

CHAPTER 3

RESEARCH METHODOLOGY

This chapter describes the methodology used to conduct the research. This chapter describes seven parts of the research procedure, namely research methods, research focus, setting and participants, data collection techniques, data analysis techniques, research steps, place and time of research. Further details are explained below.

A. Method of the Research

This study used a qualitative descriptive case study design, specifically applying a descriptive case study research design. The purpose of a descriptive case study, according to Yin (2018), is to provide a comprehensive and historically relevant analysis of a particular phenomenon. This study described in-depth information about the students' perceptions toward the use of ChatGPT as an academic writing aid in higher education

B. Focus of the Research

This study focuses on the use of ChatGPT in supporting academic writing. This study explores students' perceptions regarding the use of ChatGPT in assisting academic writing. The description of this study is based on the results of interviews with students who were selected based on certain characteristics, including their previous experiences in using ChatGPT in writing academic papers.

C. Setting and Participant

This research was conducted at a university located in Tasikmalaya, West Java, Indonesia, in the English Language Education Department. The location was chosen because the researcher understands the campus culture and the problems faced by students in writing academically. This facilitates understanding of the context and increases the generalizability of the research. The use of ChatGPT as a tool in writing scientific papers at universities is very common among students, especially when working on assignments related to writing scientific articles.

The participants in this study were three sixth-semester students of the English Education Department at one university in Tasikmalaya, West Java. They were two

female and one male students aged 20 to 21 years old who had employed ChatGPT to help them complete tasks and academic writing assignments. They were selected since they studied academic writing and had extensive use of ChatGPT from when it was introduced and voluntarily participated in this research. Participants were selected on the basis of peer nominations from peers and fellow students familiar with them and their involvement in academic writing activities. The interview data were collected during Zoom sessions and stored in digital format as part of the study records.

D. Data Collection

This research used semi-structured interviews. Semi-structured interviews used in qualitative research typically employ an iterative process in which data collection and analysis occur simultaneously. This allows for the refinement of existing questions and the addition of new questions that explore related topics raised by participants in previous interviews (DeJonckheere & Vaughn, 2019). Semi-structured interviews, as explained by Arksey & Knight (1999), start with broader, more general topics rather than specific questions. This allows the interviewer to explore topics more deeply as they arise during the conversation. For this study, interviews focused on the students' perceptions toward the use of ChatGPT as an academic writing aid in higher education based on TAM (Davis, 1989), with attention to the aspects of Perceived Usefulness (PU) and Perceived Ease of Use (PEOU).

The interview process followed a design adapted from (Adams, 2015):

1. Selecting participants and arranging interviews

This section focuses on things that need to be prepared for the interview, such as selecting participants based on certain requirements and criteria. Group members have participated in the interview. The researcher contacted them and asked for their availability to conduct the interview and made an interview schedule.

2. Drafting questions and the interview guide.

The interview was conducted in Indonesia, followed by an English translation and transcription. The majority of the questions asked of

participants were based on Davis (1989) Technology Acceptance Model (TAM) and the interview guide. This study was supported by the interview guide that was modified to employ TAM. The Technology Acceptance Model (TAM) explains the differences in user beliefs (Gardner and Amroso, 2004). To gather data on how users accept and utilize ChatGPT in Academic Writing researchers employed TAM. Furthermore, the researchers noted the causal association between Perceived Ease of Use (PEOU), which measures the use of technology, and Perceived Usefulness (PU), which measures its utility.

3. Conducting the interview

Interviews were conducted in Indonesian, which is the participants' mother tongue, to encourage participants to express themselves more freely and naturally without potential confusion and misunderstanding caused by language barriers. At this stage, before the interview, the researcher conveyed aspects of the research such as the title of the research and its scope and asked for permission to record the interview.

4. Refining interview techniques

Each participant was asked to spend 15-30 minutes per session. Then, the session begins with questions from the question list. Based on participants' requests and to accommodate scheduling flexibility and different locations, the interviews were conducted online using Zoom Meeting.

5. Analyzing and reporting the semi-structured interview results

In this phase, the researcher reviewed the findings and verified the authenticity of the data obtained from the interviews that had been conducted. In addition, the data had been translated and transcribed. Thematic analysis had been used to examine the data.

E. Data Analysis

Interviews conducted during the study was analyzed thematically, following the guidelines of Braun & Clarke (2022). Thematic analysis is a qualitative research

approach that is concerned with the detection, interpretation, and distribution of recurring patterns (themes) present in qualitative data that are collected and described extensively. In addition, thematic analysis serves as a mechanism to appreciate the underlying issues of the area of concern in the study.

Thematic analysis was carried out, according to Braun & Clarke (2022), with the following steps outlined below:

1. Familiarization

The researcher transcribed and re-read the interview data to comprehend it well.

2. Coding

The researcher categorized the data by using the initial codes, and each code was given a different color.

Table 1 Coding

Utterances	Initial Code
In general, ChatGPT seems to be very helpful, because for example, if there is something like writing, it is like a writing test, but tasks that require writing in English are very helpful in terms of grammar and so on. Yes, I have used ChatGPT, and I would say I frequently use it to check grammar	Grammar correction
Mainly for ideas. Like developing ideas... Personally, I mostly use it for brainstorming and idea development...	Idea generation
... Then I sometimes ask for opinions from ChatGPT to ask things like please explain the theories. ... When I feel stuck or don't really know what to do anymore, I usually consult ChatGPT	Source of Information
It does help, A. You know, like, when reading articles, especially the long ones, it can feel a bit tiring. But if you use ChatGPT, it summarizes the key points... ... When we use ChatGPT's help, those things tend to be shortened, so the work can be done more quickly.	Task efficiency
... it needs to be revised, then checked again to see whether it's accurate, and also evaluated to	Need for Post-editing

determine whether it aligns with the relevant theory.	
Personally, I still need to make further adjustments...	
... So, after consulting with ChatGPT, further adjustments are definitely necessary.	
... Because I tend to be cautious, I'm afraid it might get detected as AI plagiarism. I think the challenge might be related to AI plagiarism...	Fear of AI Plagiarism
... In my opinion, the instructions need to be clearer.	Need for clear instructions
... When we use more complex prompts, like 'imagine that you are a unique university student and do this, this, and this,' the results are usually more comprehensive.	
... It's easy to access, and there's no need to install anything. You just go straight to Google. In my opinion, it's very easy to use, probably because it's also easy to access.	Accessibility
... The free version feels a bit lacking sometimes it's not always accurate.	Limited Feature in Free Version
... The limitation with version 4.0 is that once the quota is used up, the responses tend to be less accurate or not as good as those from 4.0.	

Table 2 Calculating the Codes

No	Initial Code	Frequency
1	Grammar correction	2
2	Idea generation	7
3	Source of Information	5
4	Task efficiency	5
5	Need for Post-editing	7
6	Fear of AI Plagiarism	2
7	Need for clear instructions	3
8	Accessibility	3
9	Limited Feature in Free Version	5

3. Generating initial themes

The researcher grouped the codes into the possibility the same themes from the data that has been highlighted in the second step.

Table 3 Generating initial themes

Initial Codes	Potential Themes
Accessibility	Ease of Access to ChatGPT
Grammar correction	Academic Writing Aspects
Idea generation	
Source of Information	
Task efficiency	Task Simplification
Need for Post-editing	Issues in using ChatGPT
Fear of AI Plagiarism	
Limited Feature in Free Version	
Need for clear instructions	Role of Prompting in AI Interaction

4. Reviewing themes

The researcher ensured that the thematic map accurately reflected the data and did not overlap with other themes. Several adjustments were made, including merging and separating themes, until a coherent thematic map was achieved.

Table 4 Reviewing themes

Potential Theme	Themes
Ease of Access to ChatGPT	The Accessibility of ChatGPT as an Academic Writing Aid
Academic Writing Aspect	ChatGPT as a Beneficial Writing Aid
Task Simplification	
Issues in using ChatGPT	Perceived Challenges in using ChatGPT for Academic Writing Aid
Role of Prompting in AI Interaction	The Importance of Prompting Skills in Using ChatGPT Effectively

5. Defining and naming themes

At this stage, the researcher examines the data in each theme to gain a deeper understanding of the core of the theme and to identify the data elements captured and represented by each theme. To convey the essence of each subject and distinguish them from each other, the subjects are finally named and defined.

Table 5 Defining and naming themes

Theme	Description
The Accessibility of ChatGPT as an Academic Writing Aid	ChatGPT is easy to access and use by the students, which supports their academic writing without requiring technical setup or installation.
ChatGPT as a Beneficial Writing Aid	The role of ChatGPT to support grammar correction, idea development, information seeking, and writing efficiency in completing academic writing tasks.
Perceived Challenges in using ChatGPT for Academic Writing Aid	Students experience challenges with ChatGPT related to the need for post-editing, fear of AI plagiarism, and limitations in the free version.
The Importance of Prompting Skills in Using ChatGPT Effectively	Students recognize that clear and specific instructions are needed to generate relevant and comprehensive responses from ChatGPT.

6. Writing -up

It is the final phase of thematic analysis. After determining the central theme, the researcher write a report on the research findings.

F. Research Steps

The chronological steps were as follow:

Table 6 Research Steps

Step	Description
1	Identify and describe phenomenon or issue
2	Examine current research and locate sources from journals relevant to this topic

