One of the exciting themes for students is brainstorming or discussion activities. In these activities, they can provide input questions for writing ideas to one another. In addition, participants felt that these brainstorming activities encourage them to think more critically. For example, P-5 explained that:

I feel happy to have discussions before starting writing activities because I can give advice to friends or even get better input on the writing topic I will write about later (Participant 5).

Several responses from other participants also supported the first theme. They assume that with a collaborative writing strategy, they will be able to develop new ideas based on suggestions from their colleagues. In other words, when discussing, they can find new ideas that emerge after receiving corrections and recommendations from their friends. The following two interview excerpts support this finding.

New ideas will emerge when we discuss themes and outlines together. With the opinion of my groupmates, I get a new idea about writing ideas (Participant 22).

Another thing that indicates students' positive attitude towards using collaborative strategies is the consultation activity with the instructor. They considered the writing task heavy and very complex, so it required a long process. By consulting the instructor, the writing they produce will be more systematic and exciting because they get input from the instructor. This finding is in agreement with interview excerpts from P-9 and P-29.

I feel that discussing with the lecturers makes me more confident that the suggestions can encourage and develop my writing skills. I believe that good writing is not produced in hours but requires a long process, including consultation with lecturers (Participant 9).

I like the learning system with this strategy because I can quickly consult with the lecturer. Suggestions from lecturers were beneficial in improving my writing drafts (Participant 29).

Collaborative strategies in learning to write also have an impact on other aspects. One is students' increased motivation, enthusiasm, and confidence in writing. So far, they feel insecure about the writing they have produced. One of the reasons is that individual writing activities sometimes cannot stimulate students to find interesting ideas. For example, P-15 states:

Writing individually sometimes makes my ability to find ideas very limited. Precisely collaboration can develop my thinking skills after getting suggestions from colleagues. With these conditions arose a sense of confidence in the writing task that I was doing (Participant 15).

Other participants raised other matters related to the third theme. At the middle school level, they felt they did not enjoy writing because they thought the drafts, they produced always received harsh criticism from the teacher. They mentioned that learning to write, which only focused on grammatical aspects, made them very depressed. The feeling of depression has an impact on reducing motivation in learning to write. Participants support this situation through the following interview excerpts.

When I was in high school, I felt unmotivated to write because my work always had a lot of grammatical errors (Participant 30).

Sometimes I feel depressed because my high school teacher does not judge my writing because of the many typos and punctuation errors. This makes me not too excited to learn to write (Participant 17).

The last theme of students' positive perceptions and attitudes towards the effect of collaborative strategies on writing skills and writing self-efficacy was feeling helped by the feedback given by their peers. A combined strategy makes students feel relieved after sharing their problems and difficulties. This condition encourages each group member to complete the writing task well and on time. The following statement of P-4 explains this condition.

It is beneficial to have feedback from friends in the group. They provide ideas or ideas that I never really thought of. I believe that the writing ideas of several people are far more perfect than one person's ideas. I consider this reasonable because every individual has limitations (Participant 4).

Overall, these qualitative findings indicate that students' perceptions and attitudes toward the effect of using these strategies are positive. They gave an excellent response to the collaborative strategy. Several learning activities in this strategy positively impact the development of their writing skills and writing self-efficacy. Indirectly, this finding confirms that there is a positive effect of using collaborative strategies to improve students' writing skills and writing self-efficacy in learning to write.

## Discussion

This study aims to analyze the impact of collaborative writing strategies on students' writing skills and self-efficacy. In addition, this study also aims to examine students' perspectives on their writing skills. Using two research designs (quantitative and qualitative) strengthens research findings more comprehensively and reliably. The embedded mixed method design aimed to explore differences in outcomes and improve the reliability of research findings through multiple perspectives more holistically (Bakla, 2020; Creswell & Plano-Clark, 2007). In other words, researchers collected and analyzed quantitative and qualitative data using one as supporting data (Papa et al., 2020). In this study, qualitative data were defined as supporting data and played a supporting role in experimental studies.

In the quantitative data analysis, the study's results suggest that a collaborative writing strategy can positively impact students' writing skills and self-efficacy. This finding confirms several previous research findings that interactions in learning can improve writing skills and self-efficacy (Lindsey, 2017; Putarek & Pavlin-Bernardic, 2020; Quweneel et al., 2013). For decades, the importance of student-teacher interaction has become a concern for teachers and researchers in teaching writing skills.

One of the learning strategies that focus on interaction is collaborative writing. This strategy can promote students' interactions and negotiation in elaborating language development (Hosseini et al., 2020; Li, 2013; Storch, 2013). In



addition, collaborative writing also has the potential to enhance students' understanding in groups because this strategy involves social interaction that consists of several basic activities, such as negotiation, coordination, communication, mutual response, and joint decision-making (Lin & Maarof, 2013; Lowry et al., 2004).

In the era of the industrial revolution 4.0 and society 5.0, collaboration is one of the main issues in education. This issue is due to the emergence of various 21st-century skills that require university graduates to master four primary skills: critical thinking and problem-solving, creative thinking, collaboration, and communication (Erdogen, 2019; Hamdu et al., 2020). Collaborative activities in learning play an important role in achieving goals. Several things make collaborative learning very necessary, including students working together, finding solutions, creating products, and developing social, conflict management, and communication skills (Smith & MacGregor, 2009; Wang, 2007).

Another purpose of this study is to improve students' self-efficacy in writing in Indonesia. Using collaborative writing strategies can also increase students' self-efficacy in writing. This result implies that students' confidence in their writing abilities also impacts the quality of their academic performance. Several previous studies have also examined the correlation between self-efficacy and writing ability. Some of these studies found empirical evidence that the two variables are positively correlated (Pajares, 2003; Prat-Sala & Redford, 2012; Rayner et al., 2016). On the other hand, some results argue the opposite. In other words, some studies have found that self-efficacy and writing ability are not positively correlated (Blankenstein et al., 2019; Khojasteh et al., 2016; Ong, 2015; Sari, 2021).

In addition, qualitative results related to students' perceptions of self-efficacy in writing and collaborative writing learning indicated that they responded positively. Most students indicated that the collaborative activities helped them increase their confidence, especially in writing. This result is consistent with several studies claiming that the affective domain (self-efficacy) is closely related to language skill improvement (Lee & Reid, 2016; Leeming, 2017; Rahimi & Abedini, 2009). Another qualitative study with almost the same results was conducted by Blankenstein et al. (2019). The study concluded that student activity and positive social interdependence could promote increased self-efficacy. Feeling connected in a group increases students' intrinsic motivation to write.

### Conclusion

The results of this study show that collaborative strategies have improved students' writing skills and self-efficacy. The qualitative results of this study also support this fact. Students showed positive attitudes and perceptions toward using collaborative strategies in learning Indonesian to improve their writing skills and writing self-efficacy. In other words, using these strategies can improve their performance and confidence in completing their writing tasks. The results of this study can be used to fill the gap in the literature regarding the need for studies that establish a relationship between writing skills and writing self-efficacy. By using collaborative writing strategies, teachers can focus on aspects of writing skills on the one hand and explore writing self-efficacy on the other. The results of this study suggest that collaborative strategies in writing instruction can improve two aspects at once, writing skills and students' writing self-efficacy.

### Recommendations

Given these findings, lecturers are advised to use collaborative strategies to improve students' writing skills and self-efficacy. The use of collaborative strategies can support the development of students' sense of responsibility for their learning activities because the teacher acts only as a facilitator whose role is to guide without intervening. In addition, by using this strategy, teachers can also develop various other skills, such as critical thinking, problem-solving, and creating a moderate learning atmosphere. For further research, we recommend that this strategy be used to improve other productive language skills, namely speaking skills. In addition, future research can also focus on different skills that are no less important for today's students, such as communication skills, creative thinking, collaboration, and others.

### Limitations

Two points can be defined as research limitations. First, we did not use conventional strategies for interviewing students in the control group for the reasons stated in the research procedure section. Only the experimental group using the collaborative strategy was surveyed after treatment about their perceptions and attitudes regarding their writing ability and self-efficacy in writing. Another limitation of this study relates to the relatively small sample size. To generalize the results, a study should include more samples. In this study, the number of research samples from the two study groups was only 62 students.

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**Authorship Contribution Statement**

Helaluddin: Conceptualization and data acquisition, drafting manuscript. Muhammad Guntur, Aqilah Fransori, & Gunawan Ismail: Data analysis and translate the manuscript. Nurhayati and Nyayu Lulu Nadya: Editing/reviewing, supervision, and critical revision manuscript.

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