

CHAPTER III

RESEARCH METHODOLOGY

3.1. Research Design

This study uses a mixed-methods approach using an explanatory sequential design to investigate the impact of ChatGPT feedback on students' argumentative writing. According to Creswell and Clark (2018), mixed methods research is a design for collecting, analysing, and using both quantitative and qualitative data in a study to provide a more complete understanding of a research problem. In an explanatory sequential design, the researcher first collects quantitative data and then follows it with qualitative data, and then explores the reasons behind those numbers using words and explanations.

In this method, the researcher first collected and analysed quantitative data (such as test scores or questionnaire results), followed by the collection and analysis of qualitative data (such as written responses or interviews) to help explain or elaborate on the quantitative findings. This method was chosen for a more comprehensive understanding of the research problem by combining numerical data (quantitative) with students' personal experiences (qualitative). The quantitative data is analysed using descriptive statistics such as means. For the qualitative data, the researcher uses thematic analysis, which means finding common ideas or themes in what students say in their responses in open ended questionnaire and interviews.

In this study, the researcher began by analysing students' writing scores before and after using ChatGPT feedback. After that, the researcher continued with the qualitative method by giving students open-ended questionnaires and conducting interviews to understand more about how they felt, what they experienced, and how ChatGPT would help (or would not help) in their argumentative writing process.

This mixed-methods design is chosen so that the researcher can get both measurable data and personal insights from the students. By combining both of the data types, it helps to validate findings through triangulation and provide a richer and more reliable interpretation by looking at three datasets of how ChatGPT feedback

affects students' development in argumentative writing. In this research, triangulation is used to increase the validity of the research. Instead of just looking at numbers, the researcher also hears students' experiences and explanations about ChatGPT's feedback. Triangulation means this research uses more than one data source, which is two students' scores (task 1 and task 2), and also students' opinions about ChatGPT's feedback, so that the result is more trustworthy without any bias from the researcher (Creswell & Poth, 2016).

3.2. Research Site and Context

This research was conducted at Widya Mandala Surabaya Catholic University, specifically in the English Language Education Study Program. The university is a well-known private institution in Surabaya that offers a variety of programs, including English language education.

The study took place during the odd semester of the 2025/2026 academic year, in an Argumentative Writing course. This course is usually taken by third-semester students and is designed to help them learn how to write logical and well-organized arguments using appropriate language and structure. In this course, students are expected to write essays that include claims, supporting reasons, and evidence.

This site was chosen because it gives the researcher access to university students who are currently taking an argumentative writing course. Also, the course strongly focuses on writing skills, making it suitable for testing the effectiveness of ChatGPT as a feedback tool. The students had access to digital devices and internet connectivity, allowing them to use ChatGPT as part of their writing activities. The use of technology in the classroom made it possible to explore how AI tools like ChatGPT can support students in improving their argumentative writing.

The researcher chose only one class, instead of two classes, which is the B class. Class A will not be included in this research because the lecturer is not available to participate in the research.

Since the study was done during regular class sessions, the researcher followed the class schedule and the rules set by the lecturer and the university. All data would

be collected as part of the course, so the research fits into the students' learning process.

There are two tasks. For the first task, using ChatGPT's feedback, the students had to make a draft without using the internet. After finishing the draft, they can ask for ChatGPT's feedback and revise it based on the feedback. And for the second task, using the lecturer's feedback, the students had to make the draft first, without using the internet. After finishing the draft, they had to submit it, and the lecturer gave them feedback. And they had to revise it based on the feedback given by the lecturer.

3.3. Participants

The participants of this study were the third-semester students from the one university in Surabaya. These students were enrolled in the Argumentative Writing course during the odd semester of the 2025/2026 academic year.

The participants were chosen using a purposive sampling technique, which means the researcher selected participants based on specific reasons. In this case, the students were chosen because they took the Argumentative Writing course and had already learned the basic structure of essay writing. This research was used in one argumentative writing class, which consisted of 15 students. However, three students were not available for the writing task. Therefore, the quantitative data were taken from 12 students. For the open-ended questionnaire, only 9 students completed the questionnaire. And 4 students were chosen based on their questionnaire responses to see different perceptions of ChatGPT and lecture feedback.

The participants are familiar with using online tools and platforms. Before participating, they were informed about the purpose of the research, and their consent was obtained orally by the researcher and collected using a Google Form through an open-ended questionnaire form. The researcher made sure that their participation is voluntary and that all information collected from them is kept confidential and used only for this research purpose.

3.4. Instruments

The data in this study were collected in two stages: quantitative and qualitative, following the explanatory sequential mixed-methods design:

In the first stage (quantitative), students completed a main task:

1. Task 1 and Task 2:

There were 2 tasks that students had to complete. First, for Task 1, the students were asked to write an argumentative essay draft before using ChatGPT. While working on the draft, they could not access the internet and use gadgets. After that, they received feedback from ChatGPT on their drafts. Then, students had to submit their essays and a final version of Task 1. And the second task, the students were asked to write an argumentative essay draft, the same as the first task. While working on the draft, they could not access the internet and using gadgets. After that, they had to submit their drafts to the researcher so that the researcher could give the drafts to the lecturer. And then, the lecturer had to give feedback on the students' draft. Then, students had to revise their draft based on the feedback given by their lecturer and submit their final essay for task 2. The task 1 and task 2 prompts are similar in level and topic to ensure fairness and consistency. The topic for the first essay is "Is Working Abroad Better than Working in One's Own Country?", while the topic for the second essay is Is Studying Abroad Better than Working in One's Own Country?". Both asked students to write an argumentative essay of 250–300 words.

Both writings were assessed by the argumentative writing course lecturer using his own rubric that covers five criteria: content, organization, vocabulary, language use, and mechanics. This is the course's rubric:

Table 1. Argumentative Writing Course's scoring rubric.

Contents	Max Points	Criteria/Description
Content	25	The topic sentence/thesis/claim/main idea is developed

		substantively; the supporting details are adequate and relevant; knowledge of the subject is demonstrated.
Organization	20	The topic sentence/thesis statement is written clearly and effectively; the arguments/ideas are expressed fluently, logically, and cohesively; the topic sentences/main ideas and the supporting details are clearly and succinctly stated; the ideas are not confused or disconnected; the closing/conclusion is written effectively.
Vocabulary	20	The words and idioms used are sophisticated and effectively chosen; meaning is not obscured by incorrect words; word choice is not limited by lack of vocabulary; word register is appropriate for the topic.
Language use	25	Sentences are varied by types, length, and complexity; minimum errors of agreement, tense, number, word order or function; articles, pronouns

		and prepositions are correctly used; meaning is not obscured by grammatical errors.
Mechanics	10	Minimum errors on spelling, punctuation, and capitalization; meaning is not hard to grasp because of inappropriate punctuation and/or spelling; paragraphing demonstrates coherence of ideas; readable/legible handwriting.

2. Open-ended questionnaire

An open-ended questionnaire was used for the qualitative method. This questionnaire aimed to understand students' perceptions of ChatGPT feedback. It includes 4 reflective questions, such as:

- “What was your experience using ChatGPT to improve your writing?”
- “What kind of feedback from ChatGPT did you find most useful?”

The questionnaire items were adapted from previous studies on technology use in writing (e.g., Nguyen, et al., 2024 & Shoufan A., 2023). The researcher's thesis advisor reviewed the items to check for clarity, relevance, and content validity.

3. Semi-structured Interview

The semi-structured interviews were used to explore students' feelings and experiences with ChatGPT feedback.

The interview consists of 5 main questions, such as:

1. “How did ChatGPT help you improve your argumentative writing?”
2. “What were the strengths and weaknesses of the feedback you received?”
3. “How did you feel using AI to revise your writing?”

4. “Did ChatGPT make you feel more confident in writing? Why or why not?”
5. “In what ways is ChatGPT different from teacher feedback or peer feedback?”

Follow-up questions were used during the interviews based on the participants’ responses to allow flexibility and deeper exploration. The interview questions were adapted from similar studies on AI feedback tools. They were reviewed by a qualitative research expert to ensure they encouraged reflection and provided useful

3.5. Data Collection Procedure

This study collects data step by step, following an explanatory sequential mixed-methods design. The data were collected through writing tasks, an open-ended questionnaire, and interviews.

First, the researcher asked permission from the lecturer to collect data from students in the argumentative writing course. For the first stage (quantitative), the students had to do two writing tasks: Task 1 and Task 2. In task 1, students wrote a draft of an argumentative essay of 250–300 words on a given topic without using the internet. After finishing the draft, they asked for feedback from ChatGPT to help them revise and improve their writing. For task 2, students wrote another argumentative essay of the same length and on the same topic. This time, they got feedback from their lecturer to help them revise before they submit the final version.

Tasks 1 and 2 were assessed by the argumentative writing course’s lecturer using his own rubric that covers content, organization, vocabulary, language use, and mechanics.

For the second stage (qualitative), students had to answer an open-ended questionnaire after they finished task 2. The questionnaire had seven questions to find out what students think about using ChatGPT for feedback. The questions were adapted from other studies (e.g., Nguyen, et al., 2024 & Shoufan A., 2023) and will be checked by the researcher’s advisor to make sure they are clear and suitable. In the questionnaire itself, there would be an informed consent for the participants to acknowledge that they agree to the consent. The open-ended questions were:

1. How was your experience after using ChatGPT feedback to revise your argumentative essay?
2. How was your experience after using lecturer's feedback to revise your argumentative essay?
3. What differences did you notice between ChatGPT feedback and lecturer's feedback?
4. According to you, what are the advantages of ChatGPT feedback compare with the lecturer's feedback?
5. According to you, what are the disadvantages of ChatGPT feedback compare with the lecturer's feedback?
6. Can you give an example of feedback from ChatGPT or your lecturer's feedback that helped you improve your writing? Why was it helpful and useful?
7. Would you like to recommend the use of ChatGPT feedback in the next writing classes? why or why not?

After that, some students will be chosen for an interview. They were selected using a purposive sampling technique. Sugiyono (2022) said that purposive sampling is a data-taking technique by selecting participants based on specific considerations or criteria. In this research, the interview participants were chosen based on their answer from open-ended questionnaire that had different perceptions about ChatGPT feedback and the lecturer's feedback.

The researcher chose students with different writing results and questionnaire answers to get different points of view. The interview asked about their experiences, opinions, and feelings about using ChatGPT feedback compared to feedback from the lecturer. The interview used main questions, but also allowed follow-up questions if needed. These are the interview questions:

1. Can you tell me about your experience using ChatGPT feedback to revise your argumentative essay?
2. Can you tell me about your experience using lecturer's feedback to revise your argumentative essay?

3. What differences did you notice between ChatGPT feedback and lecturer's feedback?
4. Which feedback helped you improve your essay more? Why?
5. Can you give an example of feedback from ChatGPT that you found helpful? Why was it helpful?
6. Can you give an example of feedback from your lecturer that you found helpful? Why was it helpful?
7. Did you experience any difficulties when using ChatGPT feedback? If yes, what were they?
8. In your opinion, what are the strengths of ChatGPT feedback?
9. In your opinion, what are the strengths of lecturer's feedback?
10. Do you think ChatGPT feedback can replace lecturer's feedback in writing classes? Why or why not?
11. Would you prefer to use ChatGPT feedback, lecturer's feedback, or both in future writing classes? Please explain your answer.

The interviews were done in a mix of English and Indonesian, so students could share their answers comfortably and honestly. All interviews were recorded so they can be analysed after the recording session.

3.6. Data Analysis Procedure

This study used both quantitative and qualitative data analysis methods, following the explanatory sequential mixed-methods design. The data from task 1, task 2 questionnaires, and interviews were analysed to understand the impact of ChatGPT feedback on students' argumentative writing and their perceptions of using ChatGPT in improving their argumentative essays compared with the lecturer's feedback.

3.6.1. Quantitative Data Analysis

The quantitative data in this study came from the writing scores of Task 1 and Task 2. The students' writing scores from Task 1 and Task 2 were collected and compared. This will be done to see if there is any improvement in students'

argumentative writing after getting feedback from ChatGPT compared to feedback from their lecturer using Jamovi.

First, the researcher used descriptive statistics, such as mean and standard deviation, to summarize students' writing scores. Since the participants were not more than 50, the Shapiro-Wilk test was used. This test was used to check whether the data were normally distributed. And if the data were normally distributed, a paired sample t-test was used, but if the data were not normally distributed, a Wilcoxon Signed Rank Test was used. This is to see whether there was a significant difference between task 1 and task 2 (after receiving ChatGPT feedback and the lecturer's feedback). This procedure was to answer RO1.

Writing Scores:

Students' task 1 and task 2 essays were scored by the argumentative writing course lecturer using his own rubric that covers content, organization, vocabulary, language use, and mechanics.

3.6.2. Qualitative Data Analysis

The qualitative data came from two sources: open-ended questionnaire responses and interview transcripts.

1. Open-ended questionnaire

Students' answers to the open-ended questions were reviewed and coded using thematic analysis by Braun and Clarke (2006) to identify common themes, such as the types of feedback they found helpful, their experiences using ChatGPT, and any challenges they faced. The researcher analysed the answers from the open-ended questionnaire that was given after task 2. The analysis used six steps: familiarizing with the data, generating initial codes, searching for themes, reviewing themes, defining and naming themes, and making the report. The students' responses were grouped into similar ideas, such as how useful they found ChatGPT's feedback, what they liked or disliked about it, and how it compares to the lecturer's feedback. This helped the researcher understand students' opinions about using ChatGPT for feedback in their writing.

2. Semi-structured Interview

The interview recordings were also transcribed and then analysed using

thematic analysis based on Braun and Clarke (2006). Thematic analysis is a way to find and explain patterns or important ideas in students' answers. It helps the researcher understand what students think and feel about using ChatGPT feedback.

In this study, the researcher first read all the interview transcripts many times to really understand what the students said. Then, the researcher will look for similar words or ideas and group them together. Each group of similar ideas will be given a label or code, such as benefits of ChatGPT, weaknesses of ChatGPT, or changes in writing habits. After that, the researcher will combine these codes into bigger themes that show the main points from the interviews.

These themes are used to help explain the scores and results from the pre-test and post-test. By doing this, the study does not just show numbers but also includes students' real experiences and opinions about using ChatGPT for writing.

3.7. Research Schedule

The researcher has made a research schedule to guide the study step by step. The schedule shows the main activities for each week, from introducing the lesson to collecting the final data. The researcher will follow this schedule.

For the quantitative data, the data collection took 6 weeks. In Week 1, the researcher let the lecturer explain the course outline and introduce argumentative writing first. The data collection starts in week 2. In Week 2, students write their first argumentative essay. In Week 3, after they have drafted their argumentative essay, they learn how to use ChatGPT to get feedback and revise their essays. In Week 4, they submit their final essay after using ChatGPT feedback.

In Week 6, students write another argumentative essay. In Week 7, after having drafted their second essay, they get feedback from the lecturer and revise their second essay. In Week 8, they had to submit their final essay after applying the lecturer's feedback. After that, the students were asked to fill out a questionnaire using a G-form that would be shared by the researcher. All students were asked to fill out the questionnaire.

For the qualitative data, the data was collected in week 9 until done, because the researcher needed to interview some of the students according to their score on task 1 and task 2, and their answers after filling out the questionnaire.