

CHAPTER II

LITERATURE REVIEW

2.1 Artificial Intelligence: Perplexity

2.1.1 Definition of AI Perplexity

Advanced technologies like Natural Language Processing (NLP) and machine learning are used by Perplexity AI, an AI-powered search engine and chatbot, to deliver precise and thorough responses to user inquiries. Real-time web searching and providing current information on various subjects are features built into its design. Finding information on various topics can be facilitated by the powerful tool Perplexity AI, which has an easy-to-use interface. With the help of AI- GPT technology, which enables it to comprehend and produce text that resembles a human's, Perplexity AI is powered by large language models. This search engine aims to improve how individuals find and distribute information (Entrustch, 2023).

Perplexity is a natural language processing of Artificial intelligence and machine learning. It is also a chatbot and intelligent search engine, to provide precise and comprehensive answers to user queries (Aayus, 2023). This tool uses cutting-edge technology to search online and deliver up-to-date information on various topics. Users can locate the information they need quickly and effectively thanks to the user-friendly interface, which guarantees seamless navigation.

Furthermore, the AI replies to your responses in natural language. This means users can get direct answers to the questions rather than having to click through a list of links to find what the users need. It even references websites and other online resources that it looked through to get the solution. Sakshi (2023) added that AI Perplexity is a conversational search engine driven by artificial intelligence that facilitates rapid information discovery on various subjects. However, AI Perplexity's responses are always backed up by references and citations, which you can quickly click to confirm.

2.1.2 How to Use AI Perplexity?

The steps to utilize Perplexity AI are as follows: 1) Navigate to www.perplexity.ai; 2) Type your request in the search bar and click the blue arrow to pose a question to the model; 3) Examine Perplexity AI's response and the references; 4) Using the "Ask a follow-up" bar below, pose another query (Entrusch, 2023). Users can ask Perplexity AI a question with just a few keystrokes in the search bar and a click of the blue arrow. The model is straight forward to use. AI includes a page dedicated to PDFs, enabling users to obtain more expeditious and pertinent responses to their research inquiries.

2.1.3 AI Perplexity Features

AI Perplexity features are still being developed, and new features are being meticulously added. The features offer: 1) Answers and a search engine presents itself as a generative answer and search engine. The

primary function of Perplexity is to provide users with clear solutions. The model searches the Internet for a response when a user enters a query. It additionally indicates where the data came from. It can, however, also function as a chatbot. Users do not need to create an account to use the answer and search engine, which are both free. However, users can sign up for a free account on the website to access extra features that are not available otherwise. 2) Modify Questions: If users are not satisfied with the answer, they can also revise and rephrase their questions until they get the desired outcomes. 3) Entity Linking: The answers to Perplexity's questions also provide links to new subjects users might find interesting. Users can explore and read more about related topics by clicking on the link, whether their questions are about people, products, or places. Perplexity answers include related questions that help them delve deeper into any topic. 4) Focused search: Although it can search the entire Internet for answers, users can narrow down its focus to specific domains like Wikipedia, YouTube, Wolfram|Alpha, news articles, academic papers and more. 5) Threads: users' search threads (a single AI back-and-forth session) can be saved by Perplexity AI (Sakshi, 2023).

On the other hand, Perplexity AI is an effective tool for finding and sharing information because of several features (Entrustch, 2023). Key features of Perplexity AI include the following: 1) accurate and thorough responses to user queries; 2) real-time web search; 3) can

access to PDFs; 4) powered by large language models; 5) free to use; 6) available on the web and as an app for Android and iPhone users; 7) cites sources used to provide the answer.

2.1.4 Types of AI Perplexity

Users can use this kind of AI from downloaded applications from the Apps Store or Play Store and click it on google.com, “perplexity AI”, without downloading the application (Entrustch, 2023). There are two kinds of AI Perplexity: Chrome Extension AI Perplexity and mobile app. Wide users can easily access Perplexity AI because it is available on the web and as an app for iPhone users or Play Store for Android users. Perplexity AI is available to users at no cost through their website. First, Chrome extension: AI's Perplexity is a Chrome extension that lets users use Perplexity wherever they go online (Sakshi, 2023). Thus, users only need to click on Perplexity AI whenever they need to look up anything.

Additionally, the Chrome Extension offers features like page and domain-specific answers, which limit Perplexity's response to the page or domain that the user is currently on. With the browser extension, which is compatible with Chrome and Edge browsers, they can also obtain summaries for any articles they are currently reading. Second, the mobile app is still being developed. Perplexity AI has already released an iOS and Playstore app. You can now access all of Perplexity AI's capabilities while on the go. Along with all the other features like thread

history, follow-up questions, thread deletion, etc., the Android and iPhone app also has voice search. That users obtain via the web application.

Nevertheless, the user's account cannot currently be accessed through the app. As a result, user threads on the mobile app and web app are not synchronized. It is a robust and user-friendly tool that lets users quickly locate information on various topics.

2.1.5 Benefits of AI Perplexity

Perplexity AI is very different from other tools (Entrustch, 2023). Many benefits make it special: 1) accuracy: to deliver precise and enlightening responses to user inquiries; 2) completeness: perplexity AI provides comprehensive responses to questions from users.

This indicates that the answers provide the user not only the information they are searching for but also extra context and details that can aid in a deeper understanding of the subject; 3) transparency: Perplexity AI makes the sources of its solutions transparent enables users to assess the information's accuracy and dependability by allowing them to see its source; 4) usability: It's simple to use Perplexity AI. Users can ask questions in natural language, and the UI is easy to use; 5) continuous development: Perplexity AI is always getting better. The business is continually enhancing the accuracy of the responses and introducing new features; 6) citation: The sources of Perplexity AI's responses are cited. Users can confirm the information's accuracy and gain additional knowledge about the subject by doing this; 7) summaries: those

looking for a brief synopsis of a subject can find Perplexity AI's ability to summarize texts useful; 8) personalization: using information from users' past searches and interests, Perplexity AI can tailor its responses to each user.

2.2 Perplexity for Teaching Writing

We must have innovative governance worldwide to ensure this new era-defining tech helps users stay safe and prosperous. AI is used in education in different ways, significantly to help improve the learning process and assessment tools. According to Holmes (2018), AI can contribute to developing the learning and teaching process by increasing productivity and creativity and regulating administrative procedures. Holmes (2018) has considered various ways AI systems might be used to support formal and informal learning. It has entailed the construction of numerous online learning tools that assist in supporting education while simultaneously being adaptable, inclusive, customized, engaging, and effective (Holmes, 2018).

In education, several AI applications can be used in the teaching and learning process, one of which is perplexity. Perplexity is one of the metrics used to assess the performance of the language model. It measures how well the model predicts the following word in the sequence of words (Encyclopedia, 2023). This AI generates text. AI generates the text is generated word by word. The different between the Perplexity application

and Chat GPT depends on the needs. If the students want research capability and accuracy, then the users can use Perplexity AI.

Writing is a skill that needs to be practised and requires a deep understanding of language and grammar, even though it is an art (Perez, 2023). Thanks to the development of AI writing tools, it is now simpler for writers to produce impactful and error-free content. The Perplexity AI is one such tool that has gained popularity in the writing community. With real-time suggestions and corrections generated, this innovative tool promises to provide unmatched writing assistance. The researcher wants to examine the advantages of Perplexity AI features and compare them with other writing tools.

Creating and writing text more quickly is one of the most significant advantages of Perplexity AI. This is a great tool for students to write excellent content quickly. There are several ways that the Perplexity AI can assist students in writing (Perez,2023). The students can ask questions about the current page, ask questions about the current domain, ask questions about it quickly from the students' toolbar, share their answers with a link, and click to ask follow-up questions, to name a few examples.

Perplexity AI has many rivals for writing tools based on artificial intelligence (Perez, 2023). Though Perplexity AI claims to offer precise and accurate suggestions based on input content, discerning writers looking for a tool that comes through on its promises should

look elsewhere. AI Perplexity tool's level of precision and accuracy falls short of expectations even though some may argue that it is a feasible option.

Students can find information on various topics with the help of Perplexity AI, a potent tool (Entrustech, 2023). It is an excellent tool for those seeking thorough and precise answers to their questions. Students can use Perplexity AI for free on the web and as an app on their Android and iPhone devices. Students only need to type their query into the search bar and click the blue arrow to pose a question to the model, making it incredibly simple. Large language models, especially open AI's GPT technology, allow it to comprehend and produce human-like text. It is highly recommended that Perplexity AI be investigated, as it is an effective instrument for improving students' writing skills. Therefore, this study measures the students' writing ability using Perplexity AI in EFL classrooms.

2.3 Motivation

Motivation is providing the proper guidance or direction, resources, and rewards to keep them inspired and interested in working the way you want them to. Burhanudin (2015) states that motivation can stimulate enthusiasm to work. Bruning, et al., (2013) and Troia, et al., (2012) argue that several components of motivation affect the students' writing, including self-efficacy beliefs, interest, perceived task value, and goal orientations. First, self-efficacy relates to how the students assess

themselves and their task competence. Bruning et al. (2013) argue that self-efficacy in writing is more related to students' abilities to successfully perform various writing tasks than to changes in specific writing skills that include (1) creativity, which focuses on writers' judgments of the ability to generate ideas and order their ideas; (2) conventions, which focus on accepted standards for expressing ideas in writing ways, such as spelling, punctuating, capitalising, and also focus on sentences structure and tenses, and (3) self-regulation defined as skills to manage the anxieties and emotions that can accompany writing, such as get "unstuck" from writing problems, motivate oneself to write even when a topic is less than captivating and deals with correcting grammatical errors.

Second, interest and task value. Interest and task value are related to the personal significance or importance of the task towards themselves. Troi et al. also believe that students with a strong personal interest in a topic or activity will pay greater attention, persist longer, enjoy their involvement, and acquire more knowledge than those lacking interest, and have a higher value of the task (Troia, et al., 2012).

The last is the goal orientation. There are two types of goals related to achievement, namely mastery and performance goals. Mastery goals focus on knowledge, skill attainment, and competence. Meanwhile, performance goals are related to demonstrating relative ability, receiving public recognition, and surpassing others (Troia, et al., 2012).

2.4 Relevant Studies

Some scholars have conducted some research on improving students' writing skills, for instance:

1. Abdul (2022) he was found that the application could detect grammatical errors, thus improving the writing skills of university students. The study results indicated that students had a favourable opinion of AWE, which had implications for successfully implementing AI software in ESL writing classes. The study found that Malaysian university students were using Grammarly. This web application can perform punctuation checks, starting with word spelling, sentence structure, and standard syntax. As a free tool, Grammarly is highly recommended for those who need to interpret reports or articles that use unknown dialects, as it can help to check the spelling of sentences within English construction and correct errors on paper. Therefore, if university students did not complete the designated research, they wouldn't understand the input clearly and would not have achieved their writing goal of delivering a better version of the article. Therefore, it is safe to say that the criticism given significantly influences university students' writing and their attitude towards writing. Malaysia University students could progress with their paper changes because they got helpful feedback, which helped them rework better and expand their self-understandings.

2. Another study by Rizkiyah (2017), found that her research about the process-genre-based approach with YouTube videos as the media. It was employed to improve the student's ability to write hortatory exposition texts. This study uses a collaborative classroom action research design following the following procedures: planning, implementing, observing, and reflecting. The methods of carrying out the strategy are: (1) relating several issues/ cases to the students' background knowledge and introducing the generic structures and linguistic features of hortatory exposition text as the BKoF stage, (2) analyzing the generic structure and the language features used in the text and getting model on how to write a hortatory exposition text by using the YouTube Video as the MoT stage, (3) writing a hortatory exposition text collaboratively in a small group and in pairs through process writing as the JCoT stage, and (4) writing a hortatory exposition text individually as the ICoT stage. The result shows that using the process-genre-based Approach and YouTube Videos can improve the students' ability to write hortatory exposition texts. The percentage of the students achieving a score above the minimum passing grade (70) had improved from only 15.8% (3 out of 19 students) in the preliminary study to 100% (22 students) in Cycle 1. Besides, the score of each aspect; content, organization, vocabulary, grammar, and mechanics also improved.

3. Rita (2019) also found that many students still find it difficult to compose text and improve their writing. This study intends to answer the students' need for innovative material and to find out the level of students' creativity after using such material. This research also developed social media learning material to improve students' writing skills. The results also showed significant improvement in using social media to improve students' writing skills.
4. Retno (2020), found that writing is one of the most essential skills for high school students, but it's still hard for them to master it due to a lack of practice, exposure, and knowledge. So, it is likely that using MALL in a blended learning setting will help them improve their writing skills. The findings showed that online writing apps could help boost their writing skills, as seen in the score increase from the first cycle to the third and their involvement. The students either saw the MALL app as positive or negative. It is suggested that the MALL app be included in writing classes with more modelling genres to help build students' knowledge. Plus, providing more feedback on students' work is also important. The objective of this study was to evaluate the use of the MALL application to improve students' writing proficiency and attendance and to assess the students' reactions to its use in writing classes. The results of the study indicate that the integration of MALL into writing classes has been beneficial in aiding students in developing their writing skills. The increase in score on the writing

test from cycle I to III indicates the improvement. Furthermore, the students positively perceive the application, which is attributed to its practicality, adaptability, novelty, and text security. Therefore, it is suggested that the MALL application be used in language learning classrooms to improve students' performance, attendance, and responses. Thus, using other applications can increase the student's writing skills in teaching and learning.

5. Siska (2022) also found the use of the Bandicam application. This study was done to see if using the Bandicam app (the lightest screen recording program for Windows) can capture anything with high quality on the PC screen. It should also be able to record in specific areas of the PC screen or capture images using DirectX technology) as a teaching medium that could improve students' writing skills at SMAN 18 Macassar. It was a pre-experimental study, with one group doing a pretest and one group doing a post-test. Data was taken from the writing text, and the results showed that the average score of the students' writing improved from 51.04 to 79.95. The significance value of 0.000 was lower than 0.05, so the hypothesis was confirmed. This means that using Bandicam as a teaching medium in English can help improve writing skills. Plus, students' motivation got better after using the app. The writer conducted a t-test to test the hypothesis that bandicam application, when used as a teaching medium, can improve students' writing skills in English. The t-test revealed that the Sig. the

(2-tailed) score was 0,000, thus confirming the alternative hypothesis H1 and rejecting the null hypothesis Ho. The writer conducted a t-test to test the hypothesis that bandicam application, when used as a teaching medium, can improve students' writing skills in English.

The research entitled " AI-Perplexity in Teaching Writing: Enhancing Students' Competence and Motivation" for Teaching English as a Foreign Language aligns with several pivotal studies that explore the intersection of technology, competencies, and teaching methodologies for advancing writing skills. Existing research predominantly concentrates on specific technological interventions, including generative chat and reliable sources. While AI-Perplexity shares similarities with Chat-GPT, it distinguishes itself by offering more authentic sources to support students' ideas. The theoretical framework illuminates the significance of AI-Perplexity in enhancing writing skills by addressing identified gaps and insights gleaned from diverse studies on technological interventions, anxiety reduction, and proficiency enhancement in various educational settings.

2.5 Basic Assumption

Reading the relevant research and theories of AI and writing proposed by some scholars, this study has assumed that AI-perplexity, defined as the degree of complexity or difficulty experienced by students when engaging with AI-powered writing tools, is hypothesized to influence both students' writing competence and motivation levels significantly. This assumption is based on the premise that the challenge

presented by AI-driven writing Assistance can impact students' cognitive processes, skill development, and intrinsic drive to improve their writing abilities. The basic assumption of this research can be seen in Figure 2.1.

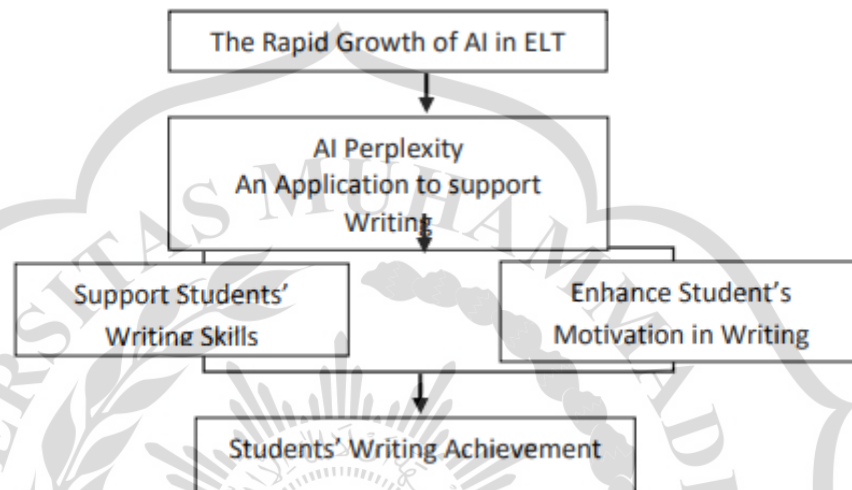


Figure. 2.1. Basic Assumption of the Research

Incorporating Information and Communication Technology (ICT) into English Language Teaching (ELT) signifies a notable shift in educational approaches, grounded in the belief that using technological tools can enhance language acquisition for students. Within this framework, the utilization of Artificial Intelligence (AI), exemplified by tools like AI Perplexity, assumes a pivotal role in addressing specific language skills, particularly in writing. The core premise is that AI-powered platforms such as AI Perplexity facilitate targeted language generation, provide relevant sources and inspire active engagement from students in writing activities.

Consequently, a positive correlation exists between enhanced writing skills, driven by AI applications like AI Perplexity, and overall proficiency in English. This highlights the transformative potential of ICT in ELT, motivating and propelling students forward in their language-learning endeavours. The research initiative "The Impacts of AI-Perplexity on Students' Writing Competence and Motivation" explores how this technology can positively impact English language learners by enhancing their writing skills and motivation in the classroom.

2.6 Hypothesis Formulation

Below is the description of the test hypothesis. The formulation of the instrument of the research hypothesis is as follows:

2.6.1 Test Hypothesis for Pre-Test and Post-Test

a. H_0 = There is no influence of AI-Perplexity towards the students' macro writing competence of eleventh-grade students in writing at SMK N 1 Bojongsari.

b. H_1 = There is an influence of AI-Perplexity towards the students' macro writing competence of eleventh-grade students in writing at SMK N 1 Bojongsari.

2.6.2 Questionnaire Hypothesis for Motivation

The second hypothesis pertains to whether using AI-Perplexity has an effect on students' motivation in writing. The formulation of the null hypothesis (H_0) and the alternative hypothesis (H_1) is as follows:

- a. H0 = There are no effects of AI-Perplexity towards the students' writing motivation of eleventh-grade students in writing at SMK N 1 Bojongsari.
- b. H1 = There are effects of AI-Perplexity towards the students' writing motivation of eleventh-grade students in writing at SMK N 1 Bojongsari.

