

Artificial Intelligence (AI)

Tools Utilization in Writing Thesis

UU No. 28 Tahun 2014 tentang Hak Cipta

Fungsi dan Sifat Hak Cipta Pasal 4

Hak Cipta sebagaimana dimaksud dalam Pasal 3 huruf a merupakan hak eksklusif yang terdiri atas hak moral dan hak ekonomi.

Pembatasan Pelindungan Pasal 26

Ketentuan sebagaimana dimaksud dalam Pasal 23, Pasal 24, dan Pasal 25 tidak berlaku terhadap:

- i. Penggunaan kutipan singkat Ciptaan dan/atau produk Hak Terkait untuk pelaporan peristiwa aktual yang ditujukan hanya untuk keperluan penyediaan informasi aktual;
- ii. penggandaan Ciptaan dan/atau produk Hak Terkait hanya untuk kepentingan penelitian ilmu pengetahuan;
- iii. penggandaan Ciptaan dan/atau produk Hak Terkait hanya untuk keperluan pengajaran, kecuali pertunjukan dan Fonogram yang telah dilakukan Pengumuman sebagai bahan ajar; dan
- iv. penggunaan untuk kepentingan pendidikan dan pengembangan ilmu pengetahuan yang memungkinkan suatu Ciptaan dan/atau produk Hak Terkait dapat digunakan tanpa izin Pelaku Pertunjukan, Produser Fonogram, atau Lembaga Penyiaran.

Sanksi Pelanggaran Pasal 113

1. Setiap orang yang dengan tanpa hak melakukan pelanggaran hak ekonomi sebagaimana dimaksud dalam Pasal 9 ayat (1) huruf i untuk Penggunaan Secara Komersial dipidana dengan pidana penjara paling lama 1 (satu) tahun dan/atau pidana denda paling banyak Rp100.000.000,00 (seratus juta rupiah).
2. Setiap orang yang dengan tanpa hak dan/atau tanpa izin Pencipta atau pemegang Hak Cipta melakukan pelanggaran hak ekonomi Pencipta sebagaimana dimaksud dalam Pasal 9 ayat (1) huruf c, huruf d, huruf f, dan/atau huruf h untuk Penggunaan Secara Komersial dipidana dengan pidana penjara paling lama 3 (tiga) tahun dan/atau pidana denda paling banyak Rp500.000.000,00 (lima ratus juta rupiah).



Artificial Intelligence (AI)

Tools Utilization in Writing Thesis

Asmawati, M.Pd.
Dr. Utami Dewi, M.Hum.
Dr. Sholihatul Hamidah Daulay, M.Hum.



YAYASAN PENDIDIKAN
CENDEKIA MUSLIM



**Artificial Intelligence (AI)
Tools Utilization in Writing Thesis**

**Asmawati, M.Pd.
Dr. Utami Dewi, M.Hum.
Dr. Sholihatul Hamidah Daulay, M.Hum.**

Editor:
**Ahmad Amin Dalimunte, Ph.D.
Maslathif Dwi Purnomo, Ph.D.**

Desainer:
Hidayatur Rahma

Sumber Gambar Kover:
www.canva.com

Penata Letak:
Wilda Febriani

Proofreader:
Tim YPCM

Ukuran:
viii, 86 hlm., 15,5x23 cm

ISBN:
978-634-219-219-1

Cetakan Pertama:
Oktober 2025

Hak cipta dilindungi undang-undang
Dilarang keras menerjemahkan, memfotokopi, atau
memperbanyak sebagian atau seluruh isi buku ini
tanpa izin tertulis dari Penerbit.

**Anggota IKAPI: 027/Anggota Luar Biasa/SBA/21
YAYASAN PENDIDIKAN CENDEKIA MUSLIM**

Jorong Pale, Nagari Pematang Panjang, Kecamatan Sijunjung,
Kabupaten Sijunjung, Provinsi Sumatra Barat – Indonesia 27554
HP/WA: 0853-6336-7395

Website: www.cendekiamuslim.com
E-mail: cendekiamuslimpress@gmail.com
Marketplace: <http://store.cendekiamuslim.or.id/>

Content

Preface.....	vii
---------------------	------------

Chapter 1 Introduction.....	1
------------------------------------	----------

Chapter 2 A Brief of Artificial Intelligence (AI)

Technologies	5
---------------------------	----------

A. Artificial Intelligence (AI) Technologies	5
--	---

B. Artificial Intelligence (AI) Tools in Writing	8
--	---

Chapter 3 EFL Master's Students Experiences of AI

Utilization.....	13
-------------------------	-----------

A. EFL Master's Students Experiences.....	13
---	----

B. Thesis Writing in English Academic	15
---	----

Chapter 4 Types of AI Tools Utilized by EFL Master's

Students in Writing Thesis.....	21
--	-----------

A. Language Tools.....	22
------------------------	----

B. Writing Assistance Tools	24
-----------------------------------	----

C. Content Generation Tools.....	29
----------------------------------	----

Chapter 5 AI Tools Utilization by EFL Master's

Students in Writing Thesis.....	37
--	-----------

A. Grammarly.....	38
-------------------	----

B. QuillBot.....	40
------------------	----

C. Claude.....	41
----------------	----

D. ChatGPT	45
------------------	----



E. Meta AI.....	47
F. Perplexity	49
Chapter 6 Advantages and Disadvantages in using	
AI Tools	53
A. Advantages.....	56
B. Disadvantages.....	61
Chapter 7 Conclusion	65
References.....	67
Authors' Profile	83

Preface

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

Alhamdulillah, we praise and thank to Allah Swt., who has given us His grace and guidance, so He is given the opportunity to finish this book very well. Shalawat and salam to the Prophet Muhammad SAW who has provided a way for Muslims to arrive at this time. We hope that we will be given abundant intercession in the hereafter, Aamin.

The book entitled "*Artificial Intelligence (AI) Tools Utilization in Writing Thesis*" focused about the rapid advancement of Artificial Intelligence (AI) has significantly influenced various aspects of human life, including education. In higher education, particularly in the field of English as a Foreign Language (EFL), AI tools are increasingly being integrated into the academic writing process. One of the most critical areas where AI demonstrates its impact is in thesis writing, as EFL master's students often encounter challenges related to language accuracy, coherence, critical thinking, and academic conventions.

Finally, the authors would like to express our sincere gratitude to all individuals who have provided valuable support, guidance, and encouragement throughout the



preparation of this book. We hope that this book will serve as a useful reference for EFL master's students, educators, and researchers who seek to better understand the dynamics of AI utilization in writing thesis.

Medan, 04 September 2025

Penulis,
Asmawati
Utami Dewi
Sholihatul Hamidah Daulay

Chapter 1

Introduction

Technology has become an inseparable part of modern society, influencing various sectors including education. In Indonesia, its potential to improve educational quality has been highlighted at the national and international levels, such as during the G20 Summit in 2022 (Syahril, 2022). Within English language education, technology provides authentic learning resources, enhances classroom engagement, and allows students to adapt to diverse learning contexts (Huang & Chou, 2023; Audrain et al., 2022; Arif & Handayani, 2021). As today's learners are often referred to as "digital natives," they are well accustomed to using technology not only for communication and entertainment but also for academic purposes, including writing (Elnadeef, 2023).

Among the latest technological innovations, Artificial Intelligence (AI) has become increasingly relevant in academic writing. AI-powered tools offer a wide range of support, from grammar correction and vocabulary



refinement to paraphrasing, content generation, and plagiarism detection (Lu, 2019; Khabib, 2022; Fitria, 2023). In the context of thesis writing, these tools help students during various stages of the process, including brainstorming, drafting, revising, and finalizing (Ribeiro, 2021; Rahman et al., 2022). Popular platforms such as Grammarly, QuillBot, ChatGPT, Meta AI, and Perplexity exemplify how AI has become an integral part of students' academic writing practices.

However, writing a thesis remains one of the most demanding tasks for EFL master's students, who face linguistic barriers, organizational difficulties, and limited academic writing experience (Lestari, 2020; Fauzan et al., 2022). Although AI tools provide valuable assistance, they are not without problems. Students often become overly dependent on AI-generated suggestions, which can reduce their ability to think critically and construct arguments independently. Furthermore, AI tools are not always accurate; paraphrased sentences may distort original meanings, grammar corrections may not fully reflect academic conventions, and generated content sometimes lacks depth or originality. These issues raise concerns about academic integrity, over-reliance on technology, and the risk of diminishing students' own writing competence.



Another problem lies in the limited scope of existing studies. Previous research has mostly concentrated on undergraduate students, highlighting surface-level benefits such as grammar correction and vocabulary support (Elnadeef, 2023; Gayed et al., 2022). Only a few investigations have explored how EFL master's students, who deal with more complex academic requirements, use AI across different stages of thesis writing (Kurniati & Fithriani, 2022). Moreover, most studies focus on a single AI tool, such as Grammarly or Turnitin, without considering the fact that in real academic practice, students often rely on multiple tools simultaneously one for grammar checking, another for paraphrasing, and another for idea generation. This fragmented approach fails to capture the full picture of how AI is integrated into thesis writing.

The use of artificial intelligence (AI) in academic writing has recently become a primary focus, with many studies examining how AI is applied among undergraduate students. For example, Gayed et al. (2022) and Hajimaghsodi & Maftoon (2020) discuss how AI technology can enhance the quality and structure of writing, while Zhao et al. (2021) and Ubaidillah (2022) show that AI can support creativity in writing and provide flexibility in learning. However, most of these studies focus on undergraduate students, and there has been limited attention given to how master's students use AI,



particularly in writing a thesis, which is more complex. Master's thesis writing presents greater challenges, and this area has received less focus in existing research.

Moreover, although many studies show the potential of AI to improve writing quality, several challenges have not been fully addressed. Studies such as those by Park et al. (2020) and Yunus et al. (2021) identify issues such as limited digital literacy and excessive reliance on automated tools. Other research, such as by Baker et al. (2021), reveals that the integration of AI into writing does not always yield the desired results, especially when students do not know how to optimally utilize AI. Despite AI's great potential, further research is needed to understand how master's students, particularly EFL (English as a Foreign Language) students, use this technology in their academic writing.

This book aims to address these problems by exploring the utilization of AI tools in thesis writing among EFL master's students. It examines the types of tools used, the ways they are applied throughout the writing process, and students' experiences of both the advantages and the disadvantages. By doing so, the book provides insights for students, educators, and institutions on how AI technologies can be harnessed effectively and responsibly to enhance academic writing in higher education.

Chapter 2

A Brief of Artificial Intelligence (AI) Technologies

A. Artificial Intelligence (AI) Technologies

Recent advancements in AI are presented to explain why it has become a widely discussed topic, alongside information on its common applications in everyday life, economic activities, and education. Humans are essential to AI, as they not only design and program these systems but also supply the data that underpins AI's learning and decision-making processes. Furthermore, human judgement is crucial for interpreting context and addressing ethical considerations, areas where AI, despite its sophistication, still falls short.

A universally accepted definition of AI does not exist. Different approaches have been adopted by



multilateral organizations, tech companies, and academic institutions regarding this matter. Professor John McCarthy from Stanford University (USA), recognized as one of the founders of AI and the first to coin the term, defines it as “the science and engineering of making intelligent machines, especially intelligent computer programs”. In a similar vein, Google provides a clear definition: “the science of making things smart” (UNESCO, 2023).

Meanwhile, definitions such as the one provided by AI Watch are more technical and include data as an essential element: “AI systems are software (and possibly also hardware) systems designed by humans that, given a complex goal, act in the physical or digital dimension by perceiving their environment through data acquisition, interpreting the collected structured or unstructured data, reasoning on the knowledge, or processing the information derived from this data and deciding the best action(s) to take to achieve the given goal” (Delipetrev, Tsinaraki and Kostić, 2020).

Shifting focus, Yoshua Bengio, a prominent AI expert from the University of Toronto (Canada), connects AI to human capabilities: “[AI is] about making computers ... do the things that humans can do but our current computers can’t” (Google Canada, 2017). Conversely,



Amazon associates AI with human intelligence, defining it as “a field of computer science dedicated to solving cognitive problems commonly associated with human intelligence, such as learning, problem-solving, and pattern recognition (UNESCO, 2023).”

Artificial intelligence (AI) refers to the ability of a digital computer or a robot controlled by a computer to perform tasks typically associated with intelligent beings (Khabib, 2022). AI is one of the oldest fields in computer science, focusing on replicating cognitive functions to solve real-world problems and developing systems that can learn and think like humans. As a result, AI is often termed "machine intelligence" (Poole et al., 1998) to distinguish it from human intelligence (Russell & Norvig, 2010). This field lies at the intersection of cognitive science and computer science (Tenenbaum et al., 2011).

Since the advent of digital computers in the 1940s, it has been understood that computers can be programmed to perform complex tasks, such as proving mathematical theorems, with high efficiency. Certain programs have even reached the proficiency levels of human experts in specific areas. In this narrow sense, AI can be found in numerous applications, including voice or handwriting recognition, search engines, and medical diagnostics (Khabib, 2022).



B. Artificial Intelligence (AI) Tools in Writing

The advancement of technology has become essential in the academic writing process. AI tools offer significant benefits and flexible access to ensure accuracy in writing (Hewitt-Taylor, 2003). AI can be utilized in academic writing by providing automated tools for correction, editing, and finalization (Perkins, 2023). Various AI tools with distinct functions support writers in producing academic texts. According to Adams and Chuah (2023), Artificial Intelligence (AI) refers to technology systems that require human intelligence. AI is defined as the creation of machines capable of demonstrating intelligent behavior and learning from data (Khabib, 2022).

AI tools, such as ChatGPT, provide writers with a platform to generate ideas through text references, enhancing the quality and quantity of scholarly work (HS Kumar, 2023). Moreover, Cardon et al. (2023) highlight that AI tools facilitate academic writers by improving efficiency and elevating the quality of their writing. Writers working on academic papers can utilize AI to accelerate the writing process (Petchprasert, 2021).

Several types of AI tools assist in creating academic writing. Chen (2023) identifies four main AI tools used in academic writing:



1. Writing assistance tools (e.g., QuillBot).
2. Language tools (e.g., Grammarly and Google Translate).
3. Translation tools (e.g., DeepL Translator).
4. Content generation tools (e.g., ChatGPT).

One of the most popular AI tools is ChatGPT (Generative Pre-trained Transformer). It provides text with explicit instructions, utilizing a systematic language structure and precise vocabulary choices (HS Kumar, 2023). AI can also be employed in the writing processes of scholarly journals and theses by using automated tools. Perkins (2023) emphasizes the role of Automated Writing Evaluation (AWE) in providing constructive feedback that helps students improve their academic writing. Additionally, dictionary-based tools and machine learning systems assist students in comprehending the academic writing process (Petchprasert, 2021).

A common illustration of AI's application in modern human life is the use of virtual assistants, such as chatbots, which are software programs designed to engage in conversation with users (Hatwar, Patil, and Gondane, 2016). In the early 2020s, ChatGPT emerged as the most notable chatbot. ChatGPT, along with other similar tools, represents large language models (LLM) that facilitate more natural and conversational



interactions between people and computers. These LLMs utilize natural language processing to extract insights from internet data, allowing them to provide users with AI-generated written responses to various questions or prompts. They are trained on extensive text datasets to predict the next word in a sentence and, based on this training, produce coherent and engaging outputs that resemble human responses to inquiries or statements.

Chatbots, whether pre-programmed or based on machine learning, are utilized in various educational functions; however, approximately two-thirds of these educational chatbots are specifically employed for teaching and learning purposes (Okonkwo and Ade-Ibijola, 2021).

AI is increasingly prevalent in higher education, with significant trends in this sector such as personalized learning, the adoption of technologies like Virtual Reality (VR) and Augmented Reality (AR), and the emerging concept of the metaverse or multiverse (Andreoli et al., 2022). Intelligent tutoring systems represent AI-driven e-learning platforms that offer tailored learning approaches for different students based on their individual needs and abilities (Akyuz, 2020).

The specific AI technologies employed by EFL students are diverse, but certain tools stand out in the



literature. Grammarly is one of the most widely used AI-based grammar and style checkers, helping students improve their sentence structure, grammar, and clarity (Gao, 2023). Grammarly is also a technological tool designed to assist students with their English writing (<https://www.grammarly.com/>). It serves as an application for checking grammar and sentence structure in students' work.

Studies by Barrot (Barrot, 2022) and Shams. (Shams-Abadi et al., 2015) have demonstrated the effectiveness of Grammarly as a tech-based learning tool to enhance students' writing skills. Grammarly helps correct writing by offering feedback on word choices, content, and coherence (Sahu, S., 2020). The platform offers both a premium and a free version, with the premium version providing comprehensive writing checks, while the free version has limited functionality (Barrot, 2022).

Quillbot is another AI technology that is gaining traction among EFL students, particularly for its paraphrasing and content rephrasing capabilities (Li, 2022). Quillbot allows students to restructure their sentences while maintaining the original meaning, making it a useful tool for avoiding plagiarism while improving the readability of their academic work.



Google Translate and DeepL are also mentioned in studies as crucial for students who struggle with comprehending complex academic texts in English (Kang, 2021). Although these AI technologies are primarily used for translation, they play an important role in helping EFL students understand research articles and literature that are not written in their native languages.

AI technologies are not only limited to grammar and translation but also include AI-powered research assistants such as Zotero and Mendeley. These applications assist students in organizing references and managing their citations, a task that is often cumbersome for EFL learners who may be unfamiliar with citation norms in English-language academia (Wang & Li, 2023).

Chapter 3

EFL Master's Students Experiences of AI Utilization

A. EFL Master's Students Experiences

EFL master's students often face significant challenges when writing in English due to language barriers, making AI tools an appealing solution for many. According to Liu and Xu (2021), many EFL master's students view AI technologies as a vital aid in overcoming difficulties related to grammar, vocabulary, and coherence in academic writing. These students often perceive AI as a way to level the playing field with native English speakers by providing immediate feedback on their writing and helping them produce more polished academic texts.

AI tools such as Grammarly and Turnitin are frequently cited in studies as being particularly popular



among EFL master's students for their ability to correct grammatical errors, offer style suggestions, and check for plagiarism (Kim, 2022). These tools are seen as a means to enhance the quality of master's students' writing by providing them with the support they would otherwise need from human reviewers such as professors or peers (Huang & Chou, 2023).

However, some studies raise concerns about master's students' over-reliance on these technologies. Hafner (2020) notes that while students appreciate the assistance AI provides, there are worries that these tools might hinder the development of essential academic writing skills. Additionally, ethical concerns about the use of AI in academic writing, particularly in terms of plagiarism detection and the line between assistance and academic dishonesty, have been raised (Liu & Xu, 2021).

A study by Andina (2019) focused on the integration of technology within the context of language learning, providing insights into master's students experiences of using AI in academic writing. Andina's findings revealed that EFL master's students who employed AI technology felt more confident in expressing their ideas in writing, which positively impacted their writing outcomes. This study also emphasizes the need to



delve into students' views on the role of technology in supporting their academic writing processes.

Students' experiences serve as practical instruments in shaping their behavior (Scherer et al., 2016). These perspectives need to be thorough in reflecting behavior. A positive outlook on technology among students enhances their motivation, enthusiasm, and academic performance. Evaluating students' perspectives can be employed as a tool for assessment and as a foundation for post-evaluation revisions (Labonté & Smith, 2022).

B. Thesis Writing in English Academic

Thesis writing in English Academic plays a crucial role for students in higher education by enabling them to articulate their insights through written communication. According to Swales and Feak (1994), academic writing such as thesis is a formal writing style that supports master's students in conveying their ideas effectively to their audience. Additionally, Oshima and Hogue (2006) assert that students engaged in academic writing must ground their work in facts and consider the flow of their writing.

Typically, writing thesis in English involves several distinct stages that aid students in presenting their ideas



clearly. Aliotta (2018) identifies three stages of writing thesis: pre-writing, drafting, and revising. The first stage, pre-writing, involves conducting thorough research on the topic, analyzing existing literature, and gathering relevant data or evidence (Oshima & Hogue, 2006). The next stage is drafting, where the writer begins to organize their thoughts into written form, focusing on clarity, coherence, and adherence to academic conventions (Aliotta, 2018). Finally, the last stage involves proofreading and editing, which includes careful error checking, language polishing, and ensuring proper citation and referencing (Thomson, 2022). By following these stages, students can produce high-quality English academic writing that contributes to society.

In this book, the context of thesis writing in English academic writing are integrated with the use of technological tools. During the pre-writing stage, technology plays a crucial role in enhancing creativity, organization, and efficiency (Kawinkoonlasate, 2021). For instance, digital mind-mapping tools help writers organize their ideas effectively. A study by Nazri et al. (2018) indicates that students who use Mindomo during the pre-writing stage significantly enhance their writing skills. Furthermore, students can explore their thoughts before writing a paper by accessing a variety of resources.



A study by Schcolnik (2018) explored the relationship between technology and the development of writing skills among EFL students. This research found that the use of AI in education not only enhances technical skills but also influences the psychological and social aspects of the learning process. The results highlight the necessity of understanding the context and individual experiences of students when utilizing technology in academic writing. Students also need to brainstorm ideas and outline their thoughts, which can be done easily using technological tools (Cardon et al., 2023). In the pre-writing stage, information gathering is streamlined with tools like Google Docs (Kitjaroonchai & Suppasetserree, 2021), which allow students to save and organize their academic writing. Similarly, Saeed and Al Qunayeer (2022) found that using Google Docs in the writing process offers interactive feedback that enhances students' writing. Thus, various technology-assisted learning media can be utilized in the pre-writing stage of thesis writing.

During the drafting stage of thesis writing, technology tools prove invaluable for enhancing efficiency, organization, and writing quality. This stage requires careful crafting of concise and accurate definitions, highlighting the need for technology that



helps identify and correct grammatical errors, improve sentence structure, and enhance overall clarity (Benali, 2021). Several technology tools support the development of grammar and writing styles in academic writing, including Grammarly (Barrot, 2022), QuillBot (Fitria, 2021b), and Ginger (Restika et al., 2021). Additionally, students can manage references and citations with tools like Mendeley (Patak & Tahir, 2019) to facilitate quoting and saving references.

In the final stage of thesis writing, technology tools serve as invaluable aids, enabling students to refine, polish, and effectively present their written works. At this stage, students meticulously review their manuscripts to ensure that their definitions are comprehensive and aligned with the intended meaning (Thomson, 2022). Numerous technology tools assist students in editing and finalizing their work.

Research by Koltovskaia (2020) demonstrates that Grammarly helps students identify grammar and spelling errors, improve sentence structure, and enhance readability. Additionally, students can use QuillBot for paraphrasing their thesis after citing their sources (Kurniati & Fithriani, 2022). The final stage also requires a comprehensive understanding of the overall thesis writing process, which can be facilitated through online



proofreading platforms. The study by Nurhayati (2022) identifies three proofreading technology tools—Grammar Checker, Mendeley, and other platforms—that assist students in checking for coherence, cohesion, and integrity in their thesis. Ultimately, students must ensure that their writing is free of plagiarism.



Chapter 4

Types of AI Tools Utilized by EFL Master's Students in Writing Thesis

In exploring how EFL master's students integrate Artificial Intelligence (AI) tools into their thesis writing, this book identifies several categories of technologies that students commonly rely on. The discussion in this section is drawn from their academic writing practices and experiences, highlighting the tools they considered most useful in supporting different stages of the writing process. The findings revealed that EFL master's students employed six main AI tools: Grammarly, QuillBot, Claude, ChatGPT, Meta AI, and Perplexity. Each of these tools served distinct purposes that complemented students' writing activities, ranging from



language accuracy to idea development and content organization.

For clarity, these AI tools can be grouped into three broad categories: language tools (such as Grammarly), writing assistance tools (such as QuillBot and Perplexity), and content generation tools (such as ChatGPT, Claude, and Meta AI). This categorization illustrates how students strategically combined different types of AI technologies, not only to improve the technical aspects of their writing but also to enhance creativity, clarity, and overall academic quality.

A. Language Tools

Grammarly is categorized as a language tool that help users improve their writing by checking grammar, fixing sentence structure, and making the text clearer and easier to read. These tools usually focus on correcting language mistakes.

Grammarly

This book showed that EFL master's students used various types of AI tools in their thesis writing process, with Grammarly emerging as one of the most frequently utilized tools. Grammarly applied it differently depending on their access and writing needs.

They used Grammarly for different functions in their writing. They used it not only for checking grammar



but also used it in many functions and many other purposes. Grammarly helped generate outlines, guide topic development, provide feedback for writing improvement, and give grammar suggestions with detailed explanations. These features allowed Grammarly to support not only language accuracy but also idea generation and content development, going beyond a typical grammar checker.

Additionally, they mentioned that Grammarly's AI features can summarize content and expand sentences, showing its role in reshaping and enriching the text. Grammarly, which limits its functions mainly to grammar checking and basic language editing. They used Grammarly mostly during the revision stage to correct grammatical errors and ensure sentence accuracy. This comparison shows that Grammarly served different purposes for different users. Thus, the way Grammarly is categorized as an AI tool depends not only on its general function but also on how deeply the student integrates it into their writing process.

Regarding how long they had used Grammarly, it showed that EFL master's students had different experiences. Some were already familiar with Grammarly before starting their thesis, while others began using it during the thesis writing process. They mentioned that



they had been using Grammarly for around two years. This indicates that Grammarly had become part of their academic writing process throughout their studies. It supported them not only in thesis writing but also during earlier assignments and research activities. Overall, Grammarly was a widely used and trusted AI tool among the participants because it helped them write more clearly, effectively, and independently in English.

B. Writing Assistance Tools

It showed that QuillBot and Perplexity are categorized as a writing assistance tool that help users improve their writing, improving word choice, and making sentences flow better. These tools help polish the text but usually don't create new content or ideas.

QuillBot

It revealed that among the various AI tools used in the thesis writing process, QuillBot was one of the notable choices for EFL master's students. They used QuillBot, but their use was consistently focused on a specific function for paraphrasing. Unlike more multifunctional tools, QuillBot was used solely to help students rewrite their sentences in clearer. This focused use aligns with QuillBot's classification as a writing assistance tool,



which refers to AI tools designed to support sentence-level revisions, language refinement, and stylistic improvements without generating new content or conducting external research.

QuillBot served as a reliable tool for rewording and restructuring sentences, helping students retain the original meaning of their texts while enhancing clarity and grammatical accuracy. This function was particularly valuable for avoiding plagiarism and ensuring that their writing met academic standards. They reported using QuillBot during the drafting and revision stages, where sentence transformation was crucial. QuillBot helped them paraphrase ideas and also explore aspects of their research more clearly.

Although the primary use of QuillBot was for paraphrasing, they found it helpful for clarifying and refining research-related content. The tool supported not just surface-level editing but also the cognitive process of rewriting academic ideas in a more structured and formal way. In another, QuillBot was especially useful when facing writer's block or struggling to revise a sentence.

This shows that QuillBot's paraphrasing function also indirectly supported idea generation, acting as a bridge between abstract thoughts and structured academic language. However, it is important to note that



the tool itself did not generate original ideas; rather, it enabled students to reshape their thinking into more coherent academic forms, which is central to the role of a writing assistant.

Some had been familiar with QuillBot before starting their thesis, while others began using it during the thesis writing process. This indicates that the need for better paraphrasing tools became more apparent during intensive academic writing, especially in the thesis context. QuillBot's ability to support sentence restructuring, while preserving meaning, made it a valuable writing companion.

In summary, QuillBot falls exclusively under the category of writing assistance tools. The tool was not used for idea generation, content creation, or translation, but rather served a singular, targeted function enhancing and refining the students' own academic language through paraphrasing. This specialized use highlights how AI tools like QuillBot can play a focused yet essential role in supporting language development in academic writing, particularly for EFL learners working on their master's theses.



Perplexity

Perplexity demonstrated considerable value for academic writing. Its capacity to process natural language queries allowed the student to search for information in a conversational manner, making it easier to access targeted and relevant academic content.

The student primarily relied on Perplexity to search for scholarly information and locate relevant references that could strengthen thesis arguments. By delivering direct answers or concise summaries, the tool eliminated the need to sift through multiple sources manually, thereby streamlining the research process. This efficiency enabled the student to spend more time refining arguments and expanding key points. In the early writing stages, Perplexity also facilitated idea development by helping the student transform brainstorming notes into clear, coherent paragraphs.

In addition to its function, Perplexity played a significant role in improving sentence structure and clarity. They used it to rephrase awkward or overly complex sentences, making their writing more fluid, accessible, and academically appropriate. This was particularly advantageous for a non-native English speaker aiming to maintain grammatical accuracy and an appropriate scholarly tone.



Furthermore, Perplexity was employed in the final stages of writing to polish and refine content, ensuring that each paragraph conveyed ideas in a precise and academically acceptable manner. Perplexity can be classified as a writing assistance tool. Writing assistance tools are AI systems designed to support writers throughout various stages of the writing process ranging from idea expansion and information retrieval to language refinement and clarity improvement. Unlike pure content generation tools that create entirely new text from minimal input, writing assistance tools work interactively with the writer's existing material, enhancing both content quality and linguistic accuracy.

In this case, Perplexity supported the student by integrating two key functions: enabling efficient access to academic sources and improving the expression of ideas in written form. This dual capability positioned it as a versatile academic partner that not only strengthened research-based arguments but also elevated the overall professionalism and readability of the thesis.

As for the duration of use, the student who utilized Perplexity reported that starting to use the tool at the same time they began working on their thesis, which was approximately one year ago. This indicates that students often begin using AI tools like Perplexity during the



thesis-writing process, as they discover the potential benefits these tools offer in supporting their academic work.

C. Content Generation Tools

Claude, ChatGPT and Meta AI are categorized as content generation tools which refers to AI tools designed to help users create and improve writing automatically. These tools do more than just fix grammar or spelling, they help develop ideas, explain things clearly, and organize the writing so it makes sense.

Claude

Claude can be classified as a content generation tool. In the context of academic writing, content generation tools refer to AI applications designed to produce, expand, and refine written text by assisting users in idea development, information synthesis, summarization, and stylistic improvement.

These tools are not limited to correcting language errors; instead, they contribute substantively to the creation and structuring of content, supporting writers throughout multiple stages of the writing process—from brainstorming and drafting to revising and finalizing text.



Claude fits this category because the students used it not merely to edit existing text, but also to generate new ideas, elaborate on key concepts, and organize arguments coherently. Its functions extended beyond language polishing to include substantive academic support, such as producing summaries of long and complex materials, offering alternative ways to phrase or structure content, and guiding the logical flow of ideas. These features align directly with the defining characteristics of content generation tools, which aim to transform raw concepts into well-developed, academically appropriate text.

By using Claude in their thesis writing, reflecting its growing relevance and usefulness in academic contexts. Claude was valued for its flexibility and capacity to assist students from the early planning phase to the final revision stage. In using Claude also to generate and expand ideas, particularly at the beginning of the writing process when they needed support to start a chapter or organize their thoughts.

It also helped them develop a deeper understanding of their topics by providing explanations and summaries, which in turn enabled them to proceed with greater confidence and clarity. Its role as a content enhancement tool was also evident in how it improved sentence structure, coherence, and academic tone. By



offering alternative phrasing and better organization of ideas, Claude helped students address writing that they perceived as too simple or repetitive.

However, Claude's dual role in simplifying complex materials and structuring them logically for academic purposes, and how Claude supported them in transforming central ideas into more detailed, formal academic sentences.

Claude functioned as more than just a rewording tool, it served as an intelligent writing assistant, helping students move from initial comprehension of an idea to producing polished, well-structured academic content. Claude also enabled students to manage large amounts of information more efficiently. By generating concise yet comprehensive summaries, it allowed them to focus on the most relevant content, thus saving time and enhancing productivity during the thesis writing process.

The duration of Claude usage varied. Some students had prior experience with the tool, while others began using it during their thesis writing. This pattern reflects how students were drawn to Claude after recognizing its utility in summarizing, organizing, and enhancing their academic writing. Regardless of the length of use, they consistently identified Claude as a valuable content generation tool, one that not only



refined their language but also enriched their ideas, structure, and overall academic quality.

ChatGPT

ChatGPT can be categorized as a content generation tool. In academic writing, content generation tools refer to AI applications designed to assist writers in producing, developing, and refining content by generating ideas, structuring arguments, explaining complex concepts, and improving clarity and style. Unlike simple grammar checkers, these tools contribute actively to the intellectual and creative aspects of writing, supporting users throughout multiple stages of the process from brainstorming to drafting, refining, and finalizing text.

ChatGPT fits this category because they used it not only for refining language but also for generating and elaborating ideas, clarifying complex concepts, and providing explanations that improved their understanding of thesis topics. Its conversational interface allowed the student to interact dynamically with the tool, making it a readily accessible and responsive writing assistant. ChatGPT was reported that highlighting its growing significance in academic writing, particularly in higher education.



ChatGPT was mainly used during the early stages of writing to generate ideas, guide content development, and provide starting points when the student was uncertain how to begin a chapter or section. ChatGPT's suggestions made it easier to organize thoughts and proceed with writing in a more structured way. Beyond idea generation, ChatGPT was also used to improve sentence clarity, refine grammar, and adapt language to suit formal academic standards skills especially valuable for non-native English speakers. Its strength also lies in its interactive capacity to deliver quick, detailed feedback and explanations, helping students overcome conceptual difficulties.

ChatGPT served both as a writing aid and as a learning partner, helping the student comprehend complex material and transform abstract concepts into well-developed, coherent text. Such functions align closely with the purpose of content generation tools, which go beyond surface-level editing to actively shape the content and meaning of academic work. As with other AI tools, the duration of ChatGPT usage varied among students. In this case, they began using ChatGPT particularly while working on their thesis.

In conclusion, although ChatGPT was not the most frequently used tool, it proved to be a valuable resource



for the student who adopted it. Once its potential was recognized, ChatGPT served effectively as a content generation tool, helping to produce and develop ideas that contributed meaningfully to the student's thesis writing process.

Meta AI

Meta AI demonstrated clear potential as a valuable support in academic writing tasks. Its features were perceived as helpful not only for improving clarity but also for assisting in the generation and development of relevant content.

The student mainly used Meta AI to search for information and locate references that could strengthen the thesis argument. By providing quick access to reliable and relevant sources, the tool saved time and facilitated a more efficient research process. This allowed the student to integrate stronger evidence into the thesis, resulting in more comprehensive and well-supported arguments.

In addition to information retrieval, Meta AI also supported idea development by suggesting approaches and explaining complex topics, enabling the student to better understand and write about challenging concepts. Furthermore, Meta AI improved the clarity and structure



of sentences, enhancing the overall readability and coherence of the text.

Meta AI can be classified as a content generation tool. Content generation tools refer to AI technologies designed to create, develop, or expand text automatically based on user input. These tools go beyond merely offering vocabulary or grammar corrections; they are capable of building arguments, elaborating on concepts, and providing complete and coherent structures for written work. In this case, Meta AI was used to generate ideas, expand explanations, and develop sections of the thesis in a way that enriched the academic content.

It indicated that Meta AI was not employed solely for language refinement or translation, but rather to make substantive contributions to the written work. Its ability to combine information retrieval with content development positioned it as a practical and versatile resource for academic writing, directly supporting the creation of meaningful and well-structured material.



Chapter 5

AI Tools Utilization by EFL Master's Students in Writing Thesis

The utilization of Artificial Intelligence (AI) tools in writing a thesis has become increasingly essential for EFL master's students, particularly in helping them manage the complexities of academic writing in English. These tools offer multifaceted support, ranging from generating and organizing ideas to editing, refining, and finalizing the thesis draft. Students incorporated AI at different stages of their writing process: some relied on it during the early stages for brainstorming and sourcing references, while others primarily used it for language polishing, improving coherence, and ensuring an academic tone in the final version.

A. Grammarly

Grammarly followed distinctly different processes in integrating the tool into their thesis writing. Students used Grammarly in a comprehensive, multi-stage manner. The process began with freely drafting ideas without paying attention to grammar or sentence correctness. After completing the initial draft, the participant reviewed the writing by brainstorming whether the content was clear and logical.

At this stage, Grammarly Premium was employed to generate alternative sentences, suggest synonyms, vary sentence structures, and adjust tone for formal academic writing. They are using Grammarly at the very beginning of sentence construction, selecting the best suggestion from multiple options before expanding the draft.

Beyond grammar correction, Grammarly for its ability to improve writing style, cohesion, and clarity. Moreover, the student emphasized the learning aspect of using Grammarly, noting that the tool provided explanations for each correction and allowed the user to maintain control over which changes to accept. This systematic and interactive approach shows that Grammarly Premium functioned as an all-in-one writing supporting drafting, brainstorming, paraphrasing,



revising, and editing, while also enhancing the linguistic awareness.

In contrast, used the free version of Grammarly and applied it only in the later stages of writing. Their process began with manually writing and revising the thesis multiple times to check for structure and clarity. Grammarly was then used exclusively for identifying grammatical errors and offering basic corrections.

The use of Grammarly reflects a more traditional post-writing correction approach, where AI plays a supplementary rather than a central role in the writing process.

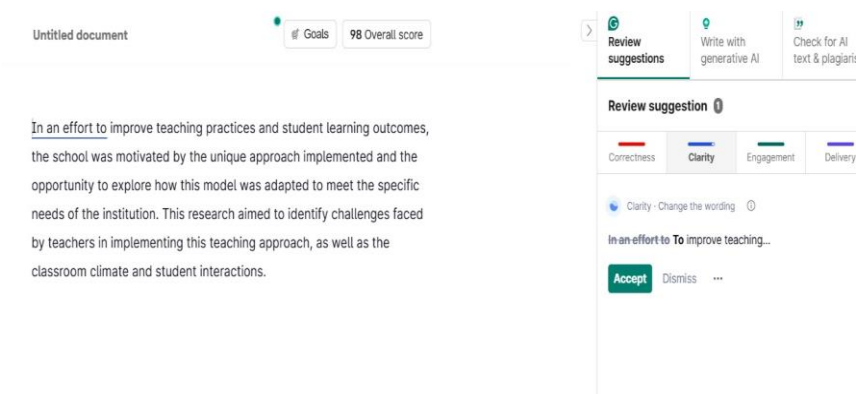


Figure 1. Using Grammarly to Check Grammar

As illustrated in Figure 1, using Grammarly to check grammar, involved multiple integration points for Grammarly, from the early idea generation phase to the final editing stage, while the other side Grammarly being used only as a final grammar check tool.



In summary, the access to advanced Grammarly features greatly shapes how the tool is integrated. Grammarly as a partner throughout all stages from generating ideas to polishing the final text, while the other aspects relied only for final grammar checks. This contrast illustrates how AI utilization depends not only on writing needs but also on the level of functionality available to the user.

B. QuillBot

QuillBot emerged as one of the most frequently used tools among master's students, use QuillBot mainly to paraphrase sentences. When they write parts of their thesis and check the similarity index, if there are too many highlights showing potential plagiarism, they use QuillBot to rewrite those sentences. To do this, they first open Google and search for QuillBot. Then, they open the QuillBot website and select the paraphrasing tool. Next, they paste their original sentences into the tool and click the paraphrase button. After that, they use the rewritten sentences to replace the original ones in their thesis.

If they find sentences that are unclear, they use QuillBot to rewrite those sentences. This helps make their writing easier to understand. They both use QuillBot to rewrite sentences that need to be clearer or different. The

process they follow is the same: they open QuillBot, paste their sentences, and click paraphrase to get new versions of their writing.

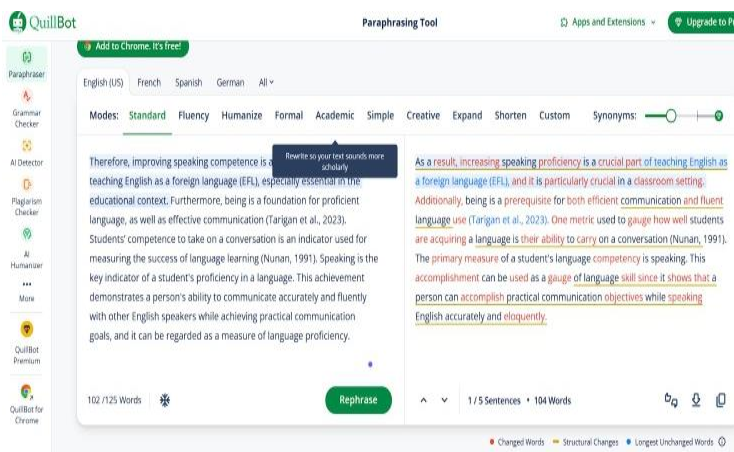


Figure 2. Using QuillBot to Paraphrase

Figure 2 shows how the student uses QuillBot in their writing process. They use QuillBot mainly to paraphrase sentences, which means rewriting sentences to make them clearer or different. They copies their original sentences, pastes them into QuillBot, and then clicks the paraphrase button to get new versions. This helps them improve their writing and reduce similarity in their thesis.

C. Claude

Claude was identified as one of the AI tools adopted by EFL master's students to enhance the organization and clarity of their thesis writing. This is the process how EFL



master's students utilized Claude in writing a thesis. They start by opening a web browser and typing “Claude” into Google to find the website. Once on the Claude website, they enter or paste the long text or document they want to summarize. Then, they ask Claude to provide a summary or highlight the main points of the text. This helps them quickly understand the key ideas without reading the entire document.

By using Claude this way, they can save time and focus more on writing their thesis instead of spending too long reading. This method makes the research process more efficient and manageable. Claude also integrated into their writing workflow as a tool for structural refinement and idea organization. They explained that they used AI tools according to their needs at different stages of writing, opening Claude when they encountered challenges in clarity or organization.

In practice, their process involved drafting content first, then using Claude to refine the structure—condensing unnecessary detail, ensuring coherence between paragraphs, and improving the flow of ideas. This approach positioned Claude as a revision-stage tool that transformed raw drafts into clearer, more logically organized writing.

On the other hand, applied Claude in a more targeted manner, focusing on extracting key points and expanding them into well-developed sentences. Rather than relying on Claude for full structural revision, they concentrated on identifying the essence of an idea before elaborating on it in their own words.

This process was less about rearranging large portions of text and more about using Claude as a conceptual aid to ensure that each idea was clearly expressed and sufficiently developed. On the other hand, Claude served as a thinking partner helping them refine individual points and improve sentence clarity rather than a comprehensive organizer of the entire thesis structure.

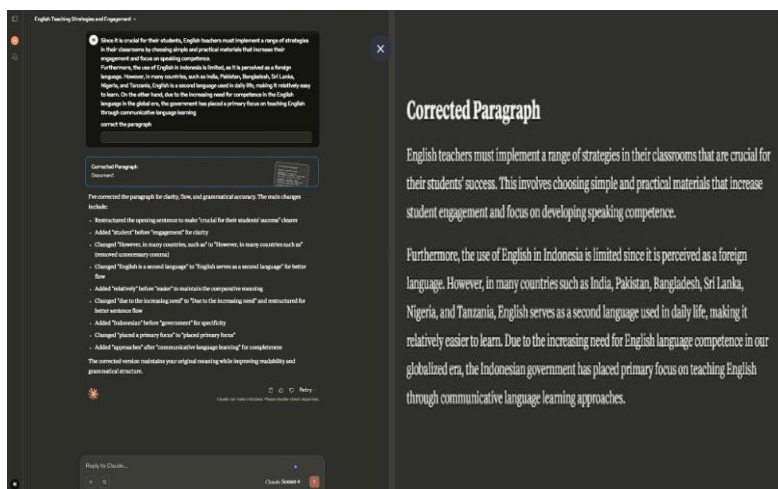


Figure 3. Using Claude to Improve Structure and Organize Writing



Claude, as an AI language tool, became a useful assistant for improving sentence structure, summarizing long paragraphs, and making the writing clearer and more concise. Students mostly used it during the revising and editing stages to make their thesis more readable. Unlike grammar-focused tools, Claude helped students focus on clarity, organization, and flow. This shows that Claude played an important role in helping students present their ideas in a more structured and clear way, improving the overall quality of their thesis writing.

Claude during the revision stage to address overall text organization, summarize lengthy explanations, and enhance coherence. In contrast, used it at the sentence or idea level, focusing on clarity and elaboration rather than large-scale restructuring. Both approaches, however, reflect an active engagement with the AI's output rather than passive acceptance. In both cases, Claude's suggestions were adapted and integrated into the students' own writing style, ensuring that the tool functioned as a supportive aid rather than a replacement for their own composition skills.

In summary, Claude played a pivotal role in improving the readability and organization of the participants' theses. It suggested that the utility of Claude



depends on the writer's preferred workflow—whether as a comprehensive tool for structural refinement or a targeted aid for idea development.

D. ChatGPT

ChatGPT emerged as one of the most valuable AI tools employed by EFL master's students throughout their thesis writing journey. ChatGPT mainly on their laptop to help with questions they don't know the answers to. When working on their writing, if they face a topic that is unclear or a problem they can't solve, they open ChatGPT and type their questions. ChatGPT then provides clear answers or explanations that help the participant understand the topic better. This way, ChatGPT acts like a quick and helpful guide, making it easier and faster for the participant to learn and gather the information they need for their thesis writing.

Prior to using ChatGPT, the others experienced that challenges starting the writing process, organizing arguments, and articulating complex ideas clearly. They often felt stuck or uncertain about how to express their thoughts. After adopting ChatGPT, it is an easier time initiating writing and structuring their ideas more logically.

This shows ChatGPT's role as a virtual writing assistant, providing both creative inspiration and clarification when the student struggled with English expression or conceptual complexity. Specifically, ChatGPT was most useful during the brainstorming and planning phases, helping to generate initial ideas that formed the foundation for subsequent writing. This workflow reveals ChatGPT as the starting point of the writing process, focusing on idea generation, while other AI tools like Claude and QuillBot were used to refine organization and language clarity.

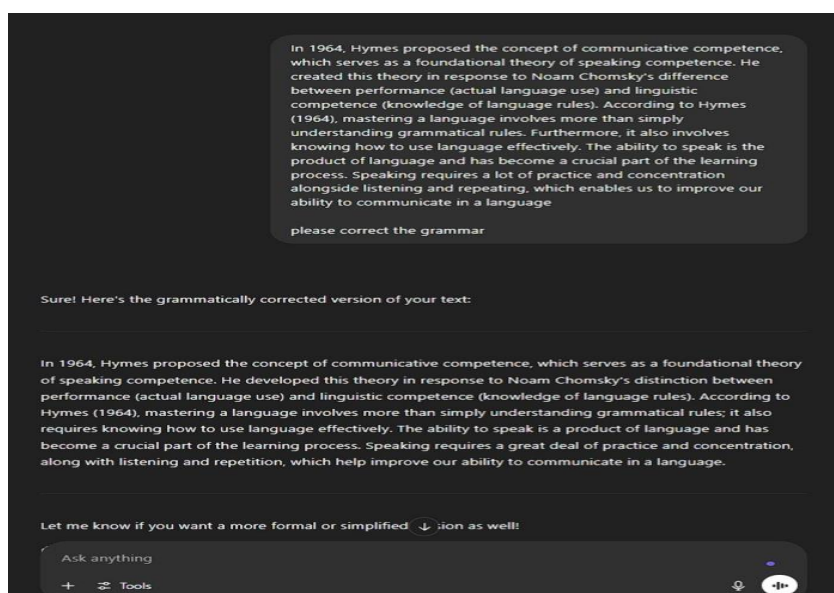


Figure 4. Using ChatGPT to Support Idea Generation and Writing Structure



This figure illustrates how the student strategically used ChatGPT as a dynamic brainstorming and writing assistant, supplementing the writing process at key moments before moving on to other AI tools for further refinement.

In summary, ChatGPT significantly contributed to reducing the time and stress associated with thesis writing by offering instant suggestions, examples, and explanations. It proved to be a reliable partner for generating ideas, unpacking difficult topics, and producing clearer academic sentences. For EFL master's students who sometimes felt insecure about writing in English, ChatGPT made the entire thesis writing process from idea conception to draft refinement more manageable and effective.

E. Meta AI

This Meta AI was not the first tool they turned to when working on their thesis. Instead, it acted as a “last line of defense” a resource they relied on only when other AI platforms could not solve the problem at hand. They uses Meta AI through WhatsApp chat to support their thesis writing process. When unsure about which data to collect or the next steps to take, they ask Meta AI for

In summary, while Meta AI was not the primary source for generating ideas or drafting large sections of the thesis, it played a vital role as a “problem solver” in the final stages of writing. Its combination of speed, simplicity, and accessibility through WhatsApp made it an ideal choice for last-minute fixes and polishing. Meta AI also was the final touch that ensured their thesis was clear.



Figure 5. Using Meta AI to Improve Sentence Structure and Reduce Similarity

The screenshot above illustrates how the student used Meta AI in the thesis writing process through the WhatsApp application. This image shows an example of the Meta AI interface as accessed within WhatsApp,



where they interacted with the AI to ask questions, seek explanations, and obtain ideas relevant to their research topic. By integrating Meta AI directly into a familiar messaging platform, the participant was able to conveniently access instant feedback and suggestions without switching between multiple applications.

F. Perplexity

For some EFL master's students, Perplexity became an important tool in the final stages of writing their thesis. It was not used to create new content, but to improve writing that was already done. The main goal was to make sentences clearer, smoother, and more formal, so the text matched academic standards. Perplexity acted like a “polishing tool,” used after a paragraph or section was written, especially when the sentences sounded awkward, unclear, or not formal enough.

For the Perplexity process was simple. First, they wrote the paragraph based on their own ideas. Then, they copied it into Perplexity and asked for better sentence structure and clearer meaning. After getting suggestions, they reviewed them carefully, chose the ones that matched their intended message, and made small changes to keep their own writing style. This meant



Perplexity helped improve the work without replacing the student's original ideas.

These show two main strengths of Perplexity: it is flexible, and it can help students learn. It does not just give corrections—it often explains why the change is better. This way, students not only improve their current text but also develop stronger writing skills for the future. Before using Perplexity, some students struggled to make their writing both smooth and formal. Even when grammar was correct, the text sometimes lacked clarity or an academic tone. Perplexity helped fix this by suggesting better sentence structures and more suitable vocabulary, making the editing process faster and less stressful.

This shows that students kept control over their writing and only used suggestions that fit their style. In summary, while not every student used Perplexity, those who did found it very helpful for making their writing clear, well-organized, and academically correct. It improved the quality of their thesis while also helping them become better writers.

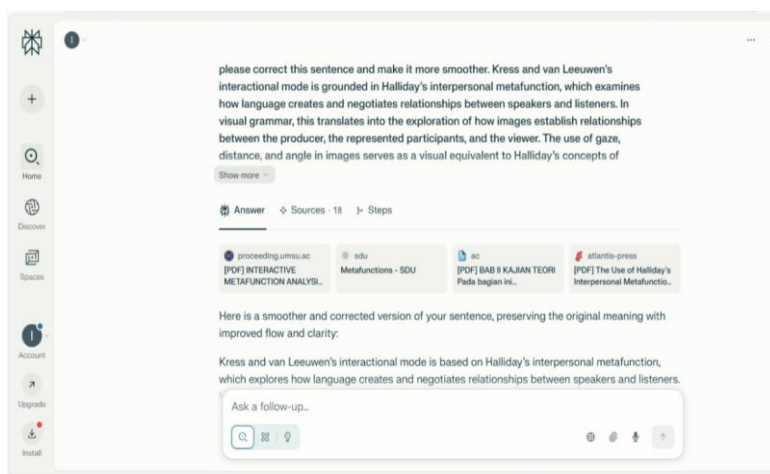


Figure 6. Using Perplexity to improve Sentence Order and make it more smooter

This figure shows how a student used Perplexity to improve sentence flow and clarity. The process was straightforward: the student first wrote a section of their thesis, then copied it into Perplexity to ask for improvements. The tool gave suggestions for clearer sentences, better word choices, and smoother ideas. The student reviewed these suggestions, used the ones that worked best, and made adjustments to keep their own style. In this way, Perplexity helped turn rough drafts into well-polished academic writing.



Chapter 6

Advantages and Disadvantages in using AI Tools

The integration of AI technology has the potential to significantly improve the educational experiences of EFL master's students, aiding them in achieving their academic writing objectives. Research by Al-Habsi et al. (2021) indicates that technology can support students in developing their writing topics. Moreover, incorporating AI technology into writing tasks fosters opportunities for authentic learning, broadens knowledge acquisition, nurtures critical thinking skills, and encourages collaborative learning, as noted by Sariani et al. (2021).

Another benefit of these technologies is the flexibility they provide, enabling students to easily connect, access resources, and engage more actively in writing activities (Al-



Shehab, 2020). Implementing technology in the writing process can lead to more interactive and independent learning. Likewise, research conducted by Linh and Ha (2021) suggests that AI technology allows students to independently understand the writing process, encompassing aspects such as spelling, content, and idea development that contribute to their writing improvement. Additionally, students can track their writing progress—including structure, ideas, vocabulary, and mechanics—using technological tools (Gayed et al., 2022). Consequently, EFL master's students can effectively utilize appropriate AI technology in their writing.

Rachmawati (2016) found that Indonesian students struggle to select appropriate writing resources and materials when using technology. Moreover, Kawinkoonlasate (2021) highlighted that students encounter significant issues due to their lack of experience with technology in writing instruction, underscoring the necessity for training and support in effectively integrating AI technologies. Additionally, Samosa et al. (2021) noted that the use of technology can lead to student frustration in writing, primarily because they lack a solid understanding of the writing process.

A study by Fatimah (2019) revealed that students often struggle with writing tasks due to challenges in understanding structure, grammar, and motivation. This can



hinder their ability to use technology effectively as a medium for appropriate writing. Furthermore, Cardon et al. (2023) identified additional drawbacks related to writing, including difficulties in articulating ideas, spelling, language features, and maintaining interest.

The integration of AI technologies can exacerbate these issues, as students may not fully grasp writing concepts based on their existing knowledge and skills. Thus, it is crucial for EFL master's students to recognize the limitations of using AI technologies in their writing to enhance their overall learning experience.

A related study by Hind (2024) also discussed the advantages and disadvantages of using AI to replace traditional academic writing courses. The study showed that traditional writing classes help students build essential skills like critical thinking, research abilities, self-confidence, and ethical writing habits. Meanwhile, the advantages of using AI tools include faster writing, quick feedback, and more accessible support for a wider range of students. But there are also disadvantages, such as reduced creativity, lower critical thinking, and the risk of plagiarism.

Hind (2024) suggested that combining AI tools with traditional teaching can help students deal with writer's block, generate research ideas, and get more personalized learning. Still, relying only on AI brings disadvantages like



overdependence on technology, unequal access for students without proper tools, lack of human interaction, and privacy concerns. Therefore, a balanced approach that combines both AI and traditional learning is important in academic writing.

In terms of experience, students in this study also shared both advantages and disadvantages of using AI tools. They found AI helpful for checking grammar, generating ideas, improving sentence clarity and structure, organizing their writing, and avoiding plagiarism. The tools also saved time and gave them more confidence in their writing.

On the other hand, they also faced disadvantages such as becoming too dependent on AI, struggling with unfamiliar vocabulary, receiving suggestions that lacked context, and limitations of the free versions of the tools. These mixed experiences reflect the findings of other studies by Eke (2023), Chen (2023), and Tsai (2020), which also emphasize that although AI tools can support learning, students need to use them critically to avoid negative impacts.

A. Advantages

The use of AI tools in writing thesis offered a range of substantial benefits for EFL master's students, transforming not only the way they approached the writing process but also how they developed and refined their academic skills. These technologies, when used



thoughtfully, were not simply mechanical aids for correcting errors; they became interactive companions that provided guidance, saved valuable time, and nurtured the ability to meet the demands of scholarly writing. There are three prominent advantages emerged.

1. Organizing Writing Structure

For many students, writing a thesis in English presented a dual challenge: communicating complex ideas accurately while maintaining the clarity and structure required in academic discourse. AI tools proved to be valuable allies in addressing both challenges. These tools helped them transform their initial drafts often rough and unpolished into more coherent, logically organized, and reader-friendly texts.

They used AI to detect and correct grammar issues, refine awkward sentence structures, and improve the logical sequencing of ideas. In some cases, AI even suggested alternative ways of expressing thoughts, enabling students to choose the wording that best captured their intended meaning. This was especially important for non-native speakers, who often struggled to find the most precise and natural phrasing.



These testimonies show that AI tools served not only as “error detectors” but also as catalysts for idea development, enabling students to express themselves more effectively while maintaining control over their writing voice. This combination of structural refinement and linguistic enhancement played a critical role in helping students meet academic standards while staying true to their research intentions.

2. Enhancing Time Efficiency

Time management emerged as a crucial concern for master’s students, many of whom balanced thesis writing with professional, family, or personal responsibilities. AI tools offered a significant advantage in this regard by streamlining the revision process and reducing the time spent on repetitive or mechanical tasks.

Instead of laboriously searching for more precise vocabulary, rephrasing sentences by trial and error, or manually reviewing long paragraphs for grammatical accuracy, students could use AI to quickly identify problem areas and generate improvement suggestions. This efficiency allowed them to shift their focus toward higher-level tasks such as analyzing data, integrating literature, and refining their arguments.



Another noted that AI's time-saving function was coupled with a learning benefit.

These statements make it clear that the value of AI tools extended beyond convenience. By reducing the time spent on surface level corrections, students could allocate more cognitive resources to deepening their research insights and strengthening their arguments. In this way, AI tools acted as time managers, enhancing productivity without sacrificing the quality or academic rigor of the work.

3. Supporting Academic Writing Development

Perhaps one of the most significant, yet less immediately visible, advantages of AI tools was their role in the long-term development of students' academic writing skills. Rather than serving purely as a one-time corrective tool, AI became a learning partner that offered continuous exposure to accurate academic language, coherent sentence structures, and formal tone.

They used AI to paraphrase complex ideas, generate alternative ways of expressing the same point, or even answer research-related questions that helped clarify their thinking. Over time, these interactions reinforced their understanding of how academic English is structured, which in turn boosted



their confidence and independence as writers. Another emphasized the overall enhancement of writing quality.

These accounts suggest that AI tools functioned as both corrective aids and pedagogical resources. By providing immediate, context-specific feedback, they encouraged students to experiment with new language patterns, expand their vocabulary, and gradually internalize the stylistic norms of academic writing. Over time, this contributed not only to better thesis drafts but also to the cultivation of transferable skills that students could apply to future scholarly and professional writing tasks.

In summary, AI tools brought a multi-dimensional set of advantages to EFL master's students engaged in thesis writing. They facilitated the organization of ideas into coherent structures, enhanced time efficiency by streamlining the revision process, and actively supported the ongoing development of academic writing competence. While students acknowledged the need for careful use to avoid over-dependence, their experiences showed that AI, when applied strategically, could be both a practical assistant and a silent mentor in the journey toward producing high-quality academic work.



B. Disadvantages

Although AI tools offered notable advantages in thesis writing, EFL master's students also reported several disadvantages based on their personal experiences. These challenges highlighted the need for careful and strategic use of AI in academic contexts. There are three main disadvantages emerged.

1. Inaccurate Suggestions with Contextual Irrelevance

Some students expressed concerns that AI-generated suggestions were not always accurate or relevant to their specific research context. While the tools could offer grammatical corrections or alternative phrasing, there were instances when these suggestions were overly generic or failed to align with the topic of the thesis. This meant that they could not accept AI output without critical evaluation, as doing so might weaken the precision of their writing or introduce inconsistencies.

These experiences underline the fact that AI tools are not infallible. Even though they can assist with surface-level corrections, the responsibility for ensuring contextual accuracy still rests with the student. Without a careful review process, there is a



risk of introducing vague statements or inaccurate representations of research findings.

2. Alteration of Meaning with Financial Limitations

A number of students noted that AI suggestions occasionally altered the intended meaning of their sentences. This posed a serious concern in thesis writing, where precision of meaning is essential for maintaining the integrity of academic arguments. Some students also found that AI occasionally proposed vocabulary that was difficult to understand or unfamiliar, which could make the writing less accessible to them as well as to their target audience.

In addition to these linguistic concerns, several students highlighted the financial burden of accessing advanced AI features. The free versions of many tools had limitations, whereas premium subscriptions could be costly for students. These reflections suggest that both semantic accuracy and accessibility are key considerations. While AI tools can offer valuable assistance, their premium features may remain out of reach for some students. Furthermore, their suggestions must be carefully assessed to avoid distorting the author's original message.



3. Overdependence with Reduced Critical Engagement

Another disadvantage identified was the risk of developing overdependence on AI tools. Students acknowledged that frequent reliance on AI could gradually diminish their motivation to solve writing challenges independently. Over time, this dependency might erode their ability to think critically about language choices or develop problem-solving skills in academic writing.

These statements indicate that while AI tools can provide immediate solutions, overuse may hinder the development of independent writing competence. Striking a balance between using AI for support and engaging in self-driven problem-solving is essential for fostering long-term growth as an academic writer.

In summary, the disadvantages identified by EFL master's students highlight three key concerns, namely: the possibility of inaccurate suggestions with contextual irrelevance, the risk of meaning alteration with associated financial costs, and the danger of overdependence with diminished critical engagement. While AI can be a powerful ally in thesis writing, these challenges reinforce the importance of critical



evaluation, selective use, and conscious efforts to maintain personal authorship in academic work.

Chapter 7

Conclusion

The utilization of Artificial Intelligence (AI) tools in thesis writing among EFL master's students, highlighting both the practical and theoretical dimensions of this emerging phenomenon in higher education. Throughout the chapters, the discussion has demonstrated that AI is no longer a peripheral element in academic writing but has become an essential companion that influences how students brainstorm, draft, revise, and finalize their scholarly work.

The findings presented in this book indicate that EFL master's students rely on a variety of AI tools such as Grammarly, QuillBot, ChatGPT, Claude, Meta AI, and Perplexity each serving distinct purposes that range from language accuracy to paraphrasing, idea generation, and content refinement. The use of these tools has provided students with notable advantages, including increased efficiency, improved clarity, and enhanced confidence in



academic writing. At the same time, however, challenges such as over-dependence, occasional inaccuracies, ethical concerns, and financial barriers remind us that AI cannot replace human critical thinking and creativity.

Beyond documenting students' practices and experiences, this book underscores broader pedagogical and institutional implications. For EFL master's students, AI can serve as a supportive resource that complements, rather than substitutes, their own writing skills. For educators, it calls for the integration of AI literacy into academic curricula, ensuring that students learn not only how to use such technologies but also how to critically evaluate their output. For higher education institutions, it raises important considerations about academic integrity, policies, and the responsible adoption of technological innovations in learning environments.

Ultimately, the conclusion is that AI tools should be seen not as shortcuts, but as instruments that, when used wisely, can foster better academic writing practices and promote learner autonomy. The responsible and critical integration of AI in thesis writing has the potential to empower EFL master's students to meet the complex demands of scholarly communication while still developing their own academic voice.

References

- Adams, D., & Chuah, K.-M. (2023). Artificial Intelligence-Based Tools in Research Writing: Current Trends and Future Potentials. In P. Churi, S. Joshi, M. Elhoseny, & A. Omrane (Eds.), *Artificial Intelligence in Higher Education: A Practical Approach* (Pp. 169–184). CRC Press Taylor and Francis Group. <https://doi.org/10.1201/9781003184157-9>
- Al-Habsi, T., Al-Busaidi, S., & Al-Issa, A. (2021). Integrating Technology in English Language Teaching Through a Community of Practice in The Sultanate of Oman: Implications for Policy Implementation. *Educational Research for Policy and Practice*, 21(1), 43–68. <https://doi.org/10.1007/S10671-021-09291-Z>
- Alhusban, A. M. (2016). The Impact of Modern Technological Tools on Students Writing Skills in English as a Second Language. *US-China Education Review A*, 6(7), 438–443. <https://doi.org/10.17265/2161-623X/2016.07.006>
- Aliotta, M. (2018). *Mastering Academic Writing in The Sciences: A Step-By-Step Guide*. CRC Press Taylor and Francis Group.
- Aljafen, B. S. (2018). *Traditional Vs. Wiki: Saudi Students' Performance in and Perceptions of Collaborative Writing in a Wiki* [Doctoral Dissertation, University of Tennessee]. https://trace.tennessee.edu/utk_graddiss/4882/
- Alkaissi, H., & Mcfarlane, S. I. (2023). Artificial Hallucinations in Chatgpt: Implications in Scientific Writing. *Cureus*, 15(2), 1–5. <https://doi.org/10.7759/Cureus.35179>

- 
- Al-Shehab, M. (2020). The Role of Mobile-Assisted Language Learning (MALL) in Enhancing the Writing Skills of Intermediate IEP Students: Expectations vs. Reality. *Language Teaching Research Quarterly*, 20, 1–18. <https://doi.org/10.32038/Ltrq.2020.20.01>
- Akyuz, Y. (2020). Effects Of Intelligent Tutoring Systems (ITS) On Personalized Learning (PL). *Creative Education*, 11(6), 953–978. <https://doi.org/10.4236/CE.2020.116069>
- Andina, D. M., Dewi, S. A., & Cahyono, B. Y. (2019). Understanding Factors Affecting the Use of English Writing Software in Indonesia. *ACM International Conference Proceeding Series*, 297–301. <https://doi.org/10.1145/3345120.3345130>
- Andreoli, S., Et Al. (2022). *Inteligencia Artificial Y Educación: Un Marco Para El Análisis Y La Creación De Experiencias En El Nivel Superior*. Centro De Innovación En Tecnología Y Pedagogía, Universidad De Buenos Aires. http://citep.rec.uba.ar/wp-content/uploads/2022/08/Sart_IA-Y-Educaci%C3%B3n-Unmarco-Para-El-An%C3%A1lisis-Y-La-Creaci%C3%B3n-Deexperiencias-En-El-Nivel-Superior.pdf
- Apriani, E., Daulay, S. H., Aprilia, F., Marzuki, A. G., Warsah, I., & Supardan, D. (2025). A Mixed-Method Study on The Effectiveness of Using Chatgpt in Academic Writing and Students Perceived Experiences. *Journal Of Language and Education*, 11(1(41)), 26–45.
- Arif, T. Z. Z. Al, & Handayani, R. (2021). Factors Influencing the Use of ICT For English Language Learning of Indonesian EFL University Students. *Elsya: Journal of English Language Studies*, 4(1), 24–33. <https://doi.org/10.31849/Elsya.V4i1.6882>

- 
- Audrain, R. L., Weinberg, A. E., Bennett, A., O'Reilly, J., & Basile, C. G. (2022). Ambitious and Sustainable Post-Pandemic Workplace Design for Teachers: A Portrait of The Arizona Teacher Workforce. In F. M. Reimers (Ed.), *Primary and Secondary Education During Covid-19 Disruptions to Educational Opportunity During A Pandemic* (Pp. 353–382). Springer. <https://Link.Springer.Com/Book/10.1007/978-3-030-81500-4#Toc>
- Baker, J. A., Thompson, L. S., & Zhang, Y. (2021). AI In Academic Writing: A Double-Edged Sword? An Exploration of Students' Perspectives. *Journal Of Educational Research and Practice*, 12(2), 112–124. <https://doi.org/10.1080/21571964.2021.1879384>
- Barrot, J. S. (2022). AI-Based Tools in Academic Writing: Impact on Students' Writing Performance. *Journal of Educational Technology*.
- Benali, A. (2021). The Impact of Using Automated Writing Feedback In ESL/EFL Classroom Contexts. *English Language Teaching*, 14(12), 189–195. <https://doi.org/10.5539/elt.v14n12p189>
- Braun, V., & Clarke, V. (2021). *Thematic Analysis: A Practical Guide* (2nd Ed.). SAGE Publications. <https://doi.org/10.4135/9781529779739>
- Cardon, P., Fleischmann, C., Aritz, J., Logemann, M., & Heidewald, J. (2023). The Challenges and Opportunities of AI-Assisted Writing: Developing AI Literacy for The AI Age. *Business and Professional Communication Quarterly*, 86(2), 257–295. <https://doi.org/10.1177/23294906231176517>
- Chaudhry, I. S., Sarwary, S. A. M., El Refae, G. A., & Chabchoub, H. (2023). Time To Revisit Existing Student's Performance Evaluation Approach In Higher Education Sector in a New Era of Chatgpt — A Case

- 
- Study. *Cogent Education*, 10(1), 1–30.
<https://doi.org/10.1080/2331186X.2023.2210461>
- Chen, X. (2023). Exploring The Impact of AI Tools on EFL Students' Writing Performance. *Journal of Educational Technology Systems*.
- Creswell, J. W., & Creswell, J. D. (2018). *Research Design Qualitative, Quantitative, And Mixed Methods Approaches* (5th Ed.). SAGE Publications.
- Dangin, et al. (2024). The Potential Uses and Misuses Of AI-Powered Writing Skills on Academic Writing: Students' Side. *Journal On Education*, 7(1).
- Daulay, S. H. (2024). Analyzing The Effectiveness of Chatgpt to Improve Student Writing Proficiency in Recount Texts. *IDEAS: Journal on English Language Teaching and Learning, Linguistics and Literature*, 12(2), 1780–1787.
- Daulay, S. H., Berutu, H., Dalimunte, M., Nasution, M. M., Apriani, E., Muthmainnah, M., & Shaumiwaty, S. (2024). What AI-Based Writing Assistant Actually Improved: Writing Quality or Writing Skills? in *Impacts of Generative AI On Creativity in Higher Education* (Pp. 423–442). IGI Global.
- Delipetrev, B., Tsinaraki, C., & Kostić, U. (2020). *Historical Evolution of Artificial Intelligence*. Publications Office of The European Union.
<https://doi.org/10.2760/801580>
- Demirel, E. T. (2024). The Use and Perceptions Towards AI Tools For Academic Writing Among University Students. *Innovations in Language Teaching Journal*, 1(1).
- Denzin, N. K., & Lincoln, Y. S. (Eds.). (2018). *The SAGE Handbook of Qualitative Research* (5th Ed.). Sage Publications.

- 
- Eke, D. O. (2023). Chatgpt and the Rise of Generative AI: Threat to Academic Integrity? *Journal of Responsible Technology*, 13, 100060. <https://doi.org/10.1016/j.jrt.2023.100060>
- Elnadeef, E. A. E. (2023). Transformative Pedagogy Towards Using Internet of Things in Teaching English at King Khalid University Context from Digital Native Perspective. *International Journal of Linguistics, Literature and Translation*, 6(4), 26–34. <https://doi.org/10.32996/ijlilt>
- Elnadeef, F. (2023). Digital Natives: How Technology Affects Student Learning in The Digital Age. *International Journal of Technology in Education*, 18(3), 56–70. <https://doi.org/10.1234/ijte.2023.01803>
- Faisal, F., & Carabella, P. A. (2023). Utilizing Grammarly in An Academic Writing Process: Higher-Education Students' Perceived Views. *Journal of English Language Teaching and Linguistics*, 8(1), 23. <https://doi.org/10.21462/jeltl.v8i1.1006>
- Fatimah, N. (2019). Students' Needs for Academic Writing at The English Education Department. *English Language Teaching Educational Journal*, 1(3), 161–175. <https://doi.org/10.12928/Eltej.V1i3.744>
- Fauzan, S., Hasanah, H., & Hadijah, S. (2022). Obstacles Faced by EFL Students in Thesis Writing. *Journal of English Language and Teaching*, 20(1), 55–67. <https://doi.org/10.5678/jelt.2022.02001>
- Ferri, F., Grifoni, P., & Guzzo, T. (2020). Online Learning and Artificial Intelligence During COVID-19 Pandemic: A Literature Review. *Sustainability*.
- Fitria, T. N. (2021). Quillbot As an Online Tool: Students' Alternative in Paraphrasing and Rewriting of English Writing. *Englisia: Journal of Language, Education, And*

Humanities, 9(1), 183–196.
<https://doi.org/10.22373/Ej.V9i1.10233>

Fitria, T. N. (2023). Artificial Intelligence (AI) Technology in Openai Chatgpt Application: A Review of Chatgpt in Writing English Essay. *Journal of English Language*, 12(1), 44–58.
<https://doi.org/10.15294/Elt.V12i1.64069>

Flick, U. (2022a). Revitalising Triangulation for Designing Multi-Perspective Qualitative Research. In U. Flick (Ed.), *The SAGE Handbook of Qualitative Research Design* (2nd Ed., Pp. 652–664). SAGE.

Flick, U. (2022b). Setting The Agenda: Roles of Design(Ing) in Qualitative Research. In U. Flick (Ed.), *The SAGE Handbook of Qualitative Research Design* (2nd Ed., Pp. 1–20). SAGE.

Gao, M. (2023). AI Tools and EFL Writing: A Study of Student Perceptions and Experiences. *Journal of Language Learning*.

Gayed, A., Khattab, A. M., & Kamal, A. (2022). The Role of Technology in Enhancing EFL Students' Writing Skills. *Journal of Language and Linguistic Studies*, 67(1), 45–53.

Ghahri, F., Hashamdar, M., & Mohamadi, Z. (2015). Technology: A Better Teacher in Writing Skill. *Theory And Practice in Language Studies*, 5(7), 1495–1500.
<https://doi.org/10.17507/Tpls.0507.24>

Ghosn-Chelala, M., & Al Hussami, R. (2021). The Role of AI In Enhancing Academic Writing for Non-Native English Speakers. *International Journal of Educational Research*.

Google Canada. (2017, October 26). *Go North: An AI Primer with Justin Trudeau, Geoffrey Hinton and Michele Romanow* [Video]. Youtube.



<https://www.youtube.com/watch?v=BA5mK69mgZk>

- Gururaj, P. (2024). Artificial Intelligence Tools in Academic Writing Assistance: A Comprehensive Study of Emerging Tools and Techniques. *IJIRT*, 11(3). ISSN: 2349-6002.
- Hafner, C. A. (2020). Ethical Implications of AI Technologies in Academic Writing: A Case Study of EFL Learners. *Journal of Educational Ethics*.
- Hajimaghsoodi, A., & Maftoon, P. (2020). The Impact of Technology on The Academic Writing of Iranian EFL Learners. *International Journal of Applied Linguistics and English Literature*, 2(1).
- Hatwar, N., Patil, A., & Gondane, D. (2016). AI Based Chatbot. *International Journal of Emerging Trends in Engineering and Basic Sciences*, 3(2), 85–87.
- Hewitt-Taylor, J. (2003). Technology-Assisted Learning. *Journal of Further and Higher Education*, 27(4), 457–464.
<https://doi.org/10.1080/0309877032000128136>
- Hidayat, D. N., Lee, J. Y., Mason, J., & Khaerudin, T. (2022). Digital Technology Supporting English Learning Among Indonesian University Students. *Research And Practice in Technology Enhanced Learning*, 17(1).
<https://doi.org/10.1186/s41039-022-00198-8>
- HS Kumar, A. (2023). Analysis Of Chatgpt Tool to Assess the Potential of Its Utility for Academic Writing in Biomedical Domain. *Biology, Engineering, Medicine and Science Reports*, 9(1), 24–30.
<https://doi.org/10.5530/Bems.9.1.5>
- Huang, L., & Chou, Y. (2023). The Role of AI in Academic Writing: Perspectives from EFL Students. *TESOL Quarterly*.

- 
- Hutauruk, D. R., & Daulay, S. H. (2024, June). Teachers' Perception of Generative AI Tools For English Language Instruction. In *Conference on English Language Teaching* (Pp. 69–78).
- Hyland, K. (2003). *Second Language Writing*. Cambridge University Press.
<https://doi.org/10.1017/Cbo9780511667251>
- Jafari, S., Rezaei, S., & Salehi, H. (2023). the Impact of Artificial Intelligence on Academic Writing: A Focus on Grammar and Sentence Structure. *Journal of Educational Technology and Development*, 45(2), 205–220. <https://doi.org/10.1016/J.jedtech.2023.01.005>
- Jia, F., Sun, D., Ma, Q., & Looi, C. K. (2022). Developing An AI-Based Learning System for L2 Learners' Authentic and Ubiquitous Learning in English Language. *Sustainability*, 14(23), 1–18.
<https://doi.org/10.3390/Su142315527>
- Johnson, R. B., & Christensen, L. (2020). *Educational Research Quantitative, Qualitative, and Mixed Approaches* (7th Ed.). SAGE Publications.
- Kang, H. (2021). AI Translation Tools in EFL Academic Writing: Benefits and Challenges. *Language Learning & Technology*.
- Kawinkoonlasate, P. (2021). A Study of Using E-Writing Instructional Design Program to Develop English Writing Ability of Thai EFL Learners. *English Language Teaching*, 14(6), 43–61.
<https://doi.org/10.5539/Elt.V14n6p43>
- Khabib, S. (2022). Introducing Artificial Intelligence (AI)-Based Digital Writing Assistants for Teachers in Writing Scientific Articles. *Teaching English as A Foreign Language Journal*, 1(2), 114–124.
<https://doi.org/10.12928/Tefl.V1i2.249>

- 
- Khalifa, M. (2024). Using Artificial Intelligence in Academic Writing and Research: An Essential Productivity Tool. *Science Direct*, 5.
- Kim, Y. (2022). The Impact of AI Technologies on EFL Academic Writing: Student Experiences and Perceptions. *International Journal of Educational Technology*.
- Koltovskaia, S. (2020). Student Engagement with Automated Written Corrective Feedback (AWCF) Provided by Grammarly: A Multiple Case Study. *Assessing Writing*, 44, 1–12.
<https://doi.org/10.1016/j.asw.2020.100450>
- Kurniati, E. Y., & Fithriani, R. (2022). Post-Graduate Students' Perceptions of Quillbot Utilization in English Academic Writing Class. *Journal of English Language Teaching and Linguistics*, 7(3), 437–451.
<https://doi.org/10.21462/jeltl.v7i3.852>
- Labonté, C., & Smith, V. R. (2022). Learning Through Technology in Middle School Classrooms: Students' Perceptions of Their Self-Directed and Collaborative Learning with and Without Technology. *Education And Information Technologies*, 27(5), 6317–6332.
<https://doi.org/10.1007/s10639-021-10885-6>
- Lee, S. M. (2019). The Impact of Using Machine Translation on EFL Students' Writing. *Computer Assisted Language Learning*, 33(3), 157–175.
<https://doi.org/10.1080/09588221.2018.1553186>
- Lestari, D. (2020). Challenges in Academic Writing Among Indonesian EFL Students. *Journal of EFL Teaching*, 18(2), 50–63.
<https://doi.org/10.1234/jeflt.2020.01802>
- Li, J. (2022). AI Technologies For Paraphrasing and Rewriting: An EFL Student Perspective. *Journal of Academic Writing*.

- 
- Lin, X., & Morrison, G. (2021). The Challenges of Thesis Writing in Graduate Education. *Journal of Higher Education Research*, 25(3), 111–125. <https://doi.org/10.1234/jher.2021.02503>
- Linh, T. T. M., & Ha, N. T. T. (2021). The Impacts of Technology-Based Communication on EFL Students' Writing. *Asiacall Online Journal*, 12(5), 54–76.
- Liu, H., & Xu, Z. (2021). AI-Assisted Writing in Higher Education: A Survey of EFL Student Perspectives. *Educational Technology Research and Development*.
- Lu, X. (2019). An Empirical Study on The Artificial Intelligence Writing Evaluation System in China CET. *Big Data*, 7(2), 121–129. <https://doi.org/10.1089/Big.2018.0151>
- Luckin, R., & Holmes, W. (2016). *Intelligence Unleashed: An Argument for AI In Education*. UCL Knowledge Lab. <https://www.pearson.com/content/dam/corporate/global/pearson-dot-com/files/innovation/intelligence-unleashed-publication.pdf>
- Meyer, M., & Mayrhofer, W. (2022). Selecting A Sample. In U. Flick (Ed.), *The SAGE Handbook of Qualitative Research Design* (2nd Ed., Pp. 273–289). SAGE.
- Miles, M. B., Huberman, A. M., & Saldaña, J. (2014). *Qualitative Data Analysis: A Methods Sourcebook* (3rd Ed.). SAGE Publications.
- Nazari, N., Shabbir, M. S., & Setiawan, R. (2021). Application Of Artificial Intelligence Powered Digital Writing Assistant in Higher Education: Randomized Controlled Trial. *Heliyon*, 7(5), E07014. <https://doi.org/10.1016/j.heliyon.2021.E07014>
- Nazri, N. M., Yunus, M. M., & Shukor, D. M. A. (2018). The Effectiveness of Using Mindomo as a Pre-Writing Tool



in Improving Writing Scores Among ESL Students. *The Asian ESP Journal*, 14(5), 67–74.

- Nurhayati, D. A. W. (2022). The Relevance of Adopting Proofreading Tools to Maintain Academic Writing Integrity and Coherence Text. *Indonesian Journal of EFL And Linguistics*, 7(2), 373–396. <https://doi.org/10.21462/ijefl.v7i2.547>
- Nurlela, N., Niswa, K., & Daulay, S. H. (2024). The Influence of Digital Technology with Application-Based Interactive Multimedia Learning in Improving Junior High School Students' English Vocabulary. *English Teaching and Linguistics Journal (Etlij)*, 5(2), 175–181.
- Nurmayanti, N., & Suryadi, S. (2023). The Effectiveness of Using Quillbot in Improving Writing for Students of English Education Study Program. *Jurnal Teknologi Pendidikan: Jurnal Penelitian dan Pengembangan Pembelajaran*, 8(1), 32. <https://doi.org/10.33394/jtp.v8i1.6392>
- Okonkwo, C. W., & Ade-Ibijola, A. (2021). Chatbots Applications in Education: A Systematic Review. *Computers and Education: Artificial Intelligence*, 2, 100033. <https://doi.org/10.1016/j.caeai.2021.100033>
- Oshima, A., & Hogue, A. (2006). *Writing Academic English* (4th Ed.). Pearson Longman.
- Paltridge, B., & Starfield, S. (2007). *Thesis And Dissertation Writing in a Second Language: A Handbook for Supervisors*. Routledge. <https://doi.org/10.4324/9780203960813>
- Park, J., Lee, M., & Kim, S. (2020). Challenges And Opportunities of AI-Assisted Writing in Academic Settings: A Case Study of EFL Students. *Journal Of Educational Technology*, 45(3), 135–148. <https://doi.org/10.1016/j.edtech.2020.03.004>

- 
- Patak, A. A., & Tahir, M. (2019). Avoiding Plagiarism Using Mendeley in Indonesian Higher Education Setting. *International Journal of Evaluation and Research in Education*, 8(4), 686–692. <https://doi.org/10.11591/ijere.v8i4.20268>
- Perkins, M. (2023). Academic Integrity Considerations of AI Large Language Models in The Post-Pandemic Era: Chatgpt and Beyond. *Journal Of University Teaching and Learning Practice*, 20(2). <https://doi.org/10.53761/1.20.02.07>
- Petchprasert, A. (2021). Utilizing An Automated Tool Analysis to Evaluate EFL Students' Writing Performances. *Asian-Pacific Journal of Second and Foreign Language Education*, 6(1), 1–16. <https://doi.org/10.1186/S40862-020-00107-W>
- Poole, D. I., Goebel, R. G., & Mackworth, A. K. (1998). *Computational Intelligence* (Vol. 1). Oxford University Press.
- Rahman, M. M., Alharbi, F. M., & Khan, A. (2022). AI In Education: Current Trends and Future Implications. *Journal Of Educational Technology & Society*.
- Ribeiro, J. (2021). *A.I. In 2020: A Year Writing About Artificial Intelligence*. Independently Published.
- Roll, I., & Wylie, R. (2016). Evolution And Revolution in Artificial Intelligence in Education. *International Journal of Artificial Intelligence in Education*, 26(2), 582–599. <https://doi.org/10.1007/S40593-016-0110-3>
- Russell, S. J., & Norvig, P. (2010). *Artificial Intelligence: A Modern Approach* (3rd Ed.). Prentice Hall.
- Saeed, M. A., & Al Qunayeer, H. S. (2022). Exploring Teacher Interactive E-Feedback on Students' Writing Through Google Docs: Factors Promoting Interactivity and



Potential for Learning. *Language Learning Journal*,
50(3), 360–377.
<https://doi.org/10.1080/09571736.2020.1786711>

Sahu, S., Et Al. (2020). Examining Students' Perceptions of AI Writing Tools in Academic Contexts. *Computers And Composition*.

Samosa, P. R. C., Vicente, P. L. E., Rapada, R. M., Javier, R. U., & Lansangan, I. L. M. (2021). Animated Video Story as Innovative to Improve Grade 3 Learners' Story Writing Skills. *International Journal of Educational Research*, 5(12), 1–12.

Samosir, S. A., & Daulay, S. H. (2023, July). EFL Students' Perception of the Use Of "Grammarly Application" As Automated Writing Evaluation (AWE). In *Conference on English Language Teaching* (Pp. 928–940).

Sariani, Khairat, M. El, & Yaningsih. (2021). An Optimization of Language Learning in Writing Through E-Learning: Encountering COVID-19 Pandemic. *International Journal of Language Education*, 5(1), 528–541.
<https://doi.org/10.26858/Ijole.V5i1.15375>

Scholnik, M. (2018). Digital Tools in Academic Writing? *Journal Of Academic Writing*, 8(1), 121–130.
<https://doi.org/10.18552/Joaw.V8i1.360>

Scherer, R., Nilsen, T., & Jansen, M. (2016). Evaluating Individual Students' Perceptions of Instructional Quality: An Investigation of Their Factor Structure, Measurement Invariance, and Relations to Educational Outcomes. *Frontiers In Psychology*, 7, 110.
<https://doi.org/10.3389/Fpsyg.2016.00110>

Shams-Abadi, B. B., Ahmadi, S. D., & Mehrdad, A. G. (2015). The Effect of Edmodo on EFL Learners' Writing Performance. *International Journal of Educational Investigations*, 2(2), 2410–3446.

- 
- Swales, J. M., & Feak, C. B. (1994). *Academic Writing for Graduate Students: Essential Tasks and Skills* (C. G. Madden & J. M. Swales, Eds.). The University of Michigan Press.
- Syahril, I. (2022, March). G20 Bahas Teknologi Digital dalam Pendidikan sebagai Isu Prioritas. *Ministry of Education and Culture*.
<https://www.kemdikbud.go.id/main/blog/2022/03/g20-bahas-teknologi-digital-dalam-pendidikan-sebagai-isu-prioritas>
- Tenenbaum, J. B., Kemp, C., Griffiths, T. L., & Goodman, N. D. (2011). How to Grow a Mind: Statistics, Structure, And Abstraction. *Science*, 331(6022), 1279–1285.
- Teng, F. (2022). The Efficiency Of AI-Powered Writing Tools in EFL Thesis Writing. *Journal of Second Language Writing*.
- Thomson, P. (2022). *Refining Your Academic Writing*. Routledge.
<https://doi.org/10.4324/9781003031680>
- Tsai, S. C. (2020). Chinese Students' Perceptions of Using Google Translate as a Translingual CALL Tool in EFL Writing. *Computer Assisted Language Learning*, 35(5–6), 1250–1272.
<https://doi.org/10.1080/09588221.2020.1799412>
- Turnitin. (2020). The Impact of AI on Academic Integrity. *Turnitin White Paper*, 18(4), 423–430.
- Ubaidillah, M. (2022). Artificial Intelligence in English Writing: Flexibility and Creativity for Learners. *Asian Journal of English Language Studies*, 10(3), 89–102.
- UNESCO. (2023). *Harnessing The Era of Artificial Intelligence in Higher Education: A Primer for Higher Education Stakeholders*. United Nations Educational, Scientific and Cultural Organization.

- Wang, S., & Li, J. (2023). The Risks of Over-Reliance on AI In EFL Academic Writing: A Critical Review. *Computers and Composition*.
- Wong, C. Y., Tan, S. L., & Lee, J. H. (2022). Enhancing Writing Skills with AI Tools: Benefits and Limitations for Academic Tasks. *Journal of Language and Applied Linguistics*, 33(1), 58–73.
<https://doi.org/10.1016/J.Jlangappl.2022.06.004>
- Yousofi, R. (2022). Grammarly Deployment (In)Efficacy Within EFL Academic Writing Classrooms: An Attitudinal Report from Afghanistan. *Cogent Education*, 9(1), 1–27.
<https://doi.org/10.1080/2331186X.2022.2142446>
- Yunus, M. M., Alqurashi, E. M., & Ismail, H. (2021). The Role of Artificial Intelligence in Improving Digital Literacy in Writing: A Review of Challenges and Benefits. *Journal of Language and Education*, 37(4), 75–90.
<https://doi.org/10.1016/J.Jlangedu.2021.02.003>
- Zhang, X. (2023). AI-Powered Grammar Checkers: A Comparative Study of Grammarly and Traditional Writing Feedback for EFL Learners. *Language Teaching Research*.
- Zhao, Y., Et Al. (2021). EFL Students' Attitudes Toward AI-Supported Writing Tools. *English Language Teaching*.
- Zulfa, S. (2023). Tech-Assisted Learning Media Used in Students' English Academic Writing [Master's Thesis]. Jakarta.



Authors' Profile



Asmawati, M.Pd., was born on February 2, 1990, in Riau, Indonesia. She completed her primary education at SDN and MIS Islahiyah Panipahan, Riau (1996–2002), followed by her secondary education at MTs ExPGA UNIVA Medan (2002–2005) and MAS Ar-Raudhatul Hasanah Islamic Boarding School, Medan (2005–2009). She earned her Bachelor's degree in English Education (2009–2013) and continued her Master's degree in English Education at the Faculty of Tarbiyah Science and Teacher Training, State Islamic University of North Sumatra, Medan.

Her fields of expertise include English language education, academic writing, and technology-enhanced learning. Her research interests focus on the utilization of Artificial Intelligence (AI) tools in writing thesis. She also has teaching experience in English and Arabic at Madrasah Ibtidaiyah (Islamic elementary school) and senior high school, as well as teaching English through a tutoring program for undergraduate students at the University of North Sumatra.

During her student years, she was actively involved in several organizations, such as serving as Head of the Teaching Division at OPRH (*Organisasi Pelajar Ar-Raudhatul Hasanah*), and as a member of IPMP (Ikatan Pelajar dan Mahasiswa Panipahan) and PerPem Rohil (Persatuan Pelajar dan Mahasiswa Rokan Hilir). She also gained experience in journalism through her contribution as a writer for MATLA magazine, which was published monthly.



Dr. Utami Dewi, S.Pd., M.Hum., is a lecturer at the English Education Department, Universitas Islam Sumatera Utara, Medan, Indonesia. She has been actively engaged in teaching and academic service since 2008, with more than sixteen years of experience in higher education. Her teaching expertise covers a wide range of subjects, including Academic Writing, Creative Writing, Teacher Professional Development, Educational Technology in English Education, and Second Language Learning Theory.

She earned her Bachelor's degree (S.Pd.,) in English Language Education from Universitas Negeri Medan in 2005, followed by a Master of Humanities (M.Hum.,) in Applied Linguistics in 2007 from the same university. In 2020, she completed her

doctoral studies in Applied Linguistics at Universitas Negeri Medan, with a focus on language teaching and learning.

Her research interests include academic writing, creative writing, teacher professional development, educational technology in English Education, and Second Language Learning Theory. She has published articles widely in national and international journals, contributing to the field of English language teaching and applied linguistics. Her contributions have had a meaningful impact on both pre-service and in-service teachers, supporting their professional growth and pedagogical practices.



Dr. Sholihatul Hamidah Daulay, M.Hum., was born in Surabaya on June 22, 1975. She completed her Bachelor's degree in the English Language Education Department of the North Sumatra State Islamic Institute (IAIN SU) in 1999, then continued her Master's degree in the Linguistics Study Program at the University of North Sumatra (USU) in 2002, then completed a PhD in the Linguistics Study Program at the University of North Sumatra (USU) in 2014. Currently the author is a permanent lecturer at the Tadris English Study Program at the State Islamic University of North Sumatra (UIN SU) from 2003 till now.



The author actively conducts research and writes books including: Let's Study English (Cita Pustaka, 2007), Introduction to General Linguistics (La-Tansa, 2011), Language and Society (LPPP Medan, 2019), Basic Morphology (UMSU Press, 2021), Introduction to Linguistics (UMSU Press, 2022), Student Difficulties in Learning Speaking (Cendekia Muslim, 2022). Introduction to Linguistics (UMSU Press, 2022), Student Difficulties in Learning Speaking (Yayasan Pendidikan Cendekia Muslim, 2022), Fun Writing for Children: Games and Activities (Yayasan Pendidikan Cendekia Muslim, 2023), Perancangan Kuis Interaktif Panduan Praktis Berbasis ICT untuk Pendidik (Akademia Pustaka, 2023), Quick on the Draw for Writing Recount Text (Yayasan Pendidikan Cendekia Muslim, 2023), Easy English Conversation (Yayasan Pendidikan Cendekia Muslim, 2024), Improving Your Reading Skill (Cakrawala Satria Mandiri, 2024), 48 Pioneers of Western Linguist (Yayasan Pendidikan Cendekia Muslim, 2024), Picture Dictionary English-Arabic-Indonesian (Yayasan Pendidikan Cendekia Muslim, 2025), Strategi Pembelajaran Bahasa: Inovatif dan Menyenangkan (UMSU Press, 2025). Her research focused include English, Linguistics and Sociolinguistics. Her email at sholihatulhamidah@uinsu.ac.id.