CHAPTER 3
RESEARCH PROCEDURES

This chapter provided the methodology utilized to conduct the study. This chapter outlines seven parts of the research procedure, namely research method, research focus, setting and participant, data collection technique, data analysis technique, research steps, place and time of research. More details are described below.

A. Research Design of the Research

A descriptive case study was chosen as an effective method to explore students' perceptions of Perplexity AI in academic writing because, as described by Yin et al (2018), case studies are particularly useful for studying complex realities in their real-life context. This approach allows for an in-depth examination of students' experiences, providing rich and clear insights into how they interact with and understand the use of Perplexity AI as a writing tool. This research design also aligns well with the Technology Acceptance Model (TAM) framework, as it enables detailed exploration of students' perceived usefulness and ease of use through rich, contextual data collection. The descriptive case study approach allows for comprehensive examination of students' experiences, challenges, and benefits when using Perplexity AI, providing valuable insights into the complex relationship between AI technology and academic writing practices.

B. Setting and Participants

This study was conducted at one of universities in Tasikmalaya, West Java, Indonesia, renowned for its dedication to academic excellence and innovation in teaching methodologies. The university's English Education Department provides a conducive environment for exploring the integration of technology in academic practices, particularly in academic writing. The setting offers access to students who actively engage in using digital tools, including AI-based applications, to enhance their writing processes.

The participants for this study was selected purposively to ensure that they meet specific criteria relevant to the research focus on perceptions of Perplexity AI in academic writing. The inclusion criteria are as follows:

1. Enrolled in the English Education Department.
2. Have contracted Academic Reading and Writing course.
3. Experience using Perplexity AI for writing-related purposes.

The purposive sampling approach ensures that participants possess relevant and diverse experiences with academic writing and AI tools, enabling a thorough exploration of their perceptions. While the final selection of participants depending on availability and willingness, pseudonyms were assigned to protect their identities. This aligns with ethical qualitative research practices, as maintaining participant confidentiality and fostering trust is essential to encouraging authentic responses, as highlighted by Castillo-Montoya (2016).

The research object in this study is the integration of Perplexity AI into academic writing practices among university students. This research object was chosen for its relevance to modern education, where AI tools are increasingly being used to improve learning outcomes. In the context of learning academic writing at this university, Perplexity is generally used by students for several purposes such as: (1) organizing ideas, where during this process, students can brainstorm topics directly on AI (2) finding sources, where Perplexity can help students find academic reading sources according to their topics (3) providing examples and directions in good and correct academic writing, (4) and can help validate the information needed. Taking Perplexity AI seriously, this research aims to study its impact on students' writing processes, examining its potential benefits & challenges.

C. Data Collection

In this research, semi-structured interviews were employed as the primary method of qualitative data collection. Data collection were conducted through semi-structured interviews, guided by the Technology Acceptance Model (TAM) as the conceptual framework. The interviews focused on exploring two key indicators from TAM: perceived usefulness and perceived ease of use. Semi-structured

interviews offer more flexibility compared to structured interviews, allowing researchers to follow a prepared set of questions while providing room for participants to express themselves more freely (Adams, 2015). This flexibility enables the collection of richer, more detailed data, as participants are encouraged to elaborate on their responses, which may lead to the emergence of insights that structured formats might miss.

The procedure for conducting these interviews began by identifying and approaching the selected participants, who are English Education Department students in one of universities in Tasikmalaya and actively use Perplexity AI as an academic writing tool. An invitation to participate in the study were extended via email or face-to-face communication. Once participants confirm their willingness, informed consent was obtained. This process involved explaining the research purpose, confidentiality measures, and participants' rights to withdraw at any stage without consequences.

Data was gathered through face-to-face or virtual interviews, depending on the participants' preferences. Each interview followed a semi-structured format, began with predefined questions related to the use of Perplexity AI in academic writing, while allowing flexibility for participants to delve into related topics or issues that arise during the conversation. The interviews result was audio-recorded, with participants' consent, to ensure the accuracy of data collection and facilitate detailed transcription for analysis. This method aligns with the qualitative nature of the study, which seeks to understand participants' perceptions and experiences. The researcher started with open-ended questions to allow participants to share their experiences freely. Questions addressed students' views on the effectiveness, efficiency, and accessibility of Perplexity AI, along with any challenges they encountered during its use.

D. Data Analysis

The data were analyzed by following Braun and Clarke (2006) thematic analysis approach, which is well-suited for identifying and interpreting patterns within qualitative data. Interviews were transcribed verbatim and coded according

to the two main indicators of the Technology Acceptance Model (TAM) as defined in Chapter II namely perceived usefulness and perceived ease of use. This approach focuses on thematic analysis within participants' responses, making it ideal for exploring recurring themes and patterns in their experiences with Perplexity AI.

Braun and Clarke (2006) describe thematic analysis as a flexible method, meaning it can be adapted to different theoretical frameworks and research questions. It is not tied to a specific epistemology or rigid procedure, allowing the researcher to tailor the process to the study's needs. This flexibility, combined with the emphasis on systematic coding and clear theme identification, makes thematic analysis well-suited for capturing the nuanced factors influencing students' perceptions of Perplexity AI. The coding process involved multiple iterative steps to ensure a thorough analysis. The researcher examined the interview transcripts line-by-line, assigning preliminary codes to significant statements and segments of text. After the initial coding, the researcher reviewed and refined these codes for consistency, merging similar codes and clarifying definitions where needed. The refined codes were then organized into broader categories and provisional themes. Some of these themes corresponded directly to the TAM constructs of perceived usefulness and perceived ease of use, reflecting how participants' comments related to those factors. The researcher repeatedly revisited the data and the coding scheme, refining codes and themes through multiple iterations. Throughout this phase, links between participants' experiences and the TAM indicators were evaluated, interpreting how each theme related to perceived usefulness or ease of use and how these factors shaped their perceptions and use of Perplexity AI. The stages of thematic analysis consist of six steps according to Braun and Clarke Six Phases of Thematic Analysis (Braun & Clarke, 2006):

1. **Familiarizing the data**

   During this phase, the researcher familiarized herself with the data by reading the interview transcripts multiple times. This close reading allowed her to absorb the content and context of the responses. By listening to the audio recordings and reviewing the transcripts repeatedly, the researcher gained a thorough understanding of the data. She took notes on initial observations and

potential patterns, recording early impressions and any notable points that emerged during this familiarization process.

2. Generating Initial Codes

In this phase, initial codes were generated by systematically reviewing the transcripts and marking segments of text that appeared relevant to the study's objectives. The researcher used color-coding techniques to differentiate distinct ideas identified by participants, resulting in a set of initial codes. Thus initial coding process produced a list of codes reflecting various aspects of the participants' experiences.

Table 1. *Generating Initial Codes*

Extracts	Initial codes
"...sangat mudah terutama dalam brainstorming, menyusun rangka, atau mencari argumen-argumen pendukung..."	Helps shape argument structure
"Perplexity itu dapat membantu saya untuk mencari ide dan teori yang relevan...".	Idea generation
"cukup kredibel... karena ada referensinya juga... Jadi mempermudah...".	Credible information
"Perplexity ini sangat membantu dalam mencari sumber referensi..."	Reference search
"langsung dapat informasinya… jelas menghemat waktu"	Time efficiency
"…karena meskipun ada mode research dan write yang saya gunakan sesuai kebutuhan…"	Advanced modes research and write
"Paling mudah... submit file... untuk men-summary."	Summarizing feature
"Fiturnya sederhana dan responnya juga cepat...	Usable features
"langsung ada si sumbernya itu dan kita bisa langsung klik, nanti kita diarahkan ke artikel..."	Source links accessible
"kalau misalkan kita memberi perintah itu harus mendetail... Sebagai contoh... SFMDA... tidak jelasin... jawabannya juga melenceng..."	Prompt sensitivity

"formatnya itu bukan format paragraph tapi format bulletin atau poin-poin. Jadi itu yang membuat kita harus memahaminya lagi."	Not understandable features
"Cukup yakin. Cuma harus di cross-check kembali…"	Requires cross-checking

The researcher identified 12 initial codes, each representing different aspects highlighted in the participants' interview transcriptions. These codes encapsulated various themes and patterns observed in the data, providing a comprehensive framework for further analysis and interpretation of the participants' experiences and insights.

Table 2. ***Calculating initial codes***

NO.	Initial Codes	Total
1	Helps shape argument structure	7
2	Idea generation	5
3	Credible information	5
4	Reference search	3
5	Time efficiency	2
6	Advanced modes research and write	3
7	Summarizing feature	5
8	Usable features	2
9	Source links accessible	2
10	Prompt sensitivity	1
11	Not understandable features	1
12	Requires cross-checking	7

3. Searching for themes

The third phase involved examining the initial codes to identify patterns and potential themes. The researcher grouped related codes under broader categories that addressed the research questions, while setting aside

any codes that did not fit into a coherent theme. For instance, codes such as Reference search and Time efficiency were combined under a theme about improving research productivity. This step produced several candidate themes that summarized key dimensions of the data.

Table 3. ***Searching for Themes***

Initial Codes	Potential Sub-Themes
Idea generation Credible information	Enhance research writing quality
Reference search Time efficiency	Improve the research writing productivity and accesibility
Usable features Source links accessible	User-friendly features access
Prompt sensitivity Requires cross-checking	The drawbacks of AI features

4. Reviewing themes

In this step, the researcher reads all the data for each theme to ensure the codes have been grouped into the appropriate theme. In reviewing themes, the researcher refers to the learning by the Technology Acceptance Model (TAM) by Davis (1989), which consists of Perceived Usefulness (PU) and Perceived Ease of Use (PEOU).

Table 4. ***Reviewing Themes***

No.	Initial Codes	Sub-Themes	Themes
1.	Idea generation Credible information	Enhance research writing quality	Perceived Usefulness of Perplexity AI
2.	Reference search Time efficiency	Improve the research writing productivity and accessibility	
3.	Usable features Source links accessible	User-friendly features access	Perceived Ease of Use of Perplexity AI
4.	Prompt sensitivity Requires cross-checking	The drawbacks of AI features	

5. Defining and Naming Themes

In this step, the researcher involves the themes as the answer to the research question.

Table 5. ***Defining and Naming Themes***

No.	Definition	Themes
1.	Perceived Usefulness refers to how participants believe that using Perplexity AI enhances their academic or professional performance, especially in terms of research, writing, and knowledge construction. It reflects the belief that Perplexity AI helps users accomplish their objectives more effectively and with higher quality outcomes.	Perceived Usefulness of Perplexity AI
2.	Perceived Ease of Use refers to the degree to which users believe that interacting with Perplexity AI is effortless, intuitive, and free of complications. This theme reflects users' comfort and confidence in navigating the system without requiring extensive training or prior expertise.	Perceived Ease of Use of Perplexity AI

6. Producing the Report

The final step, after the researcher gets the theme. The researcher creates a report on the research findings.

E. Research Steps

Table 6. ***Steps of the Research***

Step	Description
1	The researcher identified and described research phenomenon and issue.
2	The researcher reviewed and examined literatures related to the topic of the research to complement the research.
3	The researcher chose and decided the topic to be researched.
4	The researcher began compiling the research proposal, starting with the background of the study, literature review, and research method.
5	The researcher examined a research proposal in front of supervisors and examiners.
6	The researcher collected data from the participants by using semi-structured interviews.

7	The researcher transcribed the interview transcription and analyzed the data using thematic analysis.
8	The researcher reported the result of the thesis
9	The researcher examined the thesis in front of the supervisors and examiners.

F. Time and Place of the Research

This research conducted at a university in Tasikmalaya, West Java, Indonesia. Meanwhile, the time of this research conducted in the period from August 2024.

Table 7. *Research Timeline*

No	Description	Aug 2024 - Nov 2024	Dec 2025	Mar 2025	Apr 2025	May 2025	Jun 2025	Jul 2025
1.	Research proposal writing							
2	Research proposal examination							
3	Data collection							
4	Data analysis							
5	Thesis Result Seminar							
6	Thesis Examination							