International Postgraduate TESOL Students' Perceived Impacts of Generative AI Tools on Their Academic Writing Confidence: Multiple Case Studies in Flinders University in South Australia

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ABSTRACT

This study investigates the perceptions of international postgraduate TESOL (Teaching English to Speakers of Other Languages) students regarding their perceived impacts of Generative AI Tools (GAITs) on their Academic Writing Confidence (AWC) at Flinders University with a large enrolment of international postgraduate students from diverse cultural backgrounds. These students often encounter academic challenges in adapting to the new international academic environment, especially in their academic writing. Despite the existing literature on the influence of GAITs on academic writing, there remains a significant research gap concerning international postgraduate students' perceptions of its impacts on their academic writing confidence in the context of South Australian universities. To address this research gap, the study employs a qualitative approach by conducting four (04) in-depth case studies; each international postgraduate TESOL student at Flinders University represents a case study. Through semi-structured interviews, each participating student shares their own perspectives on GAIT usage, self-rated AWC and their perceived effects of GAIT on AWC. The thematic analysis of interview data provides valuable insights into how four (04) participants perceived the impacts of GAIT on their academic writing confidence. Cross-case data syntheses reveal that the interviewed international postgraduate TESOL students perceive generative AI tools as having positive impacts like increased efficiency and improving academic writing abilities while raising concerns about over-reliance, inhibited critical thinking, and challenges in independent writing scenarios. Drawing from the findings, this study offers recommendations for three (03) different key stakeholders of international postgraduate students, university lecturers and topic coordinators, and Flinders University itself. These recommendations, supported with the empirical interview data with a focus on responsible GAIT use, ethical considerations for students, and university guidelines, aim to help international postgraduate students build their academic writing confidence while being able to use GAITs responsibly and ethically towards academic writing success.

Statement of Originality

I hereby certify that, to the best of my knowledge, the content of this thesis is my own work. This thesis has not been submitted for any degree or other purposes. All assistance received in preparing this thesis, as well as all sources used, have been properly acknowledged, according to Flinders University's APA Referencing Guidelines 2024. I acknowledge the use of ChatGPT which is a Generative AI Tool (GAIT) developed by OpenAI in the formulation of this thesis for the purposes of spell checking and refining grammar, it was also used in early brainstorming stages of this assignment using the following prompt: How can students use AI tools ethically? The output was evaluated and used to further expand the literature search. I also recognise and acknowledge the contributions of others (i.e. my supervisor, Dr. Mai Ngo) from Flinders who collaborated with me in planning and designing the research project and revising the language used.

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A LIST OF ABBREVIATIONS

AWC	Academic Writing Confidence
CHASS	College of Humanities, Arts, and Social Sciences
EFL	English as a Foreign Language
ESL	English as a Second Language
GAITs	Generative Artificial Intelligence Tools
IELTS	International English Language Testing System
SP	Student Perceptions
TESOL	Teaching English to Speakers of Other Languages

A LIST OF TABLES

CHAPTER 1: INTRODUCTION

1.1 Overview of Chapter 1

The aim of this Introduction Chapter is to establish the foundation for this current research by justifying the research problem in context, introducing the key relevant concepts and presenting the research aim and research questions that guide the investigation. The chapter is structured into seven (07) sections. The ***first*** section provides an overview of the study's research context. The ***second*** section outlines the research problem. The ***third*** section presents the rationale for the study's chosen research focus on international postgraduate TESOL students' perceptions (SP) of Generative Artificial Intelligence Tools (GAITs) and their perceived impacts on academic writing confidence (AWC). The ***fourth*** section defines three key relevant concepts of Student Perception, Generative AI Tools, and Academic Writing Confidence (AWC), which are all essential guiding concepts for this study. The ***fourth*** section outlines the research problem, followed by the ***fifth*** section outlining the research aim and research questions. In the ***sixth*** section, the chapter defines the research scope which is to examine international postgraduate students' perceived impacts of GAITs on their Academic Writing Confidence (AWC) in a chosen university in South Australia. The ***seventh*** and final section provides a structural overview of this thesis.

1.2 The Context of the Study

Generative AI Tools (GAITs) like ChatGPT and Grammarly are transforming higher education worldwide, particularly in language learning and academic writing (Ghafar et al., 2023; Jin et al., 2024). This transformation is especially significant in international educational contexts where many students are non-native English speakers (Börjesson, 2017). In both English as a Second Language (ESL) and English as a Foreign Language (EFL) context, GAITs serve as vital resources for both teachers and learners, however, their roles, impacts, and challenges can vary in diverse cultural and educational settings in EFL and ESL contexts.

1.2.1 The Role of GAITs in EFL Contexts

In the global EFL settings where English is normally not available outside classrooms and thus mainly learned in classrooms as a foreign language, GAITs have become essential for enhancing EFL students' academic writing proficiency and addressing their language barriers (Jadhhav, et al., 2024). In EFL contexts such as China, Korea, and Iran, together with other English language skills, proficient English writing skills are critical for academic success, making GAITs increasingly popular for EFL students as a form of support for students' learning success (Terraschke & Wahid, 2011). EFL students have globally used GAITs for various academic tasks, including brainstorming, idea generation, and language enhancement. In Chinese universities, Song and Song (2023) found that GAITs provide students with personalised assistance that caters to specific language needs, helping them to meet the high requirements of academic writing.

Similarly, Yusuf et al. (2024) found that students in higher education across South America, Africa, Europe, and Asia benefit from GAITs by improving their English writing skills, supporting non-native English speakers in diverse educational environments. However, the integration of GAITs in EFL contexts is not without challenges. Chan and Hu (2023) cautioned that in Hong Kong, students' heavy reliance on GAITs may limit their development of critical thinking and creativity. Additionally, ethical concerns, such as maintaining academic integrity, are becoming prominent as universities seek to integrate GAITs responsibly within academic frameworks (Alam, 2023).

1.2.2 The Role of GAITS in ESL Contexts

In ESL contexts, where English is widely used outside classrooms for academic, social, and professional purposes, GAITs can be used as a common resource for non-native English-speaking students to fulfil academic requirements (Ma, 2024). In such ESL contexts as Canada, the United Kingdom, and New Zealand, international students face challenges in mastering academic writing conventions and meeting high standards of English proficiency (Rajendram, et al., 2019). In these ESL contexts, GAITs thus play a significant role in

supporting students' academic writing by enhancing grammar, structure, coherence, and clarity to help them meet rigorous academic standards (Budjalemba & Listyani, 2020).

International postgraduate TESOL students in ESL settings, including those in Canada and the UK, particularly benefit from GAITs, as their academic programs often require high levels of English proficiency in research and academic writing (Jeyaraj et al., 2020). Nevertheless, ESL contexts share similar concerns over ESL students' potential overreliance on GAIT tools that may affect their development of independent writing skills and critical thinking, as some students even perceive these tools as substitutes for their actual learning rather than supplementary learning resources (Phakiti & Li, 2023).

1.2.3 The National Australian Context

In the national Australian context, like other ESL contexts in the world, Generative AI tools (e.g., ChatGPT, Quillbot, and Grammarly), offer a possible solution for all Australian students, especially Australian ESL students who face academic writing challenges (Moses & Mohamad, 2019). These academic writing challenges are often due to language barriers and their limited exposure to English speaking environments, affecting their ability to understand and express themselves effectively as well as their academic writing and integration into Australian society (Fan, 2019).

Tertiary Education Quality and Standards Agency (TEQSA) is an independent quality assurance and regulatory agency for higher education institutions in Australia. In November 2024 TEQSA published Gen AI strategies for Australian higher education. These guidelines focus on the use of GAITs in higher education, highlighting the importance of maintaining academic integrity, adapting assessment methods, and supporting students and staff in the ethical use of these tools (TEQSA, 2024). The guidelines encouraged Australian higher education institutions to integrate AI literacy into the curricula while ensuring that work created with the assistance of GAITs does not compromise integrity. Additionally, TEQSA recommends that universities and other higher education institutions develop clear governance strategies, risk assessment frameworks, and continuously review processes to manage the impacts of GAIT use on learning and teaching.

A preliminary literature review reveals that Generative AI tools present both opportunities and challenges for ESL learners in Australian universities. While GAITs offer immediate feedback and language suggestions that can be valuable for improving writing skills (Bahroun et al., 2023), the rapid adoption of GAITs has raised concerns over its potential to hinder the development of Australian students' critical thinking and independent writing abilities (Chan & Hu, 2023; Fowler et al., 2023). These potential benefits and drawbacks are reflected in Fowler et al.'s (2023) analyses of the updated policies and ongoing discussions within Australian universities. It is important to note that there is still a lack of studies on the impacts of GAITs on AWC perceived by international students in Australian universities, especially by TESOL international postgraduate students (Phakiti & Li, 2023; Yeo, 2023). This then prompted the current research investigating the impacts of GAITs on AWC, as perceived by international TESOL postgraduate students in a South Australian university.

1.2.4 The Local South Australian Context

In the local context of South Australia, reputable universities like the University of Adelaide, the University of South Australia and Flinders University all acknowledge both the possible benefits and risks of GAITs and have thus developed their position statements and implemented their own policies on the use of GAITs for academic work (e.g., Flinders University Library, 2024; University of South Australia, 2024; University of Adelaide, 2023). Students in these three large South Australian universities are allowed to use AI tools with the permission of their topic coordinators and with proper acknowledgement of their use, strictly following their respective universities' guidelines. However, these South Australian universities' policies raise concerns over their students' appropriate use of GAITs while maintaining academic integrity and facilitating their development of essential academic writing skills. The lack of clarity and guidance on what constitutes "proper acknowledgement" and "permitted use" might lead to inconsistencies in implementation across courses and disciplines in these Universities in South Australia (Moorhouse et al., 2023). Further research is thus required to investigate the long-term impacts of GAITs, as

perceived by international postgraduate TESOL students, on their academic writing confidence within the specific local South Australian context of Flinders University.

1.3. Research Problem

This study puts under the spotlight the research problem in relation to international postgraduate TESOL students' reliance on the use of GAITs for improving their academic writing confidence in Australian university contexts. This research problem has been well documented in the literature (Giridharan & Robson, 2011; Huang et al., 2022; Phakiti & Li, 2011). For international postgraduate TESOL students, this challenge is even more intensified as they are future English teachers and are required to produce high-quality academically written assignments, research or thesis work (Jeyaraj et al., 2020). The rise of GAITs has added complexity to this struggle with more students turning to these tools for academic writing support (Perdana et al., 2021; Rudolph et al., 2023). While GAITs can help improve students' writing efficiency, spelling, grammar, vocabulary, idea generation and structure their writing, its effects on students' academic writing confidence (AWC) and the quality of their academic work remain largely unexplored (Johnston et al., 2024; Rahman & Watanobe, 2023). This current study thus explores how GAIT is being used by international postgraduate TESOL students and their perceived impacts of GAITs on AWC.

1.4. Rationale

This study is conducted for the two following main reasons. ***First***, the emergence of GAITs can provide potential tools for brainstorming, drafting, and editing their written work (Fui-Hoon Nah et al., 2023; Rudolph, et al., 2023). In fact, GAITs are especially relevant to international postgraduate students, including TESOL students who often face academic writing challenges and need to have a high level of writing proficiency (Wang et al., 2023). It is thus important to conduct an empirical study for a deeper understanding of the perceived impacts of GAITs on academic writing confidence among international postgraduate TESOL students who will be future English language educators in a world increasingly shaped by AI (Mhlanga, 2023). Such deeper understanding could help topic coordinators, lecturers and teaching assistants in the postgraduate TESOL program and

beyond so that they could better help their students boost their academic writing confidence while using GAITs responsibly and ethically.

Second, this study aligns with the researcher's own interest in and passion for understanding international students' perceived impacts of GAIT on their academic writing confidence (AWC). As the researcher intends to teach academic English in the future, the researcher holds the strong belief that AI will continue to grow in the field of higher education, especially in academic English language education. By investigating how GAIT influences AWC among postgraduate TESOL students, the researcher aspires to gain knowledge that can inform own academic English language teaching practices and explore ways as to how AI can be used to support students' language learning and academic writing confidence/success.

1.5. Definition of Three Key Guiding Concepts

To conduct this current study on the international postgraduate students' perceived impacts of GAIT on their AWC, it is important to define **three (03)** relevant guiding concepts of Student Perceptions (SP), Academic Writing Confidence (AWC), and Generative AI Tools (GAIT), first starting with the concept of SP.

1.5.1. The Concept of Student Perceptions (SP)

Student perceptions (SPs) are defined by Yang et al. (2013) as a multifaceted understanding of the learning environment shaped by students' comprehension, prior knowledge, and contextual awareness. These perceptions include their beliefs, feelings, and attitudes towards various aspects of the learning environment, including oneself, peers, teachers, tasks, and the overall classroom atmosphere (Schunk & Meece, 1992). SPs are not merely passive observations but actively influence their motivation, engagement, and learning outcomes. Highlighting the importance of SP, Holmes (2014) asserts that to provide effective teaching and learning practices that cater to students' individual needs, students' perceptions should be taken into account. In this study, following Holmes (2014), student perceptions are conceptualised in this study as **their beliefs, feelings, and attitudes** towards the use of Generative AI Tools (GAIT) and **their perceived impacts** of these tools on their Academic Writing Confidence (AWC).

1.5.2. The Concept of Academic Writing Confidence (AWC)

Academic Writing Confidence (AWC) is defined as one's self-belief in their abilities to successfully complete academic writing tasks, such as essays, lesson plans, and literature reviews, while adhering to scholarly conventions (Zotzmann & Sheldrake, 2021). This concept draws upon Bandura's (1986) self-efficacy theory, suggesting that a student's confidence in their writing abilities directly influences their writing behaviours and outcomes. AWC is more than being proficient in expressing ideas; it encompasses the mastery of academic writing standards, including citation styles and formatting guidelines. In line with Zotzmann and Sheldrake's (2021) definition, this study conceptualises AWC as a university student's self-assurance in their academic writing abilities to produce scholarly well-structured written work.

Following the criteria or descriptors for assessing the academic writing abilities set by the International English Language Teaching System (IELTS), this current study conceptualises academic writing abilities as four (04) abilities for Task Achievement, Coherence and Cohesion, Lexical Resource, Grammatical Accuracy and Range (IELTS, 2024). Academic writing confidence in this current study thus refers to confidence in those four abilities. (See **Appendix 1** - IELTS Task 1 and Task 2's Band Descriptors).

1.5.3. The Concept of Generative AI Tools (GAITs)

Generative Artificial Intelligence Tools (GAITs), such as ChatGPT, Grammarly, Co-pilot, and Gemini, are new versions[1] of AI tools being online platforms or applications that utilise machine learning to aid in human tasks, including academic writing tasks. As described by Feuerriegel et al. (2024), these new GAIT tools operate through a human-AI interaction: a user inputs a prompt asking AI to do something for the user, the AI interprets the prompt to understand the user's intent, and then employs a language model to either generate content or provide feedback. While ChatGPT, recently identified by Fui-Hoon Nah et al. (2023) as a widely popular GAIT tool, shares similarities with other GAIT tools, each tool may offer its unique functionalities. This study follows Feuerriegel et al. (2024) and defines GAIT as any computer-based models that use machine learning to create new content

or modify existing content; they are where students input prompts to receive feedback or generate content, with a particular focus on their use in academic writing. It is important to note that the use of GAITs can lead to a range of positive and negative impacts (Chan & Hu, 2023; Ghimire, 2024).

1.6 Research Aim and Research Questions

1.6.1 Research Aim

This study aims to investigate **how international postgraduate TESOL students** in a South Australian university, particularly in Flinders University, **perceive the impacts of generative AI tools (GAITs), such as ChatGPT and Grammarly, on their academic writing confidence (AWC)**. By studying the participating international TESOL students' perceived impacts of these tools on AWC, the study seeks to identify their perceived challenges and opportunities associated with integrating GAITs into TESOL education at the university level. The findings could help provide practical recommendations for effectively and ethically incorporating GAITs into enhancing AWC among English as a Second Language (ESL) students while mitigating potential drawbacks. It is hoped that this study will contribute to a deeper understanding of how AI technological tools can be used to support language learning and strengthen AWC among international postgraduate TESOL students at Flinders University and beyond.

1.6.2 Research Questions

Towards achieving the above-mentioned research aim, this study seeks answers to the **two (02) following main research questions** and sub-questions:

- **Main Research Question 1:** How do international postgraduate TESOL students at Flinders University in South Australia **perceive their uses of Generative AI Tools** for their academic writing confidence?

- **Main Research Question 2:** What are **the impacts of Generative AI Tools** on their academic writing confidence, as perceived by international Postgraduate TESOL students at Flinders University, South Australia?

Being guided by the *Generative AI and Academic Writing Confidence (GAIT-AWC) Conceptual Framework* (See **Section 2.4** for details) that highlights the perceptions international postgraduate TESOL students have, regarding the conceptual relationship between GAIT uses and their AWC, this current study formulates the three following sub research questions in relation to Research Question 1:

- **Sub-question 1a**: To what extent do international postgraduate TESOL students at Flinders University perceive **their uses** of GAITs?
- **Sub-question 1b:** What perceptions do international postgraduate TESOL students at Flinders University have of the **frequency of** their GAIT use for their Academic Writing?
- **Sub-question 1c:** What perceptions do international postgraduate TESOL students at Flinders University have of **the purposes o**f GAITs for their AWC?

Conceptualising the international students' perceptions on GAIT uses as the extent to which they perceive ***their uses, the frequency and purposes*** of GAIS, these three (03) sub-questions *(1a, 1b and 1c)* were developed to reveal answers to Research Question 1, helping to understand the extent to which GAITs have been integrated into the academic writing practices of international TESOL students, with the aim of revealing how students engage with these GAIT tools in their daily academic writing tasks (Chan & Hu, 2023).

Conceptualising the impacts of GAITs as ***their general impacts, positive/negative impacts*** on international postgraduate TESOL students' AWC, this current study formulates the four following sub research questions in relation to Research Question 2:

- **Sub-question 2a**: What are the **general impacts** of GAIT on the Academic Writing Confidence, as perceived by international postgraduate TESOL students at Flinders University, South Australian?

- **Sub-question 2b:** What are t**he possible positive impacts** of GAIT use on the Academic Writing Confidence, as perceived by international postgraduate TESOL students at Flinders University, South Australia?

- **Sub-question 2c:** What are **the possible negative impacts** if any of GAIT use on the Academic Writing Confidence, as perceived by international postgraduate TESOL students at Flinders University, South Australia?

- **Sub-question 2d**: How can **the possible negative impacts** of GAIT use, if any, on students' AWC **be minimised**, as perceived by international Postgraduate TESOL students at Flinders University, South Australia?

The first three sub-questions *(2a, 2b and 2c)* were used to reveal answers to Research Question 2, helping to understand students' subjective views on how generally, positively or negatively GAITs affect their confidence in academic writing. They seek to explore both the perceived benefits and potential drawbacks of GAITs for AWC, highlighting the need for exploring students' perceived impacts of GAITs on their AWC, Kelly et al. (2023) and Johnston et al. (2024) asserted that students have a range of perspectives about the positive and negative impacts of using GAIT for academic writing which should be explored further in specific real-life academic contexts. This current study takes the view that in case university students perceive any negative impacts, as mature adult learners, they might use strategies to minimise them, thus justifying sub-question 2d.

1.7. The Scope of the Study

Due to time and resource constraints, this study has its limited scope. ***First,*** it only focuses on the perceptions of participating international students within the TESOL program at Flinders University, South Australia. ***Second***, methodologically, the research employs a qualitative research approach by conducting four student case studies; each international postgraduate student represents a case study, to examine their perceived use of GAITs and their perceived impacts of GAITS on their AWC at Flinders University. The use of multiple case studies allows for an in-depth exploration of individual experiences and perspectives in this specific academic context, enabling participants to share their thoughts, feelings, and experiences in their own words, providing rich empirical qualitative data surrounding the perceived impacts of GAITs on AWC; however, the findings are limited to only four international students case studies. ***Third***, it is geographically limited to the context of one

postgraduate TESOL program in a university in South Australia, particularly Flinders University where the researcher is based, and the research was conducted.

1.8. Structural Overview

This thesis is structured into five (05) main chapters.

Chapter 1 is an introduction Chapter, providing background information, the international, national and local contexts of the study, the research rationale, the definitions of the three key relevant concepts of Student Perceptions (SP), Academic Writing Confidence (AWC) and Generative AI Tools (GAIT), justifying the research problem, aim, questions, and chosen research focus (i.e. the limited scope of the study).

Chapter 2 is a review of studies on the use of Generative AI Tools (GAIT) in the global, national and local South Australian contexts, revealing the research gap that the research aims to narrow and justifying the chosen research focus

Chapter 3 describes the chosen research methodology, and research design, ethical consideration, research participants, data collection, and analysis methods employed in the study.

Chapter 4 reports the thematic analyses of data and discusses the findings with supporting empirical interview data in light of the relevant literature review.

Finally, **Chapter 5** is a concluding chapter which summarises the key findings, offers practical recommendations for TESOL lecturers, course coordinators and students themselves at Flinders University and beyond, discusses the significance and limitations of the study, and suggests implications for future research and practice before presenting the concluding remarks.

1.9 Summary of Chapter 1

This introductory chapter lays the foundation for the current study, offering a brief overview of the study's context and defining three key concepts of Student Perception (SP),

Generative AI Tools (GAIT), and Academic Writing Confidence (AWC). It underscores the importance of exploring postgraduate international students' perceptions of GAIT's impacts on AWC within a South Australian university setting. It justifies the chosen research problem, aim and questions and highlights the chosen research focus, including the scope of the study. The following chapter (Chapter 2) will systematically review the relevant literature systematically in light of the two (02) main) research questions that are presented in this Chapter.

CHAPTER 2: LITERATURE REVIEW

2.1 Overview of Chapter 2

This chapter reviews studies published between **the time frame of 2011 and 2024**. This time frame was chosen to incorporate a range of seminal studies published over the last 13 years, with research related to academic writing confidence (AWC) emerging from 2011 onwards. Notably, reviewed studies relating to Generative AI Tools (GAITs) in this Chapter were published since 2019 as this was the time when GAIT emerged with the rise in public interest and the growing integration of AI technological tools within higher educational contexts (Pedro, et al., 2019; Pham & Samson, 2022).

The **scope** of the literature review in this Chapter includes a wide array of studies conducted during the period of 2011 - 2024 in global, national (Australian) and local (South Australian) contexts. By examining diverse geographical and educational settings, the review provides a comprehensive understanding of GAITs impacts on AWC. This literature review particularly allows for a thorough exploration of how these tools have been perceived and used in different cultural and institutional contexts.

The primary **purpose** of this chapter is to systematically review relevant studies on the use of GAITs in higher education and their impacts on AWC. This review seeks to identify a gap in the existing research, particularly revealing a lack of studies on the perceptions and experiences of international university students, who often navigate unique challenges related to their English language proficiency and academic writing (Moses & Mohamad, (2019). By focusing on this specific demography, this Chapter highlights the necessity for further investigation into how GAITs can support or hinder these students' academic writing processes and their overall academic writing confidence. Ultimately, the chapter aims to contribute to the body of knowledge surrounding the relationship between GAITs and AWC, offering insights that inform discussions on future educational practices and policies in relation to the use of GAITs in higher education contexts.

The chapter is organised thematically into **five (05)** sections. The ***first*** section reviews studies that examine the use of GAITs for academic writing in higher education, laying the

foundation for understanding how these GAITs are shaping students' academic writing practices. The ***second*** section reviews studies exploring the varying impacts of GAITs on university students' academic writing confidence across different regions and higher educational systems. The ***third*** section reviews studies to identify a relevant Conceptual Framework for Studying International Students' Perceptions of GAITs' Impacts on AWC and the ***fourth*** section reveals the research gap. The chapter reviews studies on both the positive and negative impacts of GAITs on AWC, presenting a balanced perspective on the advantages and challenges associated with the use of GAITs in the literature.

2.2 Reviewed studies on the use of Generative AI Tools (GAITs) for academic writing in higher education

Generative AI Tools (GAITs) like ChatGPT and Grammarly Go have witnessed a rapid growth in the field of higher education globally, particularly in English-speaking countries such as the USA and the UK, where their use in academic writing is becoming widespread (Perdana et al., 2021; Rudolph et al., 2023). The rise of GAITs has also been prominent in non-English speaking countries like those in Asia, Europe, and Latin America, with universities across these regions exploring how these technological tools can enhance both teaching and learning practices (Fernández-Miranda et al., 2024; Perdana et al., 2021; Zhai & Wibowo, 2023). The following sections review studies on the use of GAITs for academic writing in higher education in both English and non-English speaking countries, first starting with English speaking countries.

2.2.1 The use of Generative AI Tools (GAITs) for academic writing in higher education in English Speaking Countries

In the USA

In the USA, Generative AI Tools (GAITs) are becoming an integral part of the academic landscape, particularly among university students who use tools such as ChatGPT and Grammarly Go to enhance their writing skills, draft essays, conduct literature reviews,

and refine grammar and style (Dang & Wang, 2024). American university students were reported to be using GAITs to provide real-time feedback and support collaborative writing, contributing to their widespread acceptance in both traditional classrooms and online learning environments (Pierce, 2024). For example, the University of South Florida (USF), a large research university with over 40,000 students, has been actively exploring the potential of AI to enhance instructional and research practices (Fruehauf et al., 2024). Through its Institute for AI+X, USF has organised open discussions on the application and regulation of GAITs like ChatGPT in academic settings. Similarly, a recent mixed-methods study by Hamerman, Aggarwal, and Martins (2024) investigated the impact of GAITs in higher education, focusing on undergraduate business students at American universities and found that American students were more inclined to use GAITs when they perceived them as beneficial for learning outcomes and socially accepted as learning tools. However, concerns over academic cheating discouraged some from using these tools. The research also revealed that American students preferred institutional policies that permit GAIT use within clearly defined boundaries, guiding them in how to use GAITs ethically and with academic integrity.

In the UK

Universities across the UK are exploring how Generative AI Tools (GAITs) can enhance student engagement with academic writing and improve their AWC (Johnston et al., 2024). GAITs such as ChatGPT are being used by students for various academic writing tasks, ranging from initial brainstorming to final editing, enabling students to develop their ideas more effectively and efficiently (Perdana et al., 2021; Rudolph et al., 2023). Recognising the importance of academic integrity, institutions have established guidelines for the responsible use of AI technologies in the writing process (Watermeyer, 2024). For example, the University of Edinburgh developed guidelines on how to use GAITs to emphasise critical reflection, encouraging students to reflect on and express how the tools have supported their academic process (University of Edinburgh, 2024).

More recently, in 2024, Sue Attewell, Head of AI at the Joint Information Systems Committee (JISC), conducted research highlighting evolving student perceptions of GAITs in the UK higher education. This research reported that in nine student forums involving over

200 participants from institutions such as the University of the Arts London, Belfast Metropolitan College, and the University of Bolton, key changes in how students utilised and viewed GAITs were identified (Attewell, 2024). The majority of surveyed students viewed these tools as collaborative learning partners that support critical thinking and active learning, rather than merely as providers of responses to their assignments' questions. Surveyed students also advocated for the integration of GAITs into curricula, with a strong emphasis on developing AI-related skills essential for future careers.

2.2.2 The use of Generative AI Tools (GAITs) for academic writing in higher education in Non-English-Speaking Countries

This subsection reviews studies conducted on the use of GAITS for academic writing in higher education in non-English speaking countries in Asia, Europe and Latin America, first starting with Asian studies.

In Asia

In non-English speaking countries in Asia, particularly in Thailand and China, the integration of Generative AI Tools (GAITs) into higher education is growing rapidly. These Asian countries are at the forefront of utilising tools like ChatGPT and Grammarly Go to support non-native English speakers, helping them overcome language barriers and enhance their academic writing skills (Songsiengchai et al., 2023). This trend is driven by the recognition that English language proficiency is essential for academic success and employability in a globalised world (Peltokorpi, 2023). Asian universities are increasingly adopting GAITs to offer personalised learning experiences, instant feedback, and self-directed learning support, thereby fostering a more engaging and effective educational environment (Zhai & Wibowo, 2023).

Asian university students have primarily used GAITs for idea generation and assignment support (Chen et al., 2020). However, they have also expressed concerns over plagiarism, inaccuracy, and over-reliance on technology, alongside a strong demand for clearer ethical guidelines for its use. A notable study by Songsiengchai et al. (2023) examined the potential of GAITs like ChatGPT to enhance English language learning among Thai students. The study involved 120 first-year Thai pre-service English language teachers in

Bangkok, aged 19–20, divided into control and experimental groups. Using a mixed-methods approach, including standardised English tests, ChatGPT interactions, focus group interviews, and field notes, Songsiengchai et al. (2023) found that Thai university students who used ChatGPT demonstrated significant improvements in language skills, greater engagement, and positive attitude shifts, compared to those taught through traditional methods without the use of ChatGPT. These findings underscore the transformative potential of GAITs in language learning by enabling personalised learning experiences and boosting student engagement.

Recent research by Nauman Khan et al. (2024) highlights the expanding impacts of GAITs across various fields in Asia. A systematic literature review conducted by Nauman Khan et al. (2024) found a widespread adoption of ChatGPT in sectors such as healthcare (38.6%), computer science (18.6%), and education (17.3%), with China and India emerging as major adaptors. This study reports the growing influence of GAITs in education and beyond in Asian countries.

In Europe

Reviewed studies reveal the integration of GAITs into European higher education is significantly transforming academic writing practices and teaching methodologies (Kumar et al., 2024; Von Garrel & Mayer, 2023). University students in European countries including Slovenia, Germany and others are embracing this transformation, utilising tools like ChatGPT for brainstorming, idea generation, and grammar enhancement (Perdana et al., 2021; Rudolph et al., 2023). Across Europe, there is a strong emphasis on academic integrity and ethical technology use, prompting higher education institutions to establish guidelines for the responsible adoption of GAITs in academic settings (Kumar et al., 2024).

A recent study on Slovenian students' use of GAITs (Fosner, 2024) provides valuable insights into how these technologies can be integrated into academic writing routines. Surveyed students in this study were reported to have predominantly used AI for tasks such as summarising and paraphrasing texts, translating, checking grammar and spelling. GAITS were viewed by surveyed students primarily as supportive aids, particularly for improving the clarity and correctness of academic written work. Moreover, this study provided statistical

evidence from an ANOVA test showing that the level and field of study significantly influence how Slovenian university students used AI tools.

Similarly, a quantitative study conducted by Von Garrel and Mayer (2023) involved a nationwide survey of over 6,300 German university students. This study analysed the use of GAITs tools like ChatGPT. The study found that almost two-thirds of the students interviewed had used these tools during their studies, with engineering, mathematics, and science students being the most frequent users. Key uses for GAITs included research and literature reviews, text creation, exam preparation, and clarification of subject-specific concepts. The findings highlighted the diverse ways European university students integrate GAITs into their academic work.

In Latin America

There is a growing integration of GAITs in Latin American universities, highlighting its transformative potential and associated challenges according to a qualitative study conducted by Fernández-Miranda et al. (2024). The study, based on a large and diverse sample of 665 teachers from countries including Venezuela (39.1%), Cuba (16.1%), Ecuador (9.0%), Colombia (7.8%), and Peru (7.8%), underscores the regional diversity in GAIT adoption. The findings reveal the increasing use of GAITs to enhance teaching, research, and administrative efficiency. However, the study also addresses concerns about equitable access, faculty training, and the balance between automation and fostering critical thinking in higher education across the region.

Reinforcing this study, a systematic review of GAITs in higher education across Latin America undertaken by Salas-Pilco and Yang (2022) highlights its gradual adoption in countries such as Brazil, Mexico, and Argentina. Despite a slower integration into the field of higher education when compared to other sectors like medicine and finance, AI is increasingly being used for predictive modelling, generating analytics, and assistive technologies such as spell-checking or screen-reading to address key challenges in student performance, mental health, and post-graduation outcomes (Salas-Pilco & Yang, 2022). The study emphasises the need to raise awareness among stakeholders about GAITs potential benefits, as technological advances reshape knowledge creation and transmission in Latin America’s higher education institutions.

To sum up, the reviewed literature reveals that GAITs are progressively transforming Latin American higher education through improving teaching, research and student support. While there is regional diversity in the adoption of GAITs, there are also shared challenges of equitable access, training and balancing automation with critical thinking in Latin America.

2.2.3 In the national contexts of Australian higher education

In the national context of Australian higher education, the rise of AI technologies has led to significant shifts in traditional assessment methods and led to discussions about integrating AI into higher educational practices (Fowler et al., 2023). As universities increasingly recognise the potential of Generative AI Tools (GAITs), such as ChatGPT, to enhance the learning experience, they are reevaluating their assessment frameworks and teaching methodologies to accommodate these innovations. Eager and Brunton's (2023) study at the University of Tasmania provides essential instructional advice for effectively incorporating AI tools in higher education, emphasising the growing impact of AI on teaching and learning strategies. The authors advocate for a proactive approach to AI integration, suggesting that educators need to equip themselves and their students with the skills necessary to navigate and utilise these technological tools effectively.

Furthermore, many Australian universities are embracing AI to enhance educational practices, recognising its potential to foster personalised learning experiences, improve student engagement, and modernise administrative processes (Bjork, 2023; Cassidy, 2023). For example, Australian higher education institutions like the University of Sydney and Monash University have initiated pilot programs to explore how AI can facilitate collaborative learning and enhance student support services (Cotton et al., 2023; Kung et al., 2023; McCallum, 2023).

Another notable empirical study by Sandu et al. (2024) surveyed 74 students from Central Queensland University, an Australian higher education institution, revealing a generally positive response to ChatGPT, with an average satisfaction rating of 3.88 out of 5. This indicated that students appreciate the benefits of AI tools, particularly in enhancing their writing skills and providing timely feedback.

However, Sandu et al. (2024) also uncovered significant areas for improvement, particularly concerning data privacy and academic integrity. Concerns about AI's potential to undermine academic integrity, such as plagiarism and the authenticity of student work, continue to provoke debate among educators and policymakers (Gilliver-Brown & Lamb, 2024). This highlights the urgent need for comprehensive policies and ethical guidelines to govern the use of AI in Australian higher educational settings, ensuring that these tools are utilised responsibly and effectively.

Most recently, the research conducted by Gilliver-Brown and Lamb (2024) and Sandu et al. (2024) underscores the importance of ongoing investigation into AI's long-term impacts on education. These reviewed studies highlight that ethical GAIT use will be crucial in preserving the integrity of students' academic writing while allowing them to utilise the transformative potential of these innovative tools. As these trends unfold across Australian universities, South Australian higher education institutions are similarly navigating the integration of GAITs in their higher educational frameworks.

2.2.4 In the local contexts of South Australian higher education

In South Australian higher education, universities such as Flinders University, the University of Adelaide, and the University of South Australia are all increasingly addressing the ethical use of Generative AI Tools (GAITs), particularly with the growing integration of tools like ChatGPT in academic settings (Fowler et al., 2023). The University of Adelaide and UniSA have both developed policies that emphasise responsible AI use, encouraging students to utilise GAITs to enhance their learning and skills, while cautioning against using them as a substitute for their academic development (The University of Adelaide, 2023; The University of South Australia, 2024). These South Australian universities advocate for a balanced approach where AI serves as a supporting tool, enhancing creativity and efficiency without compromising the authenticity of student work.

At Flinders University, the policy allows students to use GAITs like ChatGPT, but only with the approval of the topic coordinator. Students at Flinders University are required to acknowledge their use of AI tools appropriately, ensuring transparency and upholding academic integrity (Flinders University Library, 2024). This flexible yet controlled approach

to the use of GAITs at Flinders University is designed to encourage ethical AI use while maintaining academic standards.

Additionally, there is a growing recognition of the need for ethical standards in AI policies, ensuring that while GAITs may offer benefits such as improved writing and research efficiency, they do not lead to an erosion of academic honesty (Michel-Villarreal et al., 2023). Despite these developments, research on the actual use of GAITs within South Australian higher education institutions and their impact on students' academic writing confidence (AWC) remains limited. This gap in the literature indicates a promising area for future research, particularly to understand how GAITS affect students' use of GAITs are perceived to have impacts on their AWC or not is open for investigation.

2.3 Reviewed Studies on the Impacts of GAIT on University Students' AWC

The literature review reveals the impacts of Generative AI Technologies (GAIT) on Academic Writing Confidence (AWC) has emerged as a critical area of research as universities worldwide increasingly integrate these tools into their academic practices. Numerous studies have examined how GAIT affects students' confidence in their academic writing abilities, revealing both positive and negative perceptions among university students in the Asia, UK, USA and Australia (Arowosegbe, 2024; Johnston, et al. 2024; Rudolph et al., 2023) (see ***Appendix 2*** for studies organised by geographic location). According to these studies, students' experiences with GAITs are diverse, and their perceptions often depend on their specific usage patterns and the level of reliance they develop. While some students in those geographical contexts reported that GAIT enhances their writing skills and confidence, others express concerns over their heavy reliance on AI and its potential to undermine their fundamental writing abilities. Notably, there is a lack of studies in the Australian context and whether the students' use of GAITs in Australian contexts is perceived to have impacts on their AWC or not is open for investigation.

2.3.1 Positive Impacts of GAITS on University students' AWC

Studies conducted on EFL university students have identified several positive impacts of Generative AI Tools (GAIT) on students' Academic Writing Confidence (AWC). One significant benefit is that these tools provide immediate feedback, allowing students to engage in self-directed learning and personalised writing improvement (Alshater, 2022; Zhai & Wibowo, 2023). This immediate feedback mechanism enables students to identify and correct errors in real-time, fostering a more iterative writing process. For example, AI tools can offer personalised suggestions based on individual writing styles, helping students refine their voice while enhancing clarity and coherence.

Moreover, tools like ChatGPT are particularly effective in helping students overcome writer's block (Tica & Krsmanovic, 2024). By facilitating brainstorming sessions and generating creative content, these tools empower students to explore new ideas without the intimidation that often accompanies complex writing tasks (Fitria, 2023). This kind of support can significantly reduce students' writing anxiety, making it a more approachable task. Additionally, GAITs were found to help streamline literature searches and summarisation tasks, freeing students to dedicate more time to critical analysis and synthesis rather than spending time in data gathering (Brynjolfsson et al., 2019). This efficient use of GAITs, according to Brynjolfsson et al. (2019), not only fosters a deeper engagement with the content but also encourages students to develop their analytical skills, as they can focus on drawing connections and insights rather than merely collecting information.

Furthermore, AI-powered tools, according to Alharbi (2023), can improve grammar, style, and overall writing quality by providing real-time corrections and suggestions. This immediate enhancement of writing quality not only boosts students' writing competence but also enhances their confidence in their own abilities (Ahmadi, 2018; Perdana et al., 2021). In research conducted by Mcintosh (2023), many students highlighted that the consistent assistance from GAITs made them more willing to engage in writing assignments and take on challenging projects, resulting in a more positive attitude towards academic writing overall.

Moreover, the accessibility of GAITs has also been noted as a positive aspect; students can use these tools anytime and anywhere, creating a more flexible learning environment (Wang et al., 2023). This accessibility is particularly beneficial for non-native English speakers who may require additional support in navigating academic writing

conventions (Huang et al., 2022). Overall, the positive impacts of GAIT on AWC underline their potential as transformative tools in the educational landscape, empowering students to enhance their writing skills and build the confidence necessary to succeed academically (Ahmadi, 2018; Alharbi, 2023; & Alshater; 2022).

2.3.2 Negative Impacts of GAITS on University students' AWC

Despite their advantages, there are also substantial concerns about the negative effects of Generative AI Tools (GAIT) on Academic Writing Confidence (AWC), as reviewed in the existing literature. One of the most frequently cited issues is students' growing dependence on these tools, which can lead to their overreliance and the erosion of their fundamental writing skills such as grammar, vocabulary, and self-editing capabilities (Bahroun et al., 2023; Rane et al., 2023). This dependence raises significant concerns among educators, who fear that students might lean too heavily on AI for writing assistance, potentially diminishing their ability to engage with their writing process independently (Ghimire, 2024). Surveyed educators in the mixed methods study conducted by Ghimire believed that if students become accustomed to relying on AI-generated content, they may neglect the essential practice of developing their own voice, which is crucial for authentic self-expression in academic writing.

Moreover, an excessive use of AI tools may reduce opportunities for students to learn from their mistakes and engage in self-correction, which is essential for developing long-term writing competence (Chan & Hu, 2023; Farrokhnia et al., 2024). The iterative nature of writing, which includes drafting, revising, and reflecting on one's work, is often sacrificed in favour of quick fixes provided by GAITs (Wu, 2024). This can create a superficial understanding of writing conventions and strategies, ultimately hindering students' growth as competent writers. Similarly, critics argue that students' reliance on AI tools can impair their critical thinking and analytical skills, as students may accept AI-generated solutions without fully engaging with the material or the writing process leading to a superficial understanding of concepts (Coniam, 2014; Wang et al., 2023).

Additionally, frequent AI assistance can also undermine students' independent problem-solving abilities, which are crucial in high-pressure situations like exams

(Budjalemba & Listyani, 2020; Parsakia, 2023). Consequently, heavy reliance on AI may create a false sense of writing confidence, as students may struggle to perform well in settings where AI tools are unavailable, such as during timed assessments (Khosravi et al., 2022; Zotzmann & Sheldrake, 2021). The absence of AI support during examinations can expose gaps in their writing abilities, further affecting their self-esteem and overall confidence in academic settings.

Lastly, it is worth noting that there is limited research on the specific impacts of GAIT on international students, indicating a critical gap in the literature that warrants further investigation to understand how these tools influence diverse student populations and their academic writing challenges. International students may face additional hurdles, such as cultural differences in writing expectations and English proficiency gaps, which could be heightened by an overreliance on AI (Huang et al., 2022). Understanding these dynamics is essential for developing effective educational practices and support systems that address the distinct needs of these students. Thus, future research should aim to explore the impacts of GAIT on AWC among international students to provide a deeper understanding of how these tools can be harnessed to build academic writing confidence which is of significance to their academic success.

2.3.3 Mixed Impacts of GAITS on University students' AWC

In addition to the positive and negative impacts, reviewed studies indicate that the effects of GAIT on AWC can be mixed, depending on the context and individual student circumstances (Johnston et al., 2024; Song & Song, 2023). For example, while some students find that using GAIT fosters their confidence and encourages them to take more risks in writing, others may feel overwhelmed by the volume of suggestions and feedback provided, leading to confusion and anxiety about their writing choices. This variability highlights that the effectiveness of GAIT can depend on the students' prior writing experience, familiarity with AI tools, and the specific academic demands they face (Huang et al., 2022).

2.4 Reviewed Studies on a Conceptual Framework for Studying International Students' Perceptions of GAITs' Impacts on AWC

In this current study, the researcher made conscious efforts to thoroughly search for relevant studies to identify a potential conceptual framework for investigating international students' perceptions of GAITs' impacts on AWC, using the key words of "student perceptions", "generative AI tools" and "academic writing confidence" in the search engine of Google Scholar. Despite these extensive search efforts, no existing studies were found that directly provided a conceptual framework addressing the relationship between GAITs and AWC.

Acknowledging this gap in the literature on a conceptual framework for investigating international students' perceived impacts of GAITs on AWC, the researcher identified three key relevant concepts (i.e., GAITS use, student perceptions and AWC - See **Figure 2.1** below) and reviewed the relevant studies that contributed to their conceptualisation, based on which a conceptual framework could be developed. Relevant studies on each of these three concepts will be reviewed hereinafter.

First, the concept of **GAIT Use** in the context of higher education refers to the role of specific functionalities (e.g., feedback and grammar correction) of generative artificial intelligence tools which were defined by Feuerriegel et al. (2024), as any online website or app where students input prompts to receive feedback or generate content, with a particular focus on their use in academic writing (See ***Section 1.5.3***), GAIT use, in this current study, is conceptualised as the uses, the frequency and the purposes of using GAIT use.

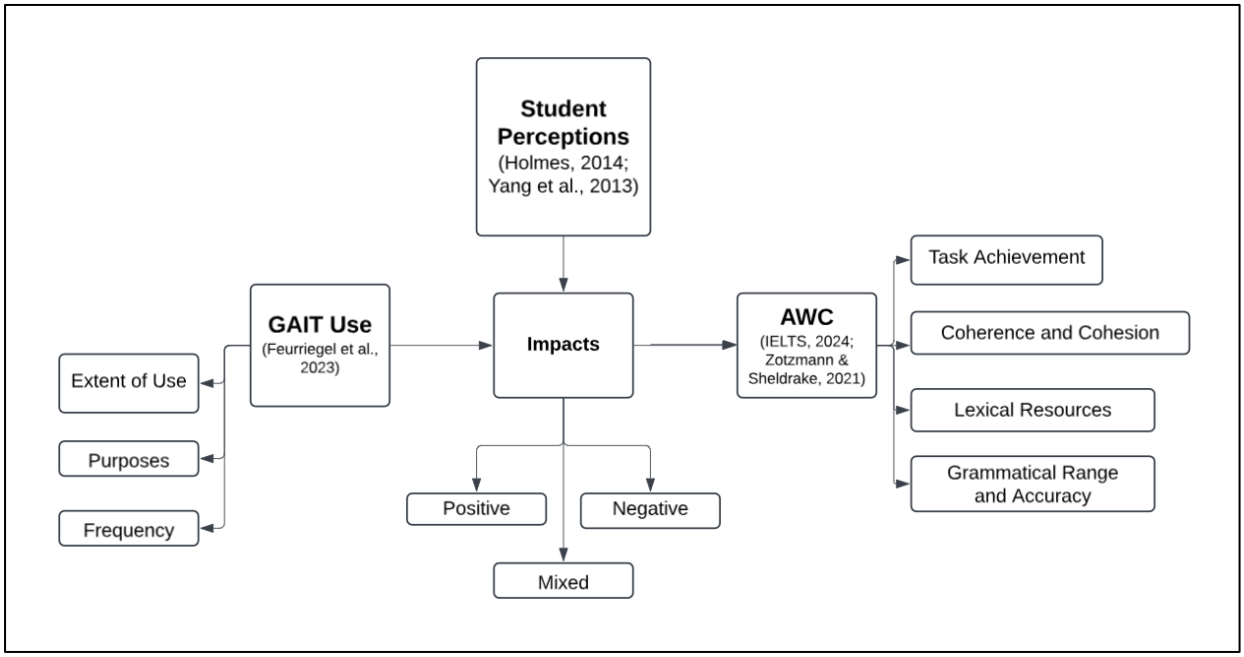
Second, regarding **the concept of student perceptions**., Holmes (2014) and Yang et al. (2013) highlighted its significance and conceptualised them as **beliefs, feelings, and attitudes** shaped by students' prior knowledge and contextual awareness. These studies emphasise the influence of student perceptions on learning outcomes and underscore the importance of incorporating student perceptions into educational practices.

Finally, the concept of **AWC** is significant. According to Zotzmann and Sheldrake (2021), it plays an important role in students' motivation, persistence, and overall academic performance. Students with higher AWC are more likely to approach writing tasks with a

positive mindset, manage challenges effectively, and demonstrate greater resilience in refining their work. In contrast, a lack of confidence can affect a student's ability to express ideas clearly and meet academic expectations. The concept of AWC is defined in this current study as a student's self-belief in their academic writing abilities to successfully complete academic writing tasks while adhering to scholarly standards; these academic writing abilities are task achievement, coherence and cohesion, lexical resources and grammatical range and accuracy (See ***Section 1.5.2***).

Given the current study's chosen focus on international students' perceived impacts of GAITs on AWC, this proposed conceptual framework (see **Figure 2.1**) incorporates the key relevant concepts and highlights the relationship between GAIT use and students' self-confidence in producing scholarly, well-structured academic writing. Incorporating the key relevant concepts from the reviewed studies.

Figure 2.1: A Conceptual Framework for Studying GAIT's impacts on Academic Writing Confidence (GAIT-AWC)



2.5 Research Gap

The comprehensive literature review presented in this Chapter reveals a notable lack of existing studies that specifically focuses on the international postgraduate TESOL students' perceptions of the impacts of Generative AI Tools (GAITs) use on their AWC. This

research gap is acknowledged in the literature (Chan & Hu, 2023; Song & Song, 2023). Notably, this research gap limits our understanding of international students' unique challenges and their perceived impacts of GAITs on AWC in specific university contexts, especially those in South Australian university contexts.

2.6 Summary of Chapter 2

To sum up, Chapter 2 reviewed the existing literature on (i) the use of GAITs for academic writing in higher education, (ii) impacts of GAITs on university students' academic writing confidence across different regions and higher educational systems, (iii) international students' perceptions of GAITs on AWC, (iv) a relevant Conceptual Framework for Studying International Students' Perceptions of GAITs' Impacts on AWC, and (vi) the research gap. This chapter reveals a research gap regarding the perceptions of international postgraduate TESOL students within South Australian universities, particularly at Flinders University on the impacts of GAITs on AWC. Chapter 3 details the qualitative research methodology used to address this research gap.

CHAPTER 3: RESEARCH METHODOLOGY

3.1 Overview of Chapter 3

This research methodology Chapter aims to justify and provide a clear overview of the chosen research approach, research design, research participants, data collection instruments, setting the stage for subsequent data analyses and discussion of the findings. This research methodology chapter consists of **nine (09) sections**, each one focusing on a key area of the study' methodology. The ***first*** section presents the methodological considerations of three research approaches: quantitative research, qualitative research and mixed methods research.

The ***second*** section justifies the relevance of the chosen qualitative research design for exploring the perceived impacts of Generative AI Tools (GAIT) on Academic Writing Confidence (AWC) among international postgraduate TESOL students. The ***third*** section provides a justification for the relevance of using multiple (04) case studies for the current study; each international postgraduate student represents a case study.

The ***fourth*** section describes the four research participants selected for four case studies, including selection criteria and details about each participant. The ***fifth*** section addresses ethical considerations, including the ethical application and approval process and the chosen measures to ensure participant confidentiality and informed consent.

The ***sixth*** section presents the interview data collection instruments developed to gather insights from four (04) participating international postgraduate TESOL students from Flinders University about the impacts of GAITs on their AWC. The ***seventh*** section outlines the methods used to analyse the interview data, explaining how meaningful insights were drawn from the participants' interview responses.

The ***eighth*** section discusses the methodological limitations of the current study. **Finally**, the ***ninth*** section concludes the chapter with a summary.

3.2 Research Methodological Considerations

To choose the appropriate research approach for this current study, this Chapter considers the nature of each of three different research approaches for collecting and analysing data, namely, qualitative, quantitative, and mixed methods research approaches (Braun & Clarke, 2022; Creswell and Poth, 2018; Fetters et al., 2013). The advantages and disadvantages of each research approach were briefly presented in this Chapter before justifying the relevance of the chosen approach for the research aim and questions outlined in ***Section 1.6***. See **Appendix 3 for more detailed comparison and evaluation of all** three research approaches.

3.2.1 Quantitative Research Consideration

Quantitative research, according to Creswell and Poth (2018), refers to a systematic investigation that involves the collection and analysis of numerical data to identify patterns, relationships or trends; its purpose is to test theories, examine the relationships between variables and make generalisations based on the findings. Quantitative research has the advantages of accuracy and generalisability, using statistical information in the quantitative research allows for data to be collected, analysed and interpreted across a larger population (Querios et al., 2017). However, one major disadvantage of this approach is that it can oversimplify complex issues that hinders the understanding of the specific perceptions of an individual research participant (Creswell & Poth, 2018). Therefore, quantitative research is not well-suited for the qualitative objectives of this study which are to investigate the perceptions international postgraduate TESOL students have about the impacts of GAITs on their AWC.

3.2.2 Qualitative Research Consideration

Unlike the quantitative research approach, the qualitative research approach involves exploring the nature and purpose of human experiences, behaviours, and social phenomena. (Gunter, 2013). The purpose of this approach is to provide a deeper understanding of how individuals perceive, interpret, and interact with their world by gathering detailed data through methods such as observations, focus groups and interviews (Braun & Clarke, 2022). By exploring personal experiences and perspectives of each research participant, qualitative

methods highlight the diversity and complexity of participants' viewpoints (Creswell & Poth, 2018). Moreover, the data collection and analysis process can be adapted as new ideas or patterns emerge, leading to a deeper understanding of participants' perceptions. Given this current research's aim to investigate postgraduate international students' perceptions of the impacts of GAIT use on their AWC, qualitative research is a suitable approach for collecting data from these students.

3.2.3 Mixed Methods Research Consideration

Mixed methods research, according to Creswell and Plano Clark (2017), combines the elements of both qualitative and quantitative approaches, providing a more comprehensive understanding of complex issues (Fetters et al., 2013). The purpose of the mixed method approach is to allow researchers to collect and integrate a diverse range of quantitative and qualitative data, offering the depth and breadth of the findings. Researchers benefit from the detailed, contextualised insights of qualitative data as well as the generalisable insights of quantitative data (Bergin, 2018). However, as Creswell and Plano Clark (2017) highlight, integrating qualitative and quantitative data can be time-consuming and a complex research process that may affect the reliability and validity of the research outcomes. Considering the time and resource constraints, this current research thus does not choose the mixed methods research.

3.3 Justification of Qualitative Research Design

This study adopts a qualitative research design after considering the advantages and disadvantages of all three research approaches, as briefly presented above and outlined in more detail Appendix 3. The choice of the qualitative research for this current research is justified as it can provide an in-depth understanding of participants' perspectives and experiences, in this case, of international postgraduate TESOL students' perceived impacts of GATIs on their AWC at Flinders University. This qualitative approach particularly provides answers to the two main research questions which are of the qualitative nature: (1) How do international postgraduate TESOL students at Flinders University in South Australia perceive their uses of Generative AI Tools for their academic writing confidence? And (2) What are the impacts of Generative AI Tools on their academic writing confidence, as

perceived by international Postgraduate TESOL students at Flinders University, South Australia?

By collecting qualitative data, this research can uncover personal insights and detailed perspectives from the participating international postgraduate TESOL students, achieving the specific aims of the study. The qualitative approach not only facilitates an exploration of individual experiences but also captures the complexity of students' interactions with GAITs. This depth of understanding is essential for revealing how these AI tools are perceived to influence participating students' academic writing confidence.

3.4 Justification of Multiple Case Studies

3.4.1 Consideration of Single Case Studies vs. Multiple Case Studies

In qualitative research, a case study involves an in-depth analysis of a specific instance, event, or group, providing detailed insights within its real-life context (Creswell & Poth, 2018). According to Mohajan (2018), conducting case studies is a key qualitative research approach, often used to gather data on complex subjects in their natural settings. Case studies have historically played a significant role in social sciences research (Mabry, 2008). The main goal of using case studies is to explain, characterise, or examine phenomena in their real-life environments (Yin, 2009). In this current study, case studies were conducted to investigate the international postgraduate TESOL students' perceived impacts of Generative AI Tools (GAITs) on the academic writing confidence (AWC).

The benefits of case studies include the ability to collect comprehensive data and conduct detailed examinations of individual cases, which can provide insights into complex social issues (Yin, 2009, 2013). However, case studies also have limitations as their data collection and analysis processes can be time-consuming and there is a risk of bias, and findings from case studies may not be widely generalisable and applicable. It is important to note that the purpose of this current research is not to generalise and apply findings across various contexts. Rather it aims to reveal the participating international students' perceived impacts of GAITS on AWC.

Regarding the types of case studies, according to Yin (2009), there are two main types of case studies: single case studies and multiple case studies. A single case study focuses on one single event or instance, offering a deep analysis of that specific event or instance in a specific context (Yin, 2009). In contrast, multiple case studies, according to Gustafsson (2017), explore several cases to identify similarities and differences among different cases, which can strengthen the reliability, and validity of the findings. While a single case study allows for an in-depth exploration of one single case in a specific setting, multiple case studies in the same setting can reveal even more insights about each case in context. Through comparing multiple cases in the same setting, this current research can achieve an even more comprehensive understanding of the phenomenon being investigated (Yin, 2009).

This study has chosen a multiple case study approach instead of a single case study, due to the benefits of examining multiple cases in the same context, in this current study, investigating multiple international postgraduate TESOL students at Flinders University, particularly, their perceived impacts of Generative AI Tools on their academic writing confidence. By adopting multiple case studies design, this current study explores in depth the diverse experiences and perceptions of international postgraduate TESOL students from various cultural backgrounds.

3.4.2 Justification of Four Case Studies

To gain a comprehensive understanding of postgraduate international TESOL students' perceived impacts of Generative AI Tools (GAITs) on their academic writing confidence, this study chose to conduct four case studies, each case study is represented by an international TESOL student. The rationale for selecting four **(04) case studies** is that they provide more comparable evidence than single case studies or fewer than four (<04) case studies, leading to better-informed conclusions (Stake, 2013; Yin, 2013). It is important to note that due to time and resource constraints, conducting more than four (>04) case studies is not feasible as it would involve more time and efforts to recruit participants and seek their consent to participate in the research on a voluntary basis. By exploring the individual experiences and perceptions of four international postgraduate TESOL students, the research

can highlight both the similarities and differences in their perceived impacts of GAITs on their AWC.

3.5 Research Participants

The current research is conducted within the College of Humanities, Arts, and Social Sciences (CHASS) at Flinders University in South Australia. To select four case studies, the current research recruited four (04) research participants who are four international postgraduate students enrolled in a Master of TESOL program in CHASS. Data collected from four participating international postgraduate TESOL students helped to address the two main research questions of *"What are the perceptions of Generative AI Tools as perceived by Postgraduate TESOL students at Flinders University, South Australia?*" and "*What are the impacts of Generative AI Tools on academic writing confidence as perceived by Postgraduate TESOL students at Flinders University, South Australia?"* Selecting four (04) students from the same program (i.e. the Master of TESOL program) within the same College (i.e. CHASS) helps provide their perceived impacts of GAITs on academic writing confidence within the academic context of Flinders University.

To select the four (04) participating students, the researcher established the four following specific selection criteria of (i) participants being international postgraduate students on an international student visa, currently enrolled in the Master of TESOL program at Flinders University and have completed at least one semester of their study program; (ii) participants being able to speak and write English as their second or foreign language, and consent to participate voluntarily in a one-on-one semi-structured interview conducted in English, lasting approximately one hour in a pre-booked study room at Flinders University's Central Library; (iii) participants also agreeing to have their interviews recorded, transcribed, and thematically analysed to address the research questions and aims; and (iv) participants having experience using Generative AI tools for their academic writing assignments.

According to the statistics from Flinders University, there were a total of 25,692 students enrolled in 2021, with 4,560 international students (Flinders, 2022). After receiving Ethics Approval from Flinders University's Human Research Ethics Committee (HREC #7397) **(see Appendix 4),** the researcher emailed official invitations to all potential participants who met the four selection criteria mentioned above. **Table 3.1** below provides a

brief description of all the four (04) participating international postgraduate TESOL students, who met all the four selection criteria, consented to participate in the current study and are labelled anonymously in this research report as TH Student (Student 1), BAN Student (Student 2), VIE Student (Student 3), and SRI Student (Student 4).

Table 3.1 A Brief Description of 04 Participating Postgraduate TESOL Students

Participating Student's Background Information	**Case Study 1 (TH student)**	**Case Study 2 (BAN student)**	**Case Study 3 (VIE student)**	**Case Study 4 (SRI student)**
Nationality	Thai	Bangladesh	Vietnam	Sri Lankan
Age	35	31	24	27
Gender	Female	Male	Female	Female
Degree	Master of TESOL			
Current Semester	4	3	2	3
Having studied or worked in an English-Speaking country before coming to Australia	No			

3.6 Ethics Approval Considerations

Since this research involves human participants who are international postgraduate students in the Master of TESOL program at Flinders University in South Australia, it is crucial to consider human research ethics. With guidance from the principal supervisor, the

researcher submitted an ethics application to the Human Research Ethics Committee (HREC) at Flinders University and the Ethics Approval Notice was issued on 4th July, 2024 **(see Appendix 3).** After receiving ethics approval, the researcher invited potential participants who met the selection criteria outlined in Section 3.5 to participate in the research on the voluntary basis. Each participating student was provided with clear information about the research project's aims and the content of the interview questions to ensure their informed consent. Participants were also informed that they could withdraw from the study at any time without penalty. Participants' confidentiality was strictly maintained by having their interview data encoded to protect each participant's identity. Responses to interview questions were used solely for research purposes. The interviews were audio recorded and later transcribed for data analysis; interview transcripts were emailed to interviewed for verification before actual data analysis.

3.7 Interview Data Collection

3.7.1 Consideration of Different Interview Types

This study used interviews to gather data for each of the four case studies. According to Adeoye-Olatunde et al. (2021) using interview techniques can enhance participant comfort and openness while facilitating ongoing clarification. Before choosing the appropriate type of research, this current research considered three types of interviews: structured, unstructured, and semi-structured (Mueller & Segal, 2014). Each type of interview has its advantages and disadvantages. ***First***, ***structured interviews*** use a preset list of questions, which means that answers will be standardised, making it simple to compare responses and make comparisons (Phellas et al., 2011). While this type of structured interview offers consistency and is straightforward to implement, there is a lack of flexibility and may not be of as much depth in the collected responses.

Second, unlike structured interviews, **unstructured interviews** involve open-ended questions without a fixed format, allowing for flexibility and an in-depth exploration of participants' experiences (Zhang & Wildemuth, 2009). However, this type of unstructured interview may lead to inconsistencies and increased complexity when comparing responses (Mueller & Segal, 2014).

Third, semi-structured interviews combine positive elements of both structured and unstructured interviews, providing flexibility while maintaining consistency in responses. They allow for detailed exploration of topics while still following a structured set of questions. Notably, conducting semi-structured interviews requires skilled interviewers to manage variability (Adeoye-Olatunde et al., 2021). To develop skills for designing and implementing semi-structured interviews, the researcher made efforts to pilot interviews with the principal supervisor's assistance and support.

3.7.2 Justification of Semi-Structured Interviews

The study uses semi-structured interviews because their benefits outweigh those of structured and unstructured interviews. Semi-structured interviews enable the researcher to explore emerging topics and themes deeply while adhering to a structured question set (Blandford, 2013). The flexibility of semi-structured interviews allows for in-depth investigation of perspectives and experiences while keeping participants engaged (Adams, 2015). The choice of semi-structured interviews for the current research aligns with Blandford's (2013) assertion that they allow for thorough investigation of a singular issue, in this case, the perceived impacts of generative AI tools on the academic writing confidence of four participating international postgraduate TESOL students at Flinders University. The data collected from semi-structured interviews can be more detailed than initially expected and can be documented in written, audio, or visual formats (Salmons, 2011). All interviews were scheduled at convenient times for both the researcher and the participants. With participating students' consent, interviews were recorded and transcribed, and transcripts were emailed to them for review, cross-checking, and verification.

3.7.3 Development of the Interview Protocol with Semi-Structured Interview Questions

To facilitate semi-structured interview data collection for the four case studies, an ***Interview Protocol was*** developed ***(see Appendix 5)*** to elicit each participant's perceived impacts of GAITs on their AWC. According to the Interview Protocol, each interview was

designed to last up to one hour maximum and was conducted in English language, which is the shared language between the interviewer/researcher and all four interviewees. The Interview Protocol includes open-ended questions along with clarifying prompts. Each student participated in a semi-structured one-on-one interview for up to one hour, allowing for in-depth exploration of their perceived impacts of GAITs on their academic writing confidence.

The Interview Protocol consists of four (04) sections. The ***first*** section is the introduction section with one ***(01) interview question*** covering the participant's background as a university student, their general perceptions of GAITs, and their academic writing confidence. The ***second*** section consists of four ***(04) interview questions*** focusing on interviewed students' views on how they use GAITs at university. The ***third*** section also has ***four (04) interview questions*** focusing on students' perceptions of how GAITs can influence their academic writing confidence, encouraging them to share personal experiences and reflections. The interview finishes with the ***fourth*** section consisting of ***three (03) interview questions*** asking for participating students' recommendations for peers and teaching staff on using GAITs and for any additional information.

3.7.4 Recording and Transcribing Interviews

As outlined in the Interview Protocol (see **Appendix 5**), all interviews were recorded and subsequently transcribed. After transcription, each participant received an email containing a copy of their interview transcript for review and cross-checking. This allowed participants to verify the information and confirm its accuracy. The audio files from each interview, the corresponding participant transcripts and any related documents, including the researcher's notes, were securely stored electronically, as specified in the ethics application **(see Appendix 4).** This ensured the confidentiality and integrity of the data collected during the research process.

3.8 Analyses of Interview Data

The collected interview data was analysed in ***two (02) stages*** in this current research. ***The first stage*** involved an initial analysis of each data set collected from each participant to get an overview, while ***the second stage*** involved a more comprehensive and more detailed examination of each data set. It is important to note that data was thematically analysed in both stages. ***In the initial stage***, thematic analysis started by grouping data into preliminary themes based on patterns and shared ideas across responses. The researcher then identified similarities and differences among participants to create themes and sub-themes. In ***the second stage***, the researcher reviewed the transcripts and annotations again, refining the preliminary themes, breaking them into sub-themes, and linking them to the research questions. Each main/sub-theme was checked to ensure it aligned with the research objectives.

3.8.1 An Initial Analysis of Interview Data

The initial analysis of each of the four raw interview data sets collected from participating students included reviewing the interview transcripts and the researcher's written notes. Four data sets were organised and labelled as Student 1 (TH) data set collected from the participating Thai student, Student 2 (BAN) data set collected from the participating Bangladeshi student, Student 3 (VIE) data set collected from the participating Vietnamese student, and Student 4 (SRI) data set collected from the Sri Lankan student.

To ensure an objective analysis of data, the researcher set aside personal experiences with Generative AI Tools (GAIT) and their effects on Academic Writing Confidence (AWC) during this phase. Each interview transcript was read carefully, allowing the researcher to develop a general understanding of each data set and to identify both common and unique themes among the interviewed students. The findings from this initial analysis are the list of five main themes and seventeen sub-themes which served as a foundation for a more in-depth and comprehensive analysis in the subsequent phase of data analyses. The initial analyses of data collected from each participant are recorded and thematically presented in **Table 3.2** below.

Table 3.2: A Thematic Presentation of Interview Data Analysed from the Initial Phase

	Main Themes	Sub-themes	Case study 1 (THAI student)	Case Study 2 (BANGLADESHI Student)	Case Study 3 (VIETNAMESE Student)	Case Study 4 (SRI Student)
1	**Participating Students' Background**	***1.1 Age (Years)***	35 years old	31 years old	24 years old	27 years old
		1.2 Previous Degree	Bachelor in liberal arts majoring in English from a Thai university.	Bachelor English from a Bangladeshi university	Bachelor in English from a Vietnamese university	Bachelor of Teaching from a Sri Lankan university
		1.3 Geographical location	Lived in Sydney for 8 years Moved to Adelaide 2 years ago.	Recently moved to Australia in 2023;	Lived in Australia for almost one year;	Lived in Australia for 2 years;
		1.4 Language Use	English is a second language, studied since early childhood Thai is her first language.	English is his second language, learned during school Bangla is his first language.	English is second language; started learning English at age 12 as part of school; Vietnamese is their first language	English is second language. starting learning English from an early age when starting school
		1.5 Number of Years studying at Flinders University's Master of TESOL program	2 years (Completed the 4th semester of Master of TESOL)	1.5 years Currently in the 3rd semester (second last semester) of a Masters of TESOL at Flinders University.	01 year Currently in the 2nd semester of Master of TESOL at Flinders University.	1.5 years Currently in the 3rd semester of Master of TESOL at Flinders University.
		1.6 English language proficiency	IELTS overall: 7.0 (IELTS Writing 6.5)	IELTS overall: 6.5 (IELTS Writing 6.0)	IELTS overall 6.5 (IELTS Writing: 6.5).	IELTS overall 8.0 (IELTS Writing: 8.0)
2	**Self-rated Levels of Academic Writing Confidence (AWC)**	*2.1 Self-rated AWC **before** using GAITs (on the 1 - 3 Likert scale: 1 is least confidence, 3 is most confidence)*	2 out of 3	2 out of 3.	1 out of 3	2 out of 3.
		*2.2 Self-rated AWC **after** using GAITs (on the 1 - 3 Likert scale: 1 is least confidence, 3 is most confidence)*	2.5 out of 3	2.5 out of 3	2 out of 3.	2.75 out of 3.
3	**The Use of GAITs for Academic Writing**	*3.1 Most frequently used GAITs for Academic Writing (What?) Note: tools are listed according to the frequency of uses)*	• Grammarly • ChatGPT • Copilot	• ChatGPT • Grammarly • Pictory	• Grammarly • ChatGPT • QuillBot	• ChatGPT • Notion • Grammarly
		3.2 Actual specific tasks in which GAITS were used for written assignments (For what?)	Using ChatGPT at the start of assignments to structure and summarise ideas and generate content, to outline assignments and expand ideas. Using Grammarly continuously for grammar checking, formatting, and improving sentence structure to align writing with native-speaker standards. Using Copilot for finding additional literature and references beyond course material.	Mostly using ChatGPT to generate initial ideas Using Grammarly to suggest vocabulary, structure sentences and correct grammar Primarily using AI tools for assignments that require writing, such as essays and literature reviews.	Primarily using ChatGPT and QuillBot to improve the speed of writing, paraphrasing, Using Grammarly continuously for checking grammar and spelling and suggesting words, phrases, sentences. Using AI tools for most assignments, especially those over 1,000 words.	Mainly using ChatGPT and Notion for proofreading, checking grammar and spelling, generating ideas, and referencing in written assignments.
		3.3 Sources of GAITs (from whom/where)?	Learning about Grammarly from a lecturer Learning about ChatGPT through friends	Finding out about ChatGPT from friends Discovering Grammarly from advertisements	Learning about Grammarly through YouTube ads Discovering ChatGPT through a friend.	Learning about Chat GPT and Notion from a university friend.

			Self-discovering Copilot independently.	Being introduced to Pictory by a lecturer	Being recommended QuillBot by university friends.	
		3.4 Perceived percentage of written assignments assisted by AI (%)	25%	30%	70%	25%
4	**Perceived Impacts of GAITs on AWC**	*4.1 Perceived Positive Impacts of GAITs on AWC (+)*	Grammarly made her writing sound more like a native speaker. *(Lexical resource and Grammatical range and accuracy)* ChatGPT led to more efficient completion of assignments leaving more time to think about writing ideas *(Task Achievement)* Feeling more motivated and quicker at writing, which led to increased writing confidence. *(Task Achievement)* AI is considered an important tool in the academic process, particularly for tasks like the literature reviews and grammar checks. *(Task Achievement & Grammatical Range & Accuracy)*	AI tools have increased writing speed and improved vocabulary and sentence structure. *(Task Achievement Lexical resource and Coherence and Cohesion)* AI helps fill gaps in their knowledge and assists in structuring ideas. *(Task Achievement and Coherence and Cohesion)*	These tools have helped improve their writing speed and efficiency. *(Task Achievement)* Helping with spelling, grammar, and sentence structure *(Grammatical Range & Accuracy and Coherence and Cohesion)* Boosting confidence when completing complex assignments. *(Task Achievement)* AI tools like Grammarly help avoid spelling errors that previously impacted grades. *(Grammatical Range & Accuracy)*	AI tools have enhanced their academic writing confidence through increasing the speed at which they can complete written assignments Finding that their vocabulary had improved *(Lexical Resource and Task Achievement)* Written work is more coherent *(Coherence and Cohesion)*
		4.2 Perceived Negative Impacts of GAITs on AWC (-)	Perceived overreliance on Grammarly may lower confidence in grammar skills without the tools in the conditions of doing exams or tests, writing with pen and paper *(Grammatical Range & Accuracy)* Using ChatGPT could lead to inaccurate summaries and AI-generated content not aligning with course material, affecting confidence in presenting original viewpoints. *(Task Achievement)*	Reliance on AI tools could reduce their critical thinking and creativity *(Coherence and Cohesion)* Becoming dependent on AI-generated ideas rather than developing their own. *(Task Achievement)* Having concerns that AI might "kill creativity."	Overreliance, which negatively affects confidence when AI is unavailable (e.g., during tests) *(Task Achievement)* Having concerns over losing independent writing skills and creativity. *(Coherence and Cohesion, Task Achievement)* Feeling less confident in written tests without AI support. *(Task Achievement)*	A strong dependence on these tools Reduced ability to write independently *(Task Achievement)* Weakening critical thinking and research skills. *((Task Achievement, Coherence and Cohesion)*
		4.3 Overall Perceptions on the use of GAIT and at Flinders	Dominantly positive perceptions with some concerns about overreliance and inaccuracies.	Mostly positive perceptions about the uses of GAITs with some concerns over risks involving creativity and critical thinking.	Dominantly positive perceptions and boosted confidence in most assignments with some concerns over heavy dependence on GAITs.	Dominantly positive perceptions on the impacts of GAITs on their AWC with some concerns over heavy reliance on GAITS and the effects on critical thinking.
5	**Recommendations**	*5.1 Recommendations for **Peers***	Using AI tools as assistants (co-writers) rather than sole authors. Learning from AI-generated content to improve independent writing skills. Avoiding complete reliance on AI; maintain a personal viewpoint.	Using AI tools to assist with assignments but advises against becoming too dependent on them. Encouraging peers to use AI tools to gain initial ideas but to rely on their own critical thinking and creativity.	Using AI tools sparingly to make writing sound more professional Encouraging peers to be aware of over-dependence on AI, which can affect their confidence in writing independently.	Using AI tools selectively, mainly for proofreading and referencing, Avoiding overreliance to ensure academic writing skills development

		5.2 Recommendations for ***University lecturers and coordinators***	Designing assignments that are less suitable for AI generation (e.g., reduce dependence on traditional literature reviews). Providing ethical guidelines and proper training on AI usage. Incorporating AI tools into teaching practices, such as live demonstrations of appropriate usage.	Making AI tools available and educating students on ethical use of GAITs. Ensuring transparency in how much AI-generated content is used in assignments and encouraging a balance between AI assistance and original student work.	Teaching students how to use GAIT ethically and responsibly Spending time explaining assignments so that students don't immediately turn to AI for help	Providing a clear guidance on responsible and ethical use of GAITs.

3.8.2 More Comprehensive Subsequent Data Analysis

After completing the initial phase of data analysis, each data set was analysed in more detail in the subsequent stage. Being guided by the main themes and sub-themes, the researcher conducted a more thorough examination of each data set, annotating relevant information from the participants' responses to the interview questions. This annotated information was then collated and examined thematically, aligning with the research questions and sub-questions. The resulting annotations formed the basis for each case study report that was thematically structured (**See Section 4.2** for four individual Student Case Study Reports), These four individual student case study reports helped identify common patterns and themes across the four student case studies, leading to insights that provided answers to the initial main research questions (**See Section 1.6** for research questions)

3.8.3 Interpretation of Analytical Data

As interview data was thematically categorised and analysed, it was thematically interpreted according to three key themes of (i) Perceived Academic Writing Confidence, (ii) Participating Students' Perceptions of GAIT, and (iii) Participating Students' Perceived Impacts of GAIT on AWC. During this data interpretation process, the researcher considered each participating student's background, including their age, study duration in the Master of TESOL program at Flinders University, their self-rated confidence in academic writing, and previous study experiences. This contextual background was crucial for developing a deeper

understanding of the participants' perceptions in specific content. This interpretation, supported by empirical interview data evidence, helped reveal answers to the main research questions outlined in Section 1.6.2.

3.9 Methodological Limitations of the Study

This research, though carefully designed, **has two (02) main methodological limitations.** ***First***, while the use of multiple case studies offers valuable insights, it may restrict the generalisability of the findings, as it provides in-depth insights from a limited (04) number of participating students rather than a statistically representative sample. The small sample size of four participating students may hinder the ability to draw broader implications; thus, the findings could not be applicable to a larger population. However, the findings from four case studies are at least more powerful than a single case study.

Second, relying on semi-structured interview data may lead to potential biases and subjectivity (Kallio et al., 2016). Researcher's interpretations made during the analysis may be subjective, thus influencing the findings, and differences in participants' interview responses might make data interpretation and analysis more difficult (Rolston, 2014).

To address these two limitations, the researcher took several measures. Research participants were chosen carefully for this current study to make sure they all met predetermined selection criteria, ensuring that responses would have relevance for the study's main aims (See Section 1.4). In addition, using the same main themes and sub-themes to guide the collection, analysis, and interpretation of interview data, ensuring the consistency across the case studies (Roulston, 2014). The researcher exercised caution in interpreting and reporting the findings, under the supervisor's guidance and support, to mitigate potential bias and subjectivity. Efforts were made by the researcher by following the standardised interview protocol to maintain clarity and consistency in data collection procedures and consistent analysis techniques used across all case studies.

3.10 Summary of Chapter 3

In summary, Chapter 3 justifies the chosen qualitative research design, the use of four case studies and, one-on-one semi-structured interviews to explore international postgraduate TESOL students' perceived impacts of Generative AI Tools (GAIT) on their Academic

Writing Confidence (AWC) at Flinders University. This chapter also covers the criteria for participant selection, ethical considerations, and the procedures for obtaining informed consent. It also presented two stages of data analyses: both initial and subsequent comprehensive analyses of the interview data collected from four the multiple case studies. Additionally, the chapter acknowledges two main methodological limitations, including the potential for bias and the study's limited sample size, while highlighting the researcher's enormous efforts to minimise these methodological limitations. Each participating student's case was individually and thematically analysed, interpreted and reported, setting the stage for the subsequent cross-case data syntheses and discussion of the findings in Chapter 4.

CHAPTER 4: INTERVIEW DATA ANALYSES, CASE STUDY REPORTING AND DISCUSSION OF FINDINGS

4.1 Overview of Chapter 4

This chapter presents interview data analyses from four (04) single case study reports and discusses the key findings from four (04) postgraduate international TESOL student case studies conducted within the College of Humanities and Social Sciences (CHASS) at Flinders University in South Australia. The chapter is structured into **six (06)** sections. The ***first*** section is an overview of the chapter. The ***second*** section presents four single case study reports for each of the four participating TESOL students. The ***third*** section analyses and interprets interview data that is combined and synthesised from all four case study reports, considering the research aim and providing responses to research questions formulated from the outset of the current research. The ***fourth*** section then analyses other relevant emerging interview data from multiple case studies. The ***fifth*** section summarises the key findings from the data analyses before discussing the key findings in the ***sixth/ final*** section.

4.2 Four Case Study Reporting

Based on the data collected and presented in **Table 3.2**, four separate case study reports are thematically structured according to five themes of (1) Student background, (2) Self-rated levels of AWC, (3) The use of GAITs for academic writing, (4) Perceived impacts of GAITs on AWC, and (5) Recommendations (See **Appendix 6).** These four reports facilitate the integration and analysis of interview data from all four case studies to identify common themes and shared experiences as well as differences. The richness of four single case study reports not only gives the current study's data analyses more depth, but it also makes it easier to synthesise and interpret interview data; thus, helping answer sub-research questions and the main research questions. Four (04) detailed single case study reports on each of the four participating TESOL students, including a summary of each case study are presented in **Appendix 6.**

4.3 Analyses and Interpretation of Multiple Case Studies in Response to Research Questions

The following subsections provides responses to sub-research questions (1a, 1b and 1c), based on the cross-case data analyses and interpretation of four single case studies summarised above (**See Appendix 6 for four** single case study reports), first starting with responses to sub research question 1a.

4.3.1 Response to Sub-Research Question 1a

Sub-research question 1a is "*To what extent do international postgraduate TESOL students at Flinders University perceive they have been using GAITs?"* The aim of this research **sub-question 1a** is to investigate the extent to which these four participating international postgraduate TESOL students at Flinders University perceive they have been using GAITs for their academic activities, particularly for academic writing. Being guided by the conceptual framework (see **Figure 2.1**), this sub-question specifically asks for (i) participating students' perceived *percentage (%)* of written assignments assisted by GAITS; (ii) the specific *types of GAITs tools* in use for academic writing (What); and (iii) the *sources of GAITs* (from where), which have been selected as three key sub-themes for data analyses and reported in the individual case study reports **(see Table 4.1 & Appendix 4).**

The following **Table 4.1** thematically synthesises interview data according to the three sub-themes mentioned above, in relation to the main theme of GAIT usage by all the four (04) international postgraduate TESOL participating students.

Table 4.1: GAIT Usage by International Postgraduate TESOL Students at Flinders University

Main Theme	***Sub-themes***	***Student 1 (TH)***	***Student 2 (BAN)***	***Student 3 (VIE)***	***Student 4 (SRI)***
GAIT usage by all four international postgraduate TESOL students at Flinders University	***1. Perceived percentage of written assignments assisted by GAITs (%)***	25% of assignments	30% of assignments	70% of assignments	25% of assignments
	2. Specific types of GAITs tools used for Academic Writing (What?)	Grammarly ChatGPT CoPilot	ChatGPT, Grammarly Pictory	Grammarly ChatGPT Quillbot	Notion, ChatGPT Grammarly
	3. Sources of GAITs (from whom/where)?	Learning about Grammarly from a lecturer Learning about ChatGPT through friends Self- Discovering Copilot independently.	Finding out about ChatGPT from friends Discovering Grammarly from advertisements Being introduced to Pictory by a lecturer	Learning about Grammarly through YouTube ads Discovering ChatGPT through a friend. Being recommended QuillBot by university friends.	Learning about Chat GPT and Notion from a university friend.

First, as shown in **Table 4.1**, the **extent of GAIT usage** varies among the four participating students. Both TH student and SRI student perceived to have been assisted by GAITs to complete around the same 25% of their assignments, while BAN student used GAITS to complete a slightly higher percentage of 30% of his assignments, as BAN noted in the interview:

> *"I mostly use them [GAIT] for essays or literature reviews. About 30% of my writing is assisted by AI, and the remaining 70% is my own work." (* **BAN student).**

Notably, among four participating students, VIE student perceived to rely the most heavily on these tools, using them to complete up to **70%** of her work. This demonstrates VIE student's highest degree of reliance on GAIT while other participating students' degree of reliance vary from low to moderate use, depending on individual students' needs and study habits.

Second, according to **Table 4.1,** regarding the **types of GAIT tools** for academic writing among four participating students, apart from few shared tools among participating students, there are also different additional tools in use among them. The same Grammarly and ChatGPT were commonly used by all four participating students. Apart from these two shared GAITs tools, in the interviews, TH, BAN, VIE, SRI students revealed their use of additional tools such as CoPilot, Pictory, Quillbot and Notion, respectively. This shows a diverse range of GAITs tools in use that serve different academic writing needs, from editing and refining ideas (TH, BAN and SRI students) to improving writing efficiency (TH, BAN, VIE and SRI students).

Third, regarding the sources of GAITs, all students reported being introduced to the tools by friends from their university classes.TH Student told the researcher that she learned about Grammarly from a lecturer in a past degree while BAN student discovered Pictory through his university class and discovered other tools through his own research.

To sum up, interview data from cross-cases reveals that students' use of GAITs is influenced by their individual needs, study habits, and the tools they are exposed to by their peers or teachers. This highlights the role of social networks and educational environments in shaping how students adopt and utilise GAITs.

4.3.2 Response to Sub-Research Question 1b

Sub-research question 1b is **"***What perceptions do international postgraduate TESOL students at Flinders University have of the frequency of their GAIT use for their Academic Writing?"* The aim of this research sub-question 1b is to explore how frequently four participating students have used GAITs for their academic activities, particularly for academic writing. This question seeks to identify the most frequently used GAITs, for which four participating TESOL students used for their academic work. To address this sub-question 1b, interview data was thematically synthesised and interpreted from the four individual case study reports. The following **Table 4.2** synthesises and interprets interview data about the four participants.

Table 4.2: Perceived Frequency of GAIT Usage of International Postgraduate TESOL Students at Flinders University

Main theme	***Sub-themes***	***Student 1 (TH)***	***Student 2 (BAN)***	***Student 3 (VIE)***	***Student 4 (SRI)***
Perceived Frequency of GAIT Usage of International Postgraduate TESOL Students at Flinders University	***1. Most frequently used Types of GAITs tools for Academic Writing (What?)***	*Grammarly ChatGPT, CoPilot*	*ChatGPT, Grammarly Pictory*	*Grammarly ChatGPT Quillbot*	*Notion, ChatGPT Grammarly*
	2.High/Low Frequency degrees of using GAITS for academic writing (How often)	***Low*** *(only 25% assignments completed with the use of GAITS)*	***Low*** *(only 30 % assignments completed with the use of GAITS)*	***High*** *(up to 70% assignments completed with the use of GAITS)*	***Low*** *(only 25% assignments completed with the use of GAITS)*

According to **Table 4.2**, the most frequently used GAITS by all students were Grammarly and ChatGPT, as these tools were consistently mentioned by all participants in the interviews. VIE student reported the highest frequency of usage of GAITS tools (i.e., Grammarly, ChatGPT and Quilbot) to complete up to 70% of her written assignments. The other students (TH, BAN, SRI) reported lower degrees of frequency in their GAIT use, completing 25-30% of their assignments with the help of GAITs.

Most participating students (i.e. TH, BAN and VIE students) revealed that they used additional GAITs such as CoPilot, Pictory, Quillbot and Notion with a lower level of frequency than ChatGPT and Grammarly whereas SRI student noted that Notion was her most frequently used GAIT:

> *"Notion is my favourite tool, mainly because I prefer its responses over ChatGPT, which is why I ended up buying its subscription. It feels more suited to my needs and helps me organise my ideas more effectively."* ***(SRI student)***

This showed that some students were prioritising certain tools like in the case of SRI student reportedly using Notion more often for their specific needs.

To sum up, interview data from cross-cases reveal that students vary in their frequency and choice of GAIT use. This appears to be influenced by individual preferences and perceived effectiveness. Therefore, it is important that students are provided with diverse GAIT options to suit their unique academic writing needs.

4.3.3 Response to Sub-Research Question 1c

Sub-research question 1c is *"What perceptions do international postgraduate TESOL students at Flinders University have of* ***the purpose o****f GAITs for their AWC?*" The aim of this research sub-question is to explore the perceptions that international postgraduate TESOL students have about the purposes of GAITs for their Academic Writing Confidence (AWC). This question seeks to identify for which purposes the four participating students perceive to have used GAITs in their written academic work. To get the answer to this sub-question 1c, in the interviews, all four participants were asked to share the information regarding specific tasks for which they have been using GAITs in their academic

assignments. This information is one of the key themes for analysis and discussion in the individual case study reports in **Appendix 6.**

To address this **sub-research question 1c**, interview data was thematically synthesised and interpreted from the four individual case study reports, focusing on the relevant sub-theme of actual specific tasks in which GAITs were used for.

The following **Table 4.3** synthesises and interprets four participating students' perceptions of the purposes of GAITs for their AWC from the interview data.

Table 4.3 Perceptions of the purposes of GAITs for their AWC, as perceived by International Postgraduate TESOL Students at Flinders University

Sub-theme	*Student 1 (TH)*	*Student 2 (BAN)*	*Student 3 (VIE)*	*Student 4 (SRI)*
Actual specific tasks in which GAITS were used for written assignments (For what?)	Using ChatGPT at the start of assignments to structure and summarise ideas and generate content, to outline assignments and expand ideas. Using Grammarly continuously for grammar checking, formatting, and improving sentence structure to align	Mostly using ChatGPT to generate initial ideas Using Grammarly to suggest vocabulary, structure sentences and correct grammar Primarily using ChatGPT and Grammarly for	Primarily using ChatGPT and QuillBot to improve the speed of writing, paraphrasing, Using Grammarly continuously for checking grammar and spelling and suggesting words, phrases, sentences. Using QuillBot, Grammarly and	Mainly using ChatGPT and Notion for proofreading, checking grammar and spelling, generating ideas, and referencing in written assignments.

	writing with native-speaker standards. Using Copilot for finding additional literature and references beyond course material.	assignments that require writing, such as essays and literature reviews.	ChatGPT for most assignments, especially those over 1,000 words.	

In terms of **actual specific tasks** in which the GAIT tools were used for academic writing, TH and BAN students reported in the interviews that they primarily used ChatGPT for idea generation and used Grammarly for grammar and formatting; BAN student used Chat GPT for focusing on vocabulary and sentence structure. Whereas VIE student used ChatGPT and Quillbot for paraphrasing and Grammarly for spelling and grammar checks. With reference to her use of GAITs to improve her writing speed, VIE student noted:

> *"Studying in Australia means I have a lot of assignments, and sometimes I feel stressed. AI tools help me a lot with my academic writing and assist me while I am doing my research.*" **(VIE student).**

Meanwhile, SRI student shared in the interview that she used ChatGPT and Notion for proofreading, grammar checks, and idea generation, particularly in longer assignments.

Notably, when considering the uses of GAITs, there is a shared focus on using GAITs to enhance writing efficiency. TH and BAN students used ChatGPT for structuring ideas and brainstorming, while they both used Grammarly to refine their grammar. TH student also commented on her use of Chat GPT to expand her writing ideas by noting:

> *"I know what I learned from the class, but sometimes it's not enough to write or complete 2000 words, so I use it [ChatGPT] to expand the ideas I have."* **(TH student)**

VIE student used GAITs to paraphrase and speed up her writing, particularly for essays and literature reviews. Whereas SRI student used GAITs for proofreading and referencing, particularly in longer assignments, with a focus on improving grammar and idea generation. It is also noticeable that all the four participating students were perceived to have relied on GAITs for grammatical checks, idea development, and speeding up the writing process, despite their various individual habits of using GAIT. Considering that VIE student used GAITs for completing a significant amount of her work, she expressed concerns over her over-reliance on GAITS as follows:

> *"I know I use AI tools too much. For example, during a timed online test, I don't have time to use AI, and that makes me nervous. Also, when QuillBot suggests unfamiliar words, I have to double-check with Grammarly, and sometimes Grammarly changes the meaning of my sentences."* **(VIE student)**

To sum up, data from **Table 4.1, Table 4.2 a**nd **Table 4.3** shows considerable variations in the extent of GAIT use among four participating students. While three out of four participating students (i.e., TH, SRI and BAN students) utilised GAITs to complete only 25–30% of their assignments, VIE student relied on GAITs to complete up to 70% of her work (See Table 4.1). In addition, most students reported their usage of the specific types of GAITS tools such as ChatGPT and Grammarly for assisting their academic writing. Interview data from cross-cases also reveal that students use GAITs for idea generation, grammar checks, and writing efficiency, though concerns about over-reliance, like those expressed by VIE, highlight the need for clear guidance regarding GAIT use for academic writing.

4.3.4 Response to Sub-Research Question 2a

Sub-research question 2a is "What are the **general impacts** of GAIT on the Academic Writing Confidence, as perceived by international postgraduate TESOL students at Flinders University, South Australia?" The aim of this research sub-question 2a is to investigate international postgraduate TESOL students' perceived impacts of GAITs on their Academic Writing Confidence (AWC).

To get answers to this sub-research question 2a, the researcher did ask students to self-rate their AWC before and after using GAITs and their overall perceptions of the impacts of

GAITs on their AWC, which are three key themes for analysis and discussion in the individual case study reports in **Appendix 6.** To address this sub-question 2a, interview data was thematically synthesised and interpreted from the four individual case study reports (see **Appendix 6**), focusing on three relevant sub-themes which, as can be seen from Table 4.4 below, are (1) participating students' self-rated AWC **before** using GAITs, (2) participating students' self-rated AWC **after** using GAITs, and (3) the overall The following Table 4.4 synthesises and interprets interview data collected from the four participation students, in relation to the three sub-themes.

Table 4.4 ***Perceived General Impacts of GAIT on AWC of International Postgraduate TESOL Students at Flinders University***

Sub-themes	***Student 1 (TH)***	***Student 2 (BAN)***	***Student 3 (VIE)***	***Student 4 (SRI)***
*1. Self-rated AWC **before** using GAITs*	2 out of 3	2 out of 3.	1 out of 3	2 out of 3.
*2.Self-rated AWC **after** using GAITs*	2.5 out of 3	2.5 out of 3	2 out of 3.	2.75 out of 3
3. General perceived impacts of GAITS on AWC	**Dominantly positive** perceptions with some concerns about overreliance and inaccuracies.	**Mostly positive perceptions** about the uses of GAITs with some concerns over risks involving creativity and critical thinking.	**Dominantly positive perceptions** and boosted confidence in most assignments with some concerns over heavy dependence on GAITs.	**Dominantly positive** perceptions on the impacts of GAITs on their AWC with some concerns over heavy reliance on GAITS and the effects on critical thinking.

The four participating students were all asked in the interview to initially self-rate their Academic Writing Confidence (AWC) levels before using GAITs on a scale ranging from 1 (not very confident) to 3 (very confident). VIE student self-rated her AWC with the lowest rating of 1 out of 3, with all other students rating their AWC at an average level of 2. After incorporating GAITs into their writing process, all four students reported an increase in their self-rated AWC, with rising scores by .5 point (i.e.TH Student and BAN Student), by 1.0 point (VIE Student), and by .75 point (SRI student). Commenting on the perceived rising self-rated AWC score, TH student responded:

> *"Before using ChatGPT, I would rate my confidence at around 2 out of 3. After using it, I'd say it's about 2.5. It has helped boost my confidence in academic writing."* **(TH student)**

Likewise, as can be seen in Table 4.4, BAN student perceived her self-rated AWC to be 2.5 out of 3 after using GAITs, compared to the previous self-rated AWC of 2 out of 3 before using GAITS. Whereas VIE student's perceptions of her AWC, as shown in Table 4.4, rose from 1 to 2 out of 3 and SRI student improved from 2 to 2.75 out of 3, suggesting a significant boost in their perceived AWC. This indicated that all the participating students generally felt more confident in their academic writing after using these tools.

As for the four participating students' general perceptions on the use of GAITs at Flinders University, TH, VIE and SRI students shared a dominantly positive view on the impacts of GAIT use on their AWC. BAN student still shared a positive perspective overall but raised concerns about GAITs' potential risks to creativity and critical thinking. Overall, the 4 students recognised that GAITs are becoming widely accepted in their academic environment, with both peers and lecturers integrating these tools into their practices. They expressed enthusiasm about the potential of GAITs for the future of academic writing. BAN and SRI students observed that nearly all their classmates use these tools, illustrating how common GAITs have become on campus.

However, all four participating students had a shared concern about the risk of becoming too dependent on GAITs, which could negatively affect their independent writing

skills. For instance, SRI student told the researcher that while AI tools were helpful, there was a danger that over-reliance on them might affect the development of critical thinking and authentic learning abilities. In her words, SRI student noted:

> *"I think that the dependency on AI has reduced my ability to think critically or find information through other means. I think that my dependency on AI has had some negative impacts on my writing confidence. Without it, I would struggle with assignments or even writing simple emails."* (SRI student).

To sum up, interview data from cross-cases reveals that all four students reported increased Academic Writing Confidence (AWC) after using GAITs, with generally positive perceptions. However, students shared concerns about dependency/over-reliance and the impacts on their critical thinking.

4.3.5 Response to Sub- Research Question 2b

Sub-research question 2b is "What are **the positive impacts** of GAIT use on the Academic Writing Confidence, as perceived by international postgraduate TESOL students at Flinders University, South Australia?" The aim of this research sub-question is to explore the perceptions that international postgraduate TESOL students have about the positive impacts (if any) of GAIT use on their Academic Writing Confidence (AWC). This sub-question specifically focuses on students perceived **positive** impacts of GAITs on their AWC, which is a key theme for analysis and discussion in the individual case study reports in **Appendix 6.** To address this sub-question 2b, interview data was thematically synthesised and interpreted from the four individual case study reports.

The following **Table 4.5** synthesises and interprets interview data collected from the four participating students on their perceived positive impacts of GAITs on their AWC.

Table 4.5 ***Perceived Positive Impacts of GAITs on AWC of International Postgraduate TESOL Students at Flinders University***

Sub-theme	Student 1 (TH)	Student 2 (BAN)	Student 3 (VIE)	Student 4 (SRI)
Perceived Positive Impacts of GAITs on AWC	Grammarly made her writing sound more like a native speaker. *(Lexical resource and Grammatical range and accuracy)* ChatGPT led to more efficient completion of assignments leaving more time to think about writing ideas *(Task Achievement)* Feeling more motivated and quicker at writing, which led to increased writing confidence. *(Task Achievement)* AI is considered an important tool in the academic process, particularly for tasks like the literature reviews and grammar checks. *(Task Achievement & Grammatical Range & Accuracy)*	AI tools have increased writing speed and improved vocabulary and sentence structure. *(Task Achievement Lexical resource and Coherence and Cohesion)* AI helps fill gaps in their knowledge and assists in structuring ideas. *(Task Achievement and Coherence and Cohesion)*	These tools have helped improve their writing speed and efficiency. *(Task Achievement)* Helping with spelling, grammar, and sentence structure *(Grammatical Range & Accuracy and Coherence and Cohesion)* Boosting confidence when completing complex assignments. *(Task Achievement)* AI tools like Grammarly help avoid spelling errors that previously impacted grades. *(Grammatical Range & Accuracy)*	AI tools have enhanced their academic writing confidence through increasing the speed at which they can complete written assignments Finding that their vocabulary had improved *(Lexical Resource and Task Achievement)* Written work is more coherent *(Coherence and Cohesion)*

As can be seen from **Table 4.5**, all the 4 participating international postgraduate TESOL students at Flinders University perceived positive impacts of GAITs on their Academic Writing Confidence (AWC), with each student describing unique benefits. For TH student Grammarly played a significant role in making their writing sound more like a native English speaker, which increased her confidence in using lexical resources and grammatical range and accuracy by producing polished and fluent text. Additionally, ChatGPT helped TH student complete assignments more efficiently, giving her extra time to focus on developing their ideas. She believed this contributed to a significant boost in her motivation and confidence in tackling writing tasks. In this regard, TH student noted:

> *"It [GAITs] positively influences my academic writing confidence and gives me motivation to write more. Sometimes ChatGPT gives me more ideas. I know what I learned from the class, but sometimes it's not enough to write or complete 2000 words, so I use it to expand the ideas I have."* **(TH student)**

BAN shared the positive perception that GAIT improved their writing speed and enhanced vocabulary and sentence structure, helping him feel more confident in filling gaps in his knowledge and organising ideas. Similarly, VIE student perceived that GAITs improved her writing speed, accuracy in spelling and grammar, and sentence structure, which she believed made her feel more prepared and confident when working on complex assignments.

SRI student told the researcher that she used Grammarly to help avoid spelling errors that previously affected her grades, while also improving the coherence and flow of her written work. SRI student noted that:

> *"I feel more confident because, without AI, my work would not be as professional or well-structured. The easy access has boosted my confidence because I can always rely on AI when needed."* **(SRI student).**

Table 4.6 shows that GAITs were perceived to have positive impacts on participating students' abilities for task achievement (TH, BAN, VIE students), coherence and cohesion (BAN, VIE, SRI students), lexical resources (TH, BAN, SRI students), and grammatical range and accuracy TH and VIE students).

Table 4.6: Perceived Positive Impacts of GAITS tools on Four Participating Students' Confidence in Their Academic Writing Abilities

Perceived Confidence in Academic Writing Abilities	Student 1 (TH)	Student 2 (BAN)	Student 3 (VIE)	Student 4 (SRI)
1.Task Achievement	✓	✓	✓	
2. Coherence and Cohesion		✓	✓	✓
3. Lexical Resources	✓	✓		✓
4. Grammatical range and accuracy	✓		✓	

Note: a tick (✓) means that the students have perceived a positive impact on their confidence in this writing ability.

To sum up, interview data from cross-cases reveal that the perceived positive impacts of GAITs on AWC were seen by all students as assisting with writing processes, increasing efficiency, and leading to greater self-assurance in producing academic work that meets high standards.

4.3.6 Response to Sub-Research Question 2c

Sub-research question 2c is "What are **the negative impacts** of GAIT use on the Academic Writing Confidence, as perceived by international postgraduate TESOL students at Flinders University, South Australia?" The aim of this research sub-question is to explore the perceptions that four participating international postgraduate TESOL students have about the negative impacts (if any) of GAIT use on their Academic Writing Confidence (AWC). This sub-question specifically focuses on participating students' negative perceptions of GAITs, which is a key theme for analysis and discussion in the individual case study reports in **Appendix 6.** To address this sub-question, interview data was thematically synthesised and interpreted from the four individual case study reports, focusing on this sub-theme.

The following **Table 4.7** synthesises and interprets interview data on perceived negative impacts of GAITS on four participating students' AWC.

Table 4.7 ***Perceived Negative Impacts of GAIT on AWC of International Postgraduate TESOL Students at Flinders University***

Sub-theme	Student 1 (TH)	Student 2 (BAN)	Student 3 (VIE)	Student 4 (SRI)
Perceived Negative Impacts of GAITs on AWC	Perceived overreliance on Grammarly may lower confidence in grammar skills without the tools in the conditions of doing exams or tests, writing with pen and paper *(Grammatical Range & Accuracy)* Using ChatGPT could lead to inaccurate summaries and AI-generated content not aligning with course material, affecting confidence in presenting original viewpoints. *(Task Achievement)*	Reliance on AI tools could reduce their critical thinking and creativity *(Coherence and Cohesion)* Becoming dependent on AI-generated ideas rather than developing their own. *(Task Achievement)* Having concerns that AI might "kill creativity." *(Emerging Ability)*	Overreliance, which negatively affects confidence when AI is unavailable (e.g., during tests) *(Task Achievement)* Having concerns over losing independent writing skills and creativity. *(Coherence and Cohesion, Task Achievement)* Feeling less confident in written tests without AI support. *(Task Achievement)*	A strong dependence on these tools Reducing ability to write independently *(Task Achievement)* Weakening critical thinking and research skills. *(Task Achievement, Coherence and Cohesion)*

As can be seen from **Table 4.7,** all the four (04) international postgraduate TESOL students from Flinders University expressed their perspectives on the negative impacts of GAIT use on their Academic Writing Confidence (AWC), with a particular focus on potential

over-reliance and the influence on independent writing skills. For example, TH student reported that while Grammarly helped make her writing sound more like a native speaker, she was worried that relying too heavily on it for language quality might weaken her own grammar and language abilities over time.

Similarly, SRI student was concerned that her frequent use of tools like Grammarly for spelling and grammar could undermine her ability to self-correct, potentially limiting her confidence in her own knowledge. She commented that:

> *"I believe AI tools might not always be beneficial because they can reduce authentic learning, especially for non-English speakers."* ***(SRI student)***

BAN student expressed concerns that relying on ChatGPT and Grammarly for structuring ideas, vocabulary enhancement, and sentence improvement might lessen his engagement with writing tasks. He felt that turning to GAITs for grammar and vocabulary could reduce her critical thinking skills, as she found herself less actively involved in developing the structure and flow of her writing. This reliance, in her view, posed a risk to his AWC as it made him feel less capable of producing high-quality writing independently. BAN commented that overusing GAITs could affect his ability to be creative:

> *"Instead of getting an idea from myself, from my brain, it is like I am asking someone else, asking AI for that idea. So, I'm not using my own knowledge or my own critical thinking. It can kill creativity"* ***(BAN student)***

VIE student had similar concerns, expressing that she believed frequent GAIT use for vocabulary suggestions, grammar corrections, and sentence structure support could lead to an over-dependence on AI assistance. While VIE student appreciated the time-saving benefits of these tools, she feared that relying on them too much could limit her ability to independently work on complex assignments in the future, potentially impacting her confidence in facing challenging academic writing tasks. VIE student noted:

> *"I think that using GAITs has made my confidence in writing independently worse. I know I depend on AI too much. I can't stop because of the many assignments I have to complete."* (VIE student)

Table 4.8 shows that GAITs were perceived to have negative impacts on participating students' abilities for task achievement (TH, BAN, VIE and SRI students), coherence and cohesion (BAN, VIE, SRI students), and grammatical range and accuracy (TH Student)

Table 4.8: Perceived Negative Impacts of GAITS tools on Four Participating Students' Confidence in Academic Writing Abilities

Perceived Confidence in Academic Writing Abilities	**Student 1 (TH)**	**Student 2 (BAN)**	**Student 3 (VIE)**	**Student 4 (SRI)**
Task Achievement	**X**	**X**	**X**	**X**
Coherence and Cohesion		**X**	**X**	**X**
Lexical Resources				
Grammatical range and accuracy	**X**			

Note: **A cross (x)** means that the students have perceived a negative impact on their confidence in their academic writing abilities.

To sum up, interview data from cross-cases reveal that there is a shared concern amongst students regarding the long-term negative effects of GAIT reliance on their AWC. The participating students particularly expressed unease about how reliance on GAITs might erode their confidence in their own academic writing abilities to independently structure ideas (i.e. task achievement), correct language (i.e. lexical resources and grammatical range and accuracy), and produce coherent writing (i.e. coherence and cohesion) without AI support.

4.3.7 Response to Sub-Research Question 2d

Sub-research question 2d is "*How can **the negative impacts of GAIT use** on students' AWC **be minimised**, as perceived by international Postgraduate TESOL students at Flinders University, South Australia?*" The aim of this research sub-question is to explore the perceptions that four participating international postgraduate TESOL students have about how to minimise the negative impacts of GAIT use on their Academic Writing Confidence (AWC). This sub-question specifically focuses on recommendations for peers and lecturers, which are key sub-themes for analysis and discussion in the individual case study reports in **Appendix 6**. To address this sub-question, interview data was thematically synthesised and interpreted from the four individual case study reports, focusing on sub-themes of recommendations for peers and recommendations for lecturers.

The following **Table 4.9** synthesises and interprets relevant interview data collected from the four participating students.

Table 4.9: ***Perceptions of International Postgraduate TESOL Students at Flinders University on How to Minimise Negative Impacts of GAIT Use***

Sub-themes	Student 1 (TH)	Student 2 (BAN)	Student 3 (VIE)	Student 4 (SRI)
Recommendations for Peers	Using AI tools as assistants (co-writers) rather than sole authors. Learning from AI-generated content to improve independent writing skills. Avoiding complete reliance on AI for writing assignments; maintain a personal viewpoint.	Using AI tools to assist with assignments but advises against becoming too dependent on them. Encouraging peers to use AI tools to gain initial ideas but to rely on their own critical thinking and creativity.	Using AI tools sparingly to make writing sound more professional Encouraging peers to be aware of over-dependence on AI, which can affect their confidence in writing independently.	Using AI tools selectively, mainly for proofreading and referencing, Avoiding overreliance to ensure academic writing skills development
Recommendations for University lecturers and coordinators	Designing assignments that are less suitable for AI generation (e.g., reduce dependence on traditional literature reviews). Providing ethical guidelines and proper training on AI usage. Incorporating AI tools into teaching practices, such as live demonstrations of appropriate usage.	Making AI tools available and educating students on ethical use of GAITs. Ensuring transparency in how much AI-generated content is used in assignments and encouraging a balance between AI assistance and original student work.	Teaching students how to use GAIT ethically and responsibly Spending time explaining assignments so that students don't immediately turn to AI for help	Providing a clear guidance on responsible and ethical use of GAITs.

To minimise the negative impacts of GAIT use on Academic Writing Confidence (AWC), the four international postgraduate TESOL students at Flinders University made recommendations on both students' mindful use of GAITs and institution's clear guidance. All four participating students asserted and recommended using AI as an assistant rather than a primary author. In this regarding, TH student advised peers to use AI as a "co-writer" to enhance their writing skills, while still maintaining their own ideas, noting:

> *"You should use AI as your co-writer, not your leader. You still need to have your own point of view or standpoint, so remember to pay attention in class, jot down your ideas, and only use AI to help expand them"* **(TH student)**

Similarly BAN student recommended using GAITs sparingly and selectively, suggesting these tools should be limited to initial idea generation. They advised their peers to actively engage with critical thinking and creativity rather than relying solely on AI, which could help maintain originality and self-confidence in their academic work. BAN student' advice for peers was:

> *"Don't get dependent on it [GAITs], because once you get dependent, you will not think any of ideas from yourself"* **(BAN student)**

VIE student reinforced this advice by urging peers to only use AI to polish language or generate initial ideas, to avoid excessive dependency on AI which she believed could hinder peers' confidence in producing original writing.

Additionally, the interviewed students recommended that university lecturers and coordinators play their role in supporting ethical and balanced GAIT use. More specifically, they recommend that lecturers provide ethical guidelines and incorporate AI education into their teaching practices. For example, TH student suggested that topic coordinators should design assignments that are less AI-friendly, such as those requiring students' unique viewpoints, to promote original independent and critical thinking. SRI student believed that clear guidance on ethical and responsible GAIT use would empower students to rely more on their own skills and noted:

"Lecturers should not discourage AI use but instead educate students on how to use it properly and ethically, perhaps through introductory lessons where students can learn about the functions of different AI tools" (**SRI student).**

To sum up, interview data from cross-cases reveal the students felt that lecturers' guidance, combined with strategic assignment design, could assist the development of critical thinking and independent writing abilities, minimising the potential for over-reliance on AI tools.

4.4 Analyses of Other Relevant Emerging Interview Data

Apart from the thematic cross-case data analyses presented in the previous section, interviews with the four participating students revealed additional insights related to their unique experiences and individual perspectives on GAIT use in academic writing. These insights reflect their varying attitudes towards (1) the ethical use of AI, (2) specific preferences for particular GAITs, (3) differing opinions on the influence of GAITs on their AWC, and (4) the mixed impacts of GAITs on developing four academic writing abilities in relation to task achievement, coherence and cohesion, lexical resources and grammatical range and accuracy. Interview data in relation to these four emerging themes are reported hereinafter, first starting with students' perspectives on the ethical use of GAITs.

The ***first*** emerging theme was the four participating **students' perspectives on the ethical use** of GAITs. TH student, for example, expressed a strong belief that GAITs should be used as an assistant, not as a sole author, advocating for limited reliance on AI to preserve originality and personal expression in academic work. TH student shared her opinion on this as follows:

"You should avoid getting AI to write an entire assignment for you without having your own standpoint. Don't just let it do all the writing" (TH student)

Similarly, SRI student recommended students should use AI selectively, mainly for proofreading and referencing, to avoid their over-dependence and maintain their independent writing skills and noted:

> *"Be cautious about copying AI-generated responses and use AI sparingly, mainly for referencing or grammar checks, but do the rest independently to truly learn."* (SRI student)

Most participating students (i.e. TH, BAN and SRI student) emphasised the importance of integrating personal viewpoints and creativity alongside AI-assisted work to uphold academic integrity.

The ***second*** emerging theme reveals that four participating students' preferences for specific tools also varied, depending on the purposes of using them. For example, BAN student preferred ChatGPT for generating initial ideas, finding it particularly useful for organising thoughts at the beginning of assignments, while relying on Grammarly for grammar and vocabulary enhancement to make his writing sound more polished. On this, BAN student commented:

> *"I only use ChatGPT to get a brief idea of the things, or to start a rough draft, and then I write it myself and edit it my way."* (BAN student)

Whereas VIE student preferred using QuillBot for paraphrasing, especially in longer assignments, as it helped her frame ideas in their own words, reinforcing their understanding of complex material. These individual preferences showed how students selected GAIT tools that best addressed their specific academic writing needs.

The ***third*** emerging theme is concerned with students' differing perspectives on the impacts of GAITs on their academic writing confidence and ability development, including writing creativity development. For instance, TH student noted that while using Grammarly made her writing sound more like a native speaker, boosting her confidence in both lexical resources and grammatical range and accuracy, she also voiced concerns over weakened grammar skills in contexts without AI support. Conversely, VIE student felt that GAITs improved her vocabulary and sentence structure, making her feel more capable when tackling complex assignments by noting:

> *"I think they [GAIT] are especially useful for students who have to handle complex topics and do a lot of research." (VIE student)*

This emerging data shows how GAITs can both support and potentially challenge the AWC for all four participating international postgraduate TESOL students.

Last but not least, the **fourth/final** emerging data suggests mixed impacts of GAITs on the four academic writing abilities of task achievement, coherence and cohesion, lexical resources, and grammatical range and accuracy. While GAITs helped some students with task achievement and structuring their assignments, others expressed concerns about losing the ability to connect ideas independently. GAITs improved the vocabulary of TH and VIE student, however there were worries about limiting language development. Similarly, while tools like Grammarly boosted confidence in grammar, students feared over-reliance could hinder their ability to refine their academic without support from GAITs.

4.5 A Summary of Key Findings

In summary, the analyses of interview data provided four key findings revealed from the valuable insights into how four participating international postgraduate TESOL students at CHASS (Flinders University) perceived the impacts of GAIT on their Academic Writing Confidence (AWC). Each key finding is hereinafter reported.

First, all four students perceived generally positive impacts on their confidence in writing task achievement (i.e. their writing speed and efficiency) from GAIT use. They perceived that tools like ChatGPT and Grammarly enabled them to complete assignments more quickly and improve the overall quality of their writing.

Second, all four participating students recognised that GAITs not only assisted with their confidence in academic writing abilities of lexical resources and grammatical range and accuracy which were thus perceived to have positively influenced their AWC levels.

Third, despite the perceived benefits, all four interviewed students expressed concerns about the potential negative impacts of over-reliance on GAITs. TH, BAN and SRI students believed that overreliance on AI tools might weaken their critical thinking and creativity, with TH and VIE students voicing their worries about losing their confidence in abilities to use grammatical range and accuracy when writing without AI support, such as in

exams. These concerns highlight the importance of finding a balance in AI tool usage to ensure that students continue to develop their independent writing skills.

Fourth, students shared varying attitudes toward the ethical implications of using GAITs in their work. The students emphasised the need to integrate personal viewpoints and creativity into their writing, rather than solely relying on AI-generated content. SRI student suggested using AI tools primarily for proofreading and referencing to maintain academic integrity.

4.6. Discussion of the Key Findings

4.6.1 Discussion of Findings Considering Main Research Questions

4.6.1.1 Discussion of Key Findings in Response to Main Research Question #1

Reported responses to all three sub-research questions of 1a, 1b and 1c (See ***Sections 4.3.1, 4.3.2 and 4.3.3*** respectively) reveal the answer to the **Main Research Question 1:** ***How do postgraduate TESOL students at Flinders University in South Australia perceive the uses of Generative AI Tools in their academic work?***

All the four interviewed international postgraduate TESOL students at Flinders University perceived Generative AI Tools as valuable resources that supported various aspects of their academic writing. GAITs were seen as instrumental in enhancing productivity, improving language accuracy, and aiding in structuring content, with students using them to generate ideas, refine grammar, and structure their writing more efficiently. In this regards, all four students noted the following:

> *"I use ChatGPT at the start of assignments to structure and summarise ideas, and to generate content. It helps me organise my thoughts clearly."* (**TH student)**
>
> *"I rely on Grammarly for grammar checking and sentence structure"*. **(BAN student)**
>
> *"AI tools save me time when completing assignments and help me learn more complex sentence structures. I think they are especially useful for students who have to handle complex topics and do a lot of research."* **(VIE student)**

"I use AI tools for proofreading, grammar checks, generating ideas, and referencing." **(SRI student)**

While students appreciated the efficiency and professionalism that GAITs brought to their assignments, they also recognised potential risks of over-reliance, such as diminishing independent writing skills and critical thinking, as noted by the following students.

"Grammarly boosts my confidence in grammar, but it also makes me feel less confident. For example, if I didn't have it, I might forget how to spell certain words because it's always there, fixing them for me. I might even forget how to use certain grammar rules, like the past perfect or present perfect tense." **(TH student)**

"I feel like I'm becoming a bit too dependent on AI for ideas instead of thinking critically on my own. It might be reducing my creativity". (**BAN student)**

"AI tools are useful, but I'm worried that overusing them might affect my ability to think critically and write independently." **(VIE student)**

"GAITs help me write faster and more professionally, but I also know I need to be careful not to depend on them too much." (**SRI student)**

Additionally VIE student appeared to be an outlier in the data gathered to answer this question. Their frequency of GAIT use (70%) was significantly higher than the other students and they were relying on GAITs to save time as well as for research purposes and learning complex sentence structures.

4.6.1.2 Discussion of Key Findings in Response to Research Question #2

Responses to all four research sub-questions of 2a, 2b, 2c, 2d (See Section 4.3.4, 4.3.5, 4.3.6 and 4.3.7 respectively) reveal the answer to **Main Research Question 2*: What are the impacts of Generative AI Tools on their academic writing confidence as perceived by Postgraduate TESOL students at Flinders University, South Australia?*** Overall, all the four participating international postgraduate TESOL students at Flinders University perceived both positive and negative impacts of Generative AI Tools (GAITs) on their academic writing

confidence. On the ***positive*** side, students reported that GAITs, particularly tools like Grammarly and ChatGPT, helped enhance their writing efficiency and quality, improved their vocabulary and grammar, and allowed them to complete assignments more quickly as shown in following student's response:

> *"It [GAITs] definitely makes me quicker, and it helps make my assignments easier to understand."* **(BAN student)**

> *"[GAITs] helps me structure my ideas—like when I have some thoughts about what I'm going to write or the theme of my assignment, I use ChatGPT."* (**TH student)**

However, students also recognised ***several negative impacts*** of over-reliance on these tools. They voiced concerns about losing confidence in writing without the aid of GAITs, particularly in exam settings or when writing by hand with VIE student providing their perspective on this:

> *"During a timed online test, I don't have time to use AI, and that makes me nervous".* **(VIE student)**

Interviewed students shared a worry that an excessive use of AI could affect the development of critical thinking, creativity, and critical writing skills, lowering their ability to write independently.

To mitigate these negative impacts, students recommended using GAITs as supportive tools rather than relying on them for entire assignments. They suggested that their peers should strive to maintain a balance, using AI for tasks like idea generation, grammar checks, and proofreading, while ensuring they continue to develop their writing skills independently. Additionally, interviewed students called for clearer guidelines and ethical training from university lecturers, encouraging responsible and balanced use of GAITs in academic work. SRI student shared this idea by noting that:

> *"Lecturers should not discourage AI use but instead educate students on how to use it properly and ethically, perhaps through introductory lessons".* (SRI student)

By addressing these concerns, students believed that the positive effects of GAITs could be maximised, while minimising the risks of over-reliance and preserving their AWC.

4.6.2 Discussion of Findings in Light of the Literature Review

4.6.2.1 Students' Perceptions of GAIT Use

The findings of this study on participating students' perceptions of GAIT use align with and expand upon the current literature regarding the integration of generative AI tools (GAITs) in Australian higher education highlighting the perceived benefits and challenges of using GAITs in academic writing As noted in Fowler et al. (2023), Australian universities are beginning to reshape their assessment and instructional frameworks to accommodate the opportunities and challenges posed by AI. The four participating international postgraduate TESOL students interviewed in this study echoed this. For instance, TH student valued the beneficial uses of Grammarly to make her writing more "native-like," while BAN and VIE students reported their improved writing speed and efficiency, aligning with the findings from Sandu et al. (2024) highlighting general student appreciation of AI assistance in academic skill development.

In addition, like the findings in Sandu et al.'s study, where academic integrity concerns were highlighted, the four participating TESOL postgraduate students in this study voiced similar concerns that reliance on GAITs could undermine independent academic writing and critical thinking skills. BAN student, for example, was worried that AI might "kill creativity" and reduce her ability to develop ideas independently, a perspective that underscores the ethical challenges noted by Gilliver-Brown & Lamb (2024). This reflects the need for policies, as seen at South Australian higher institutions like Flinders University, the University of Adelaide and the University of South Australia, which both cautioned students against over-dependency and advocated students' responsible and ethical uses of GAITs to

enhance, rather than replacing, academic development (Flinders University, 2024; University of Adelaide, 2024; University of South Australia, 2024).

As far as Flinders University is concerned, its academic integrity policy which requires its students to disclose AI use, follow the most updated APA Referencing Guidelines (7th Edition) (American Psychological Association, 2024) and seek topic coordinator approval, provides an example of its policies on ethical AI use (Flinders University, 2024). TH and SRI students felt that this type of guidance encouraged a thoughtful approach to GAIT, advocating for GAIT's selective use primarily for grammar and structure refinement rather than generating content, aligning with recommendations for responsible AI usage proposed by Michel-Villarreal et al. (2023). This guideline, as Sandu et al. (2024) suggest, could support the ethical integration of AI, ensuring students build genuine writing skills without missing out on critical learning processes.

4.6.2.2 Students' Perceived Impacts of GAIT on AWC

The literature on the impact of Generative AI Technologies (GAIT) on Academic Writing Confidence (AWC), as shown in Chapter 2 (See Section 2.3) reveals a mix of positive and negative effects, with university students' perceptions often shaped by their individual usage patterns and reliance on these tools (Arowosegbe, 2024; Johnston et al., 2024). This aligns with findings from the four interviewed TESOL students, who identified both AWC's enhancements and concerns as influenced by GAITs such as Grammarly and ChatGPT.

Regarding GAITs' positive impacts on AWC, research highlights that GAITs can improve AWC by providing real-time feedback, enabling students to identify errors and improve independently helping with their task achievement, coherence and cohesion (Alshater, 2022; Zhai & Wibowo, 2023). This benefit reported in the literature reinforces the responses of TH and VIE students, who appreciated GAIT's support for refining their grammar and structure, which they believed made them feel more competent in producing polished academic writing products. These findings align with studies conducted by other scholars such as McIntosh (2023) who noted that AI assistance encourages students to engage more confidently in academic writing tasks, even taking on more challenging assignments.

The accessibility of GAITs further strengthens AWC by offering flexible, around-the-clock support, especially beneficial for non-native English speakers (Huang et al., 2022; Wang et al., 2023;). This mirrors the perspective of all students who reported that GAIT made academic writing less daunting, providing an accessible resource to clarify language use and structure, thus improving their AWC.

Additionally, as noted by Brynjolfsson et al. (2019), AI's assistance with brainstorming and summarisation allows students to focus more on critical analysis and synthesis rather than basic data gathering. TH and SRI students valued this efficiency in the interviews and suggested that GAIT enhanced their academic output by enabling them to allocate more time to conceptual thinking and content engagement, thus positively impacting their AWC.

However, concerning the negative impacts of GAITs on AWC, the reviewed literature **(see Section 2.3.2)** also warns of potential overreliance on GAIT, which could weaken essential writing skills and critical thinking abilities (Ghimire, 2024; Rane et al., 2023). This concern was echoed by TH, BAN and SRI students, who expressed a worry that constant GAIT use might reduce their ability to generate original ideas. This perspective aligns with the findings from Farrokhnia et al. (2024), who argue that excessive uses of AI can limit students' learning from their own mistakes, which is essential for developing AWC.

Another concern is the risk of students' decreased confidence in their grammatical range and accuracy in settings where GAIT is unavailable, such as exams or timed assessments (Budjalemba & Listyani, 2020; Zotzmann & Sheldrake, 2021). This was particularly evident in VIE student's experience, as she expressed apprehension about her ability to perform well in exam scenarios without Grammarly's support. This aligns with Parsakia (2023), who noted that AI reliance may create a false sense of security, potentially hindering students' performance in situations that require independent writing.

As for the mixed impacts of GAITs, the reviewed literature **(see Section 2.3.3)** also reflects that GAIT's influence on AWC can be mixed, with some students feeling empowered while others in the same cohort experiencing increased anxiety or confusion (Johnston et al., 2024; Song & Song, 2023). These mixed impacts of GAITs were consistent with the responses of the four interviewed students in this current study, who each had different

approaches and comfort levels with AI support. For instance, TH student used GAIT selectively, seeing it as a co-writer rather than a sole author, which mitigated overreliance and maintained their independent writing ability. This approach is aligned with Johnston et al. (2024), who found that students' confidence was influenced by their ability to balance GAIT use with their writing skills.

4.6.2.3 Students' Suggestions for Implementing GAITs

First, participating international postgraduate students' perceptions of GAIT suggests a need for a balance between using AI tools as supportive resources and avoiding dependency on them that might affect their long-term skill development. This balance, as emphasised in recent Australian studies, points to the importance of clear guidelines and ethical frameworks for AI use in academic settings (Kelly et al., 2023; Smolansky et al., 2023). Research on GAIT in Australian education suggests that international students particularly value structured guidance to navigate AI tools ethically, ensuring they support, rather than replace, their writing development efforts.

Students' suggestions also highlighted a desire to use GAIT for targeted support rather than complete dependence. Literature on the impacts of GAIT on AWC similarly notes that, while GAIT can boost writing confidence, its misuse might detract from students' independent writing growth and negatively impact their AWC (Alshater, 2022; Teng & Wang, 2023). SRI student advocated for AI usage guidelines that focus on "improving skills rather than merely fixing errors." Such guidance could help students use GAIT constructively, encouraging an iterative process where AI provides initial feedback but does not replace students' own critical engagement with their writing.

Second, a recurring theme in Australian research is the necessity for institutional guidelines on AI usage, especially for students from diverse linguistic backgrounds (Kelly et al., 2023; Mhlanga, 2023). This aligns with feedback from the TESOL students interviewed in this current study. For example, TH student emphasised the importance of ethical boundaries surrounding GAIT use to avoid undermining personal academic growth. Clear

institutional policies, like those at Flinders University, can enable students to use GAIT responsibly and transparently while avoiding potential downsides such as plagiarism and overreliance (Flinders, 2024).

Third, participating students in this study also highlighted the need for training sessions or workshops on effective GAIT usage. Research in the literature also shows that structured training helps students make more informed decisions about how and when to use AI in their writing process (Budjalemba & Listyani, 2020). SRI student suggested that universities should provide GAIT training to help students understand its role as a supporting tool. This approach mirrors findings by Fui-Hoon Nah et al. (2023), who argued that students gain greater confidence in their writing when they understand the limitations of GAITs and how to use them selectively.

Last but not least, the reviewed literature also suggests that international students may require additional support to adapt to AI-integrated academic settings, given diverse academic backgrounds and varying levels of English proficiency (Huang et al., 2022; Johnston et al., 2024).

4.7 Summary of Chapter 4

This chapter presented the analyses and interpretation of interview data from four postgraduate international student case studies, focusing on their perceived impacts of Generative AI Tools (GAIT) on their Academic Writing Confidence (AWC). The analysis identified three key themes: (1) GAIT's supportive role in enhancing participating students' academic writing skills and providing immediate feedback, which students perceived as boosting their confidence; (2) participating students' concerns over the potential overreliance on GAIT, which could hinder the development of independent writing skills; and (3) participating students' suggestions for clearer guidelines and ethical frameworks for GAIT use to maintain academic integrity. These findings will be further examined in Chapter 5, which makes recommendations for educational practice and concludes the study.

CHAPTER 5: RECOMMENDATIONS AND CONCLUSION

5.1 Overview of Chapter 5

This concluding chapter is structured into **four (04) sections**, starting with key recommendations for three (03) relevant key stakeholders (i.e. international postgraduate students, lecturers and topic coordinators and Flinders University) in the ***first*** section, followed by a discussion on the limitations and significance of the research in the ***second*** section before providing implications for future research and educational practice in the ***third*** section. The chapter concludes with a summary of key points and closing remarks in the ***fourth (final section)***.

5.2 Recommendations for Three (03) Key Stakeholders

Based on the current research's findings, this study makes recommendations for three (03) key stakeholders, namely, (i) international postgraduate students, (ii) lecturers and topic coordinators, and (iii) the participating higher education institution (i.e Flinders university) itself, first starting with recommendations for international postgraduate students who are the key participant/subject of this research.

5.2.1 Recommendations for International Postgraduate Students

First, it is recommended that international postgraduate students should view Generative AI Tools (GAIT) as an academic writing support system rather than a replacement for their academic writing skills This recommendation is consistent with the reviewed literature highlighting that while tools like ChatGPT and Grammarly can enhance academic writing by offering real-time feedback and error correction (Alshater, 2022; Zhai & Wibowo, 2023), overreliance on these tools may prevent students from developing essential writing skills independently (Rane et al., 2023; Bahroun et al., 2023). In light of this TH student recommended that:

> *"My tip is to use AI as your co-writer, not your leader. You still need to have your own point of view or standpoint, so remember to pay attention in class, jot down your ideas, and use AI to help expand them." (TH student)*

Similarly, SRI student recommended that students should:

> *"Be cautious about copying AI-generated responses and use AI sparingly, mainly for referencing or grammar checks, but do the rest independently to truly learn." (SRI student)*

Second, it is also recommended that international postgraduate students should use GAIT features selectively to target specific areas of improvement. Interview data analysis indicates that using grammar suggestions to improve word choice accuracy and grammatical precision can help build students' confidence in their lexical and grammatical abilities. Similarly, utilising summarising tools for efficient content review can enhance students' confidence in task achievement, coherence and cohesion of their academic writing. This finding is consistent with the findings revealed from the study by Ahmadi, (2018). Thus, a more strategic approach to GAIT use can help avoid the temptation to let AI tools take over the entire writing process, which might weaken students' confidence in generating original work.

Third, this study recommends that with ethical guidelines for using GAITs, international postgraduate students will actively engage in ethical considerations when using GAIT. Without institutional guidelines on academic integrity in relation to AI, international students' cultural and academic pressures to conform to high academic standards could lead to their heavy reliance on AI tools. This finding aligns with Mhlanga (2023) who suggests that setting clear personal boundaries for GAIT use can help students maintain academic integrity and self-reliance in writing.

Fourth, international postgraduate students should seek peer support and attend workshops on academic writing and ethical AI use offered by student learning support services in their university. These resources can provide additional guidance on effectively incorporating GAITs into their academic writing practices, improving students' task achievement, coherence and cohesion. Many universities, including Flinders University, offer dedicated classes or detailed information about GAITs, building a culture of responsible use and reinforcing students' AWC.

5.2.2 Recommendations for University Lecturers and Topic coordinators

For university lecturers and topic coordinators, ***first*** they should consider integrating structured guidance on the responsible use of Generative AI Tools (GAIT) into course curricula. As international postgraduate students may vary in familiarity with GAITs and its potential, it is essential for lecturers and topic coordinators to establish clear expectations around ethical use. Their provision of guidelines for when and how these tools should be used in academic writing can help students avoid overreliance and ensure that AI use enhances, rather than undermines, their learning experience (Kelly et al., 2023). In this regard, TH student expressed a desire for clearer guidance by stating:

> *"They [lecturers and topic coordinators] could provide more guidance on using GAIT. Lecturers could also provide ethical considerations for when students use AI in their assignments. Relaying this information would help me know how I can use AI tools ethically."* (TH student)

Second, incorporating such written assignments and academic writing activities that encourage critical reflection on AI-generated content can deepen students' understanding of their own writing strengths and areas for growth. For example, asking students to compare their work with AI-generated suggestions or edits allows them to think critically and independently while being able to identify areas for improvement in their writing and still taking ownership of their final written work submissions. As Sandu et al. (2024) suggested, "encouraging students to reflect on AI suggestions can foster a more active engagement in the learning process, strengthening their writing confidence."

Third, lecturers and coordinators are encouraged to adopt a balanced perspective on GAITs by highlighting both its benefits and limitations. Though tools like ChatGPT and Grammarly can assist students in overcoming writer's block or fixing grammatical mistakes, they may not effectively allow students to develop an academic voice or engage in critical analysis which are both crucial academic skills for students' postgraduate work. By openly discussing these limitations with students in classroom practices, educators can help students use AI tools as a complement to, rather than a replacement for, their own skills (Fowler et al., 2023).

Fourth, lecturers and topic coordinators should take initiatives in offering regular workshops or consultation sessions that specifically focus on AI ethics and academic integrity to support students in navigating the challenges of using GAIT responsibly and ethically. Such initiatives have already been implemented at higher education institutions like the University of Adelaide and UniSA, which have provided their students with real-world examples of ethical and responsible AI use, helping them build confidence and awareness in their academic writing practices (University of Adelaide, 2024, University of South Australia, 2024). Lecturers and topic coordinators at Flinders University should consider taking similar initiatives towards developing students' AWC.

Lastly, lecturers and topic coordinators should also collaborate with university learning support services to develop resources that directly address the needs of international students who may struggle to adapt to both new academic norms and technologies, including GAITs (Smolansky et al., 2023). By working together to create resources that align with the university's academic integrity policies, lecturers and topic coordinators can empower students to use GAIT in ways that strengthen their writing skills and their AWC while upholding ethical standards (Ma, 2024).

5.2.3 Recommendations for Flinders University

First, at the university level, Flinders University's Centre for Innovation of Teaching and Learning should consider implementing institution-wide policies that provide clear guidelines on the ethical use of Generative AI Tools (GAIT) in academic writing. These policies could be included in orientation materials and revisited in workshops throughout the academic year to ensure students understand both the opportunities and limitations of AI tools. Establishing a proper and transparent framework can empower students to use these tools responsibly, as SRI student noted

> *"There's no proper guidance, I would say, on how to use AI ethically and effectively. It's hard to know where to start or what is allowed. I think that clear guidelines would help myself and other students understand the right way to use AI tools and avoid making mistakes." (SRI student)*

Second, the university could benefit from developing **a comprehensive AI literacy programme** for international students, addressing both the technical and ethical aspects of GAIT. This programme could include interactive sessions on using AI tools like ChatGPT, Grammarly, and citation software effectively, as well as discussions on potential risks, such as overreliance and plagiarism. Structured AI literacy initiatives can significantly enhance students' academic skills and confidence, especially for those from non-English-speaking backgrounds (Smolansky et al., 2023). For example, the University of Melbourne has developed their own AI chatbot Aila which supports student learning through two functions. The first is *Chat*, where students receive answers to subject-related questions based on course content, and the second is *Socratic Tutor*, which uses probing questions to guide students' understanding through dialogue (University of Melbourne, 2024).

Third, Flinders University should promote collaboration and discussions between colleges, lecturers, and Student Learning Support Services to develop targeted resources that address the specific needs of international students adapting to GAITs in an Australian academic setting. For example, creating discipline-specific resources that illustrate practical applications of GAITs in each study program could help students see the relevance of AI tools to their studies and future careers. This recommendation was echoed by VIE student who noted:

> *"If we had a way to share what we find challenging or helpful with AI, I think it would be helpful for future students. It would allow us to learn from each other's experiences and find which strategies work best. This could help the university improve the guidance and resources for students using GAITs.*" (VIE student)

5.3 Significance and Limitations of the Study

5.3.1 Significance of the Study

This study is significant because its multiple case studies contribute to the emerging body of research on the impacts of Generative AI Tools (GAIT) on international postgraduate students' Academic Writing Confidence (AWC). As universities increasingly incorporate GAITs into their academic environments, understanding how these tools affect students' confidence in their academic writing abilities is essential. By focusing on international postgraduate TESOL students, who face unique linguistic and cultural challenges, this

research sheds light on a demographic that can experience both heightened benefits and risks from GAITs. The findings highlight participating students' perceived impacts of GAITs on their academic writing confidence.

This study is also significant as it has the potential to inform the practices for educators and universities seeking to integrate GAIT ethically and responsibly in ways that support, rather than hinder, students' academic confidence. By exploring students' perceptions of AI use, this research identifies specific areas where institutions can improve their guidance and support systems. These insights could help universities design AI policies that promote responsible and ethical uses of GAITs, develop useful resources that enhance students' independent academic writing skills and AWC (i.e., confidence in task achievement, coherence and cohesion, lexical resources and grammatical range and accuracy), and ultimately build a more supportive academic environment for international students. For example, this current research's findings surrounding the need for clearer AI usage guidelines could encourage higher education institutions to create targeted orientation programs, workshops, and faculty training initiatives on structured AI literacy development in response to the diverse needs of international postgraduate students.

5.3.2 Limitations of the Study

Although this study makes significant original contributions to both the literature and the practices, providing valuable insights into the impact of Generative AI Tools (GAIT) on international postgraduate students' Academic Writing Confidence (AWC), four (04) main limitations must be acknowledged. ***First,*** the limited timeframe of one year for conducting this study restricted the depth and breadth of the research process. During this limited time frame, the researcher has made a substantial effort in the whole research process of reviewing the literature, formulating the research aim and research questions, designing the research, and the other crucial stages of obtaining ethics approval, collecting a set of four semi-structured interview data, analysing and reporting data. ***Second***, the current study is **methodologically** limited due to its reliance on a qualitative research design. By focusing solely on semi-structured interviews, the study provides in-depth insights from only four interviewed students, but its findings may lack the depth and breadth that a mixed-methods approach could offer. Additionally, the study was conducted by only one researcher

collecting data from a small sample size of only four (04) international postgraduate TESOL students, the findings are constrained in representing the diverse experiences of all international postgraduate students at Flinders University and in South Australia. Although efforts were made to maintain objectivity, the subjective nature of interview data analysis in qualitative research may introduce bias. Furthermore, since the findings are based on students' self-reported perceptions, these may not accurately reflect the true impact of GAIT on their academic writing skills and confidence, as perceptions can be influenced by various internal and external factors.

Third, the scope of the study was geographically limited to four students in one specific postgraduate program (i.e. TESOL program) within the College of Humanities, Arts, and Social Sciences at Flinders University. This narrow focus on TESOL limits the applicability of findings to other disciplines and higher education institutions. The study's geographic restriction to a single university in South Australia also means the findings may not fully capture the experiences of international students across different educational contexts. Future studies should thus expand to other universities, programs, and geographic locations to build on this research and explore GAIT's impacts on AWC on a broader scale beyond the postgraduate TESOL program at Flinders University.

Last but not least, the study is theoretically limited as it relies on a single conceptual framework ***(See Section 2.4) for details.*** This limitation highlights the challenge of creating a new conceptual framework in an under-researched area, which may have an impact on the study's depth. Using related but indirect studies could leave some gaps in fully exploring the impacts of GAIT use on AWC.

5.4 Implications of the Study

5.4.1 Implications for Further Practice

Practically, this study offers several implications for supporting international postgraduate students in their use of Generative AI Tools (GAIT) at the university, lecturer/topic coordinators, and student levels. Strengthening support systems for these students can enhance their academic writing confidence and ensure their responsible uses of GAITs. **At the university level**, institutions should consider integrating structured resources

and guidelines on ethical AI use within academic support services. Offering specialised workshops and training sessions can help students understand the benefits and limitations of GAIT, enabling them to make informed decisions about AI use in their writing. Ongoing support for academic writing skills is also essential, particularly for students who may struggle to adapt themselves to academic standards and expectations in a new linguistic and cultural context.

Regarding lecturers and topic coordinators, this study highlights their critical roles in creating supportive learning environments by offering constructive feedback on assignments and encouraging students to critically assess their degree of reliance on AI tools. By openly discussing the ethical considerations of GAIT in academic settings and encouraging reflective practices of using GAITs for academic purposes, lecturers and topic coordinators can guide students toward building independent academic writing skills.

For individual students, the findings of this study suggests that they engage in self-assessment and strategically identify areas for growth, using GAIT as a supplement rather than a replacement for their skills. Together, these actions can help create an academic environment that supports international students' academic writing development and success. See Section 5.2 for further details on recommendations.

5.4.2 Implications for Further Research

Expanding research on the impacts of Generative AI Tools (GAIT) on Academic Writing Confidence (AWC) among a larger number of international postgraduate students could greatly enhance our understanding of how these tools affect international postgraduate students across various academic settings. Future studies should also consider including universities outside South Australia and across Australia. Future research could benefit from a broader, more diverse sample in terms of cultural backgrounds, and fields of study. Including students from various disciplines beyond TESOL such as STEM or business or health sciences, would offer a more generalisable set of findings applicable to postgraduate education across multiple domains. A more inclusive participant pool would allow researchers to better understand how cultural and disciplinary differences influence participating students' perceptions of GAIT's benefits and challenges.

Employing a mixed-methods approach, incorporating both qualitative interviews and quantitative data such as GPA analysis or other academic writing performance metrics, would provide a more comprehensive picture of how GAIT influences academic confidence and performance. This approach would allow researchers to explore not only the subjective experience of using GAIT but also any measurable impacts on academic success, offering a fuller understanding of the role GAIT plays in students' AWC.

5.5 Summary of Chapter 5 and Concluding Remarks

This chapter makes recommendations for three (03) key stakeholders of (i) Flinders University, (ii) lecturers and topic coordinators, and (iii) international postgraduate TESOL students. Additionally, the study's significance, limitations, and implications for both future practice and research were presented in this Chapter.

This chapter highlights the importance of enhancing support systems for international postgraduate students, especially in navigating the ethical and effective use of Generative AI Tools (GAIT) to strengthen Academic Writing Confidence (AWC). Recommendations include developing clearer guidelines for AI use, maintaining a balanced perspective on GAIT's advantages and limitations, and promoting collaborative support amongst stakeholders to ensure that AI integration does not negatively impact students' AWC. The recommendations are supported with the relevant literature and empirical interview data.

In conclusion, whether GAIT will ultimately contribute positively to international postgraduate students' AWC will depend on how all stakeholders implement these recommendations made in this study. The current study' implications and limitations discussed in this chapter provide a foundation for further research, aiming at widening the understanding of GAIT's impacts on academic writing confidence of students across diverse academic and cultural contexts. Notably, the study highlights that while GAITs are perceived to have significantly improved AWC, interviewed students also raised concerns about over-reliance and the potential inhibition of the development of academic writing abilities. Furthermore, the findings reveal that interviewed students' experiences with GAITs were highly individual, emphasising the need for further research on the best practices of integrating these tools into academic writing practices in higher education contexts.

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Appendices

Appendix 1: IELTS Task 1 and Task 2's Band Descriptors

IELTS

WRITING TASK 1: Band Descriptors (public version)

Band	Task achievement	Coherence and cohesion	Lexical resource	Grammatical range and accuracy
9	• fully satisfies all the requirements of the task • clearly presents a fully developed response	• uses cohesion in such a way that it attracts no attention • skilfully manages paragraphing	• uses a wide range of vocabulary with very natural and sophisticated control of lexical features; rare minor errors occur only as 'slips'	• uses a wide range of structures with full flexibility and accuracy; rare minor errors occur only as 'slips'
8	• covers all requirements of the task sufficiently • presents, highlights and illustrates key features/ bullet points clearly and appropriately	• sequences information and ideas logically • manages all aspects of cohesion well • uses paragraphing sufficiently and appropriately	• uses a wide range of vocabulary fluently and flexibly to convey precise meanings • skilfully uses uncommon lexical items but there may be occasional inaccuracies in word choice and collocation • produces rare errors in spelling and/or word formation	• uses a wide range of structures • the majority of sentences are error-free • makes only very occasional errors or inappropriacies
7	• covers the requirements of the task • (A) presents a clear overview of main trends, differences or stages • (GT) presents a clear purpose, with the tone consistent and appropriate • clearly presents and highlights key features/bullet points but could be more fully extended	• logically organises information and ideas; there is clear progression throughout • uses a range of cohesive devices appropriately although there may be some under-/over-use	• uses a sufficient range of vocabulary to allow some flexibility and precision • uses less common lexical items with some awareness of style and collocation • may produce occasional errors in word choice, spelling and/or word formation	• uses a variety of complex structures • produces frequent error-free sentences • has good control of grammar and punctuation but may make a few errors
6	• addresses the requirements of the task • (A) presents an overview with information appropriately selected • (GT) presents a purpose that is generally clear; there may be inconsistencies in tone • presents and adequately highlights key features/ bullet points but details may be irrelevant, inappropriate or inaccurate	• arranges information and ideas coherently and there is a clear overall progression • uses cohesive devices effectively, but cohesion within and/or between sentences may be faulty or mechanical • may not always use referencing clearly or appropriately	• uses an adequate range of vocabulary for the task • attempts to use less common vocabulary but with some inaccuracy • makes some errors in spelling and/or word formation, but they do not impede communication	• uses a mix of simple and complex sentence forms • makes some errors in grammar and punctuation but they rarely reduce communication
5	• generally addresses the task; the format may be inappropriate in places • (A) recounts detail mechanically with no clear overview; there may be no data to support the description • (GT) may present a purpose for the letter that is unclear at times; the tone may be variable and sometimes inappropriate • presents, but inadequately covers, key features/ bullet points; there may be a tendency to focus on details	• presents information with some organisation but there may be a lack of overall progression • makes inadequate, inaccurate or over-use of cohesive devices • may be repetitive because of lack of referencing and substitution	• uses a limited range of vocabulary, but this is minimally adequate for the task • may make noticeable errors in spelling and/or word formation that may cause some difficulty for the reader	• uses only a limited range of structures • attempts complex sentences but these tend to be less accurate than simple sentences • may make frequent grammatical errors and punctuation may be faulty; errors can cause some difficulty for the reader
4	• attempts to address the task but does not cover all key features/bullet points; the format may be inappropriate • (GT) fails to clearly explain the purpose of the letter; the tone may be inappropriate • may confuse key features/bullet points with detail; parts may be unclear, irrelevant, repetitive or inaccurate	• presents information and ideas but these are not arranged coherently and there is no clear progression in the response • uses some basic cohesive devices but these may be inaccurate or repetitive	• uses only basic vocabulary which may be used repetitively or which may be inappropriate for the task • has limited control of word formation and/or spelling • errors may cause strain for the reader	• uses only a very limited range of structures with only rare use of subordinate clauses • some structures are accurate but errors predominate, and punctuation is often faulty
3	• fails to address the task, which may have been completely misunderstood • presents limited ideas which may be largely irrelevant/repetitive	• does not organise ideas logically • may use a very limited range of cohesive devices, and those used may not indicate a logical relationship between ideas	• uses only a very limited range of words and expressions with very limited control of word formation and/or spelling • errors may severely distort the message	• attempts sentence forms but errors in grammar and punctuation predominate and distort the meaning
2	• answer is barely related to the task	• has very little control of organisational features	• uses an extremely limited range of vocabulary; essentially no control of word formation and/or spelling	• cannot use sentence forms except in memorised phrases
1	• answer is completely unrelated to the task	• fails to communicate any message	• can only use a few isolated words	• cannot use sentence forms at all
0	• does not attend • does not attempt the task in any way • writes a totally memorised response			

(A) Academic | (GT) General Training

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IELTS

WRITING TASK 2: Band Descriptors (public version)

Band	Task response	Coherence and cohesion	Lexical resource	Grammatical range and accuracy
9	• fully addresses all parts of the task • presents a fully developed position in answer to the question with relevant, fully extended and well supported ideas	• uses cohesion in such a way that it attracts no attention • skilfully manages paragraphing	• uses a wide range of vocabulary with very natural and sophisticated control of lexical features; rare minor errors occur only as 'slips'	• uses a wide range of structures with full flexibility and accuracy; rare minor errors occur only as 'slips'
8	• sufficiently addresses all parts of the task • presents a well-developed response to the question with relevant, extended and supported ideas	• sequences information and ideas logically • manages all aspects of cohesion well • uses paragraphing sufficiently and appropriately	• uses a wide range of vocabulary fluently and flexibly to convey precise meanings • skilfully uses uncommon lexical items but there may be occasional inaccuracies in word choice and collocation • produces rare errors in spelling and/or word formation	• uses a wide range of structures • the majority of sentences are error-free • makes only very occasional errors or inappropriacies
7	• addresses all parts of the task • presents a clear position throughout the response • presents, extends and supports main ideas, but there may be a tendency to over-generalise and/or supporting ideas may lack focus	• logically organises information and ideas; there is clear progression throughout • uses a range of cohesive devices appropriately although there may be some under-/over-use • presents a clear central topic within each paragraph	• uses a sufficient range of vocabulary to allow some flexibility and precision • uses less common lexical items with some awareness of style and collocation • may produce occasional errors in word choice, spelling and/or word formation	• uses a variety of complex structures • produces frequent error-free sentences • has good control of grammar and punctuation but may make a few errors
6	• addresses all parts of the task although some parts may be more fully covered than others • presents a relevant position although the conclusions may become unclear or repetitive • presents relevant main ideas but some may be inadequately developed/unclear	• arranges information and ideas coherently and there is a clear overall progression • uses cohesive devices effectively, but cohesion within and/or between sentences may be faulty or mechanical • may not always use referencing clearly or appropriately • uses paragraphing, but not always logically	• uses an adequate range of vocabulary for the task • attempts to use less common vocabulary but with some inaccuracy • makes some errors in spelling and/or word formation, but they do not impede communication	• uses a mix of simple and complex sentence forms • makes some errors in grammar and punctuation but they rarely reduce communication
5	• addresses the task only partially; the format may be inappropriate in places • expresses a position but the development is not always clear and there may be no conclusions drawn • presents some main ideas but these are limited and not sufficiently developed; there may be irrelevant detail	• presents information with some organisation but there may be a lack of overall progression • makes inadequate, inaccurate or over-use of cohesive devices • may be repetitive because of lack of referencing and substitution • may not write in paragraphs, or paragraphing may be inadequate	• uses a limited range of vocabulary, but this is minimally adequate for the task • may make noticeable errors in spelling and/or word formation that may cause some difficulty for the reader	• uses only a limited range of structures • attempts complex sentences but these tend to be less accurate than simple sentences • may make frequent grammatical errors and punctuation may be faulty; errors can cause some difficulty for the reader
4	• responds to the task only in a minimal way or the answer is tangential; the format may be inappropriate • presents a position but this is unclear • presents some main ideas but these are difficult to identify and may be repetitive, irrelevant or not well supported	• presents information and ideas but these are not arranged coherently and there is no clear progression in the response • uses some basic cohesive devices but these may be inaccurate or repetitive • may not write in paragraphs or their use may be confusing	• uses only basic vocabulary which may be used repetitively or which may be inappropriate for the task • has limited control of word formation and/or spelling; errors may cause strain for the reader	• uses only a very limited range of structures with only rare use of subordinate clauses • some structures are accurate but errors predominate, and punctuation is often faulty
3	• does not adequately address any part of the task • does not express a clear position • presents few ideas, which are largely undeveloped or irrelevant	• does not organise ideas logically • may use a very limited range of cohesive devices, and those used may not indicate a logical relationship between ideas	• uses only a very limited range of words and expressions with very limited control of word formation and/or spelling • errors may severely distort the message	• attempts sentence forms but errors in grammar and punctuation predominate and distort the meaning
2	• barely responds to the task • does not express a position • may attempt to present one or two ideas but there is no development	• has very little control of organisational features	• uses an extremely limited range of vocabulary; essentially no control of word formation and/or spelling	• cannot use sentence forms except in memorised phrases
1	• answer is completely unrelated to the task	• fails to communicate any message	• can only use a few isolated words	• cannot use sentence forms at all
0	• does not attend • does not attempt the task in any way • writes a totally memorised response			

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(IELTS, 2024)

Appendix 2: Reviewed Studies on International Students' Perceptions of GAITs' Impacts on AWC Organised Geographically

The following subsections review relevant studies conducted in Asia, the USA and the UK, and Australia, on international students' perceptions of GAITs' impacts on AWC:

1. Studies in Asia

Studies in Asia show that international students often perceive GAITs to have positive impacts on AWC, particularly enhancing their writing skills and confidence (Songsienchai et al., 2023). Tools like ChatGPT, according to Songsienchai et al. (2023) are perceived by Asian students to offer them immediate writing feedback and creative writing support, which are especially beneficial for students grappling with writing challenges. In addition, research by Lin et al. (2023) suggests that these tools facilitate personalised learning experiences, enabling Asian students to engage more deeply with their writing tasks, thus boosting their academic writing confidence. Similarly, Song & Song (2023) emphasise that GAIT helps Asian students produce higher-quality written work by streamlining the writing process and providing real-time suggestions. However, Zhang et al. (2024) indicate that excessive reliance on these tools can lead to a decline in students' writing abilities, with students fearing that their individual voices may be diminished.

2. Studies in the USA

In the United States, international students' perceptions of GAITs' impacts on AWC are mixed (Dang & Wang, 2024). Many international students in the US, according to Cavazos et al., (2024) appreciate the immediate support and resources that GAIT provides, enhancing their overall confidence in academic writing. For instance, studies reveal that international students in the US find it easier to draft essays and reports with the assistance of GAITs, which helps them navigate complex writing requirements (Teng & Wang, 2023). However, Fatemi and Saito's (2019) review found that students shared concerns over academic integrity and plagiarism, diminishing their academic writing confidence. The fear of unintentional plagiarism due to using GAIT tools, according to Khalaf, (2024) has the potential to create anxiety, impacting American international students' AWC.

3. Studies in the UK

A cross-sectional survey conducted by Arowosegbe, et al. (2024) of 136 university students in the UK revealed that 61 percent were aware of Gen-AI tools, with 52 percent having personal experience using these tools, primarily for grammar correction and idea generation. While 56 percent of respondents in this study felt that AI provides an academic advantage for AWC, 40 percent held a positive overall perception of its use in academia. Despite its perceived benefits, international students in the UK raised their concerns over plagiarism, privacy, and unclear institutional policies. According to Arowosegbe, 83 percent of participating international students believed AI use in academia will increase as it helps their AWC, and over half of them believed that it should be integrated into learning how to write confidently. Like those in the US, international students in England echoed similar views, recognising Gen-AI's value for improving their academic writing confidence but expressing their concerns about academic dishonesty and the impacts on originality (Attewell, 2024).

4. Studies in Australia

Many international students in Australia, according to Kelly et al., (2023), find GAIT to be a helpful resource for building their AWC, especially in a diverse academic environment where English may not be their first language. However, Mhlanga (2023) indicates that international students in Australia are cautious about relying too heavily on these tools, fearing that it might hinder their academic writing development. The balance between using GAITs for support and maintaining academic integrity is a recurrent theme in Australian higher education research (Kelly et al., 2023; Smolansky et al., 2023). According to Smolansky et al., (2023) international students often express a desire for clear guidelines and ethical frameworks surrounding GAIT use to help them navigate these writing challenges effectively, thus building their AWC. Notably, there is a lack of studies to investigate South Australian international students' perceived impacts of GAITs tools on their AWC, especially in postgraduate TESOL programs in a particular South Australian university.

The reviewed studies conducted in Asia, Europe, Latin America, the US, the UK and Australia reveal varied university students' perceptions of GAITs' impacts on AWC. These

varied perceptions highlight the need for further investigation of these perceptions in specific higher education contexts, in particular within the context of international postgraduate TESOL students at Flinders University, South Australia.

Appendix 3 Considerations for Each of the 3 Research Types

Research method	Advantages	Disadvantages
Quantitative	• The findings are generalisable (Querios et al., 2017) • Results are objective and replicable (Creswell & Poth, 2018) • Can test hypothesis with statistical analysis (Creswell & Poth, 2018)	• This is limited to numerical data and may not capture the depth and complexity of phenomena • This method may oversimplify complex issues • Can be limited in exploring new or less studied topics • Creswell & Poth, 2018)
Qualitative	• In-depth understanding of complex phenomena (Creswell & Poth, 2018) • Captures the perspectives and experiences of participants (Braun & Clarke, 2022) • Flexible and adaptable to unexpected findings (Creswell & Poth, 2018)	• Data collection and subsequent analysis are time-consuming • Limited generalisability due to smaller sample sizes • Potential for researcher bias in data interpretation (Creswell & Poth, 2018)
Mixed Method	• Combines the strengths of both quantitative and qualitative approaches (Fetters et al., 2013) • Can provide a comprehensive understanding of research problems (Creswell & Plano Clark, 2017) • Allows for triangulation of findings which involves using multiple datasets, methods, theories, or researchers to address a research question, increasing the validity of the study (Turner et al., 2017).	• Complex and time-consuming methodology design and analysis • Requires researchers with skilled knowledge in quantitative and qualitative methodologies • Can face challenges resolving differences between quantitative and qualitative findings (Creswell & Plano Clark, 2017)

Appendix 4: Ethics Approval Notice

4 July 2024

Flinders University

HUMAN ETHICS LOW RISK PANEL

APPROVAL NOTICE

Dear Dr Mai Ngo,

The below proposed project has been **approved** on the basis of the information contained in the application and its attachments.

Project No:

7397

Project Title:

International Postgraduate TESOL Students' Perceived Impacts of Generative AI Tools on Their Academic Writing Confidence: Multiple Case Studies in Flinders University in South Australia

Chief Investigator:

Dr Mai Ngo

Approval Date: 04/07/2024

Expiry Date: 15/12/2024

Approved Co-Investigator/s:

Mr Harry Densley

The following documents have been approved:

File Name	Date	Version
Introductory Email	19/05/2024	1.1
Interview Protocol and Questions	04/06/2024	1.1
Information Sheet and Consent Form	15/06/2024	1.2

RESPONSIBILITIES OF RESEARCHERS AND SUPERVISORS

1. Participant Documentation

Please note that it is the responsibility of researchers and supervisors, in the case of student projects, to ensure that:

- all participant documents are checked for spelling, grammatical, numbering and formatting errors. The Committee does not accept any responsibility for the above mentioned errors.
- the Flinders University logo is included on all participant documentation (e.g., letters of Introduction, information Sheets, consent forms, debriefing information and questionnaires – with the exception of purchased research tools)and the current Flinders University letterhead is included in the header of all letters of introduction. The Flinders University international logo/letterhead should be used and documentation should contain international dialling codes for all telephone and fax numbers listed for all research to be conducted overseas.
- the HREC contact details, listed below, are included in the footer of all letters of introduction and information sheets.

This research project has been approved by Flinders University's Human Research Ethics Committee (Project ID 7397). If you have any complaints or reservations about the ethical conduct of this study, you may contact Flinders University's Research Ethics & Compliance

Page 1 of 2

Office via telephone on 08 8201 2543 or by email human.researchethics@flinders.edu.au

2. Annual Progress / Final Reports

In order to comply with the monitoring requirements of the *National Statement on Ethical Conduct in Human Research* an annual progress report must be submitted each year on the approval anniversary date for the duration of the ethics approval using the HREC Annual/Final Report Form available online via the ResearchNow Ethics & Biosafety system.

Please note that no data collection can be undertaken after the ethics approval expiry date listed at the top of this notice. If data is collected after expiry, it will not be covered in terms of ethics. It is the responsibility of the researcher to ensure that annual progress reports are submitted on time; and that no data is collected after ethics has expired.

If the project is completed *before* ethics approval has expired please ensure a final report is submitted immediately. If ethics approval for your project expires please either submit (1) a final report; or (2) an extension of time request.

3. Modifications to Project

Modifications to the project must not proceed until approval has been obtained from the Ethics Committee. Such proposed changes / modifications include:

- change of project title;
- change to research team (e.g., additions, removals, researchers and supervisors)
- changes to research objectives;
- changes to research protocol;
- changes to participant recruitment methods;
- changes / additions to source(s) of participants;
- changes of procedures used to seek informed consent;
- changes to reimbursements provided to participants;
- changes to information / documents to be given to potential participants;
- changes to research tools (e.g., survey, interview questions, focus group questions etc);
- extensions of time (i.e. to extend the period of ethics approval past current expiry date).

To notify the Committee of any proposed modifications to the project please submit a Modification Request Form available online via the ResearchNow Ethics & Biosafety system. Please note that extension of time requests should be submitted prior to the Ethics Approval Expiry Date listed on this notice.

4. Adverse Events and/or Complaints

Researchers should advise the Research Ethics, Integrity & Compliance Office immediately if:

- any complaints regarding the research are received;
- a serious or unexpected adverse event occurs that effects participants;
- an unforeseen event occurs that may affect the ethical acceptability of the project.

5. Recruitment of Flinders University Undergraduate Students

Please note: For all research projects wishing to recruit Flinders University students as participants, approval needs to be sought from the Pro Vice-Chancellor (Learning and Teaching Innovation), Professor Michelle Picard. To seek approval, please provide a copy of the Ethics approval for the project and a copy of the project application (including Participant Information and Consent Forms, advertising materials and questionnaires etc.) to the Pro Vice-Chancellor (Learning and Teaching Innovation) via michelle.picard@flinders.edu.au.

Yours sincerely,

Camilla Dorian

on behalf of

Human Research Ethics Low Risk Panel
Research Development and Support
human.researchethics@flinders.edu.au

Flinders University
Sturt Road, Bedford Park, South Australia, 5042
GPO Box 2100, Adelaide, South Australia, 5001

Flinders University's Human Research Ethics Committees are constituted in accordance with the National Statement on Ethical Conduct in Research and registered with the NHMRC.

Appendix 5: Interview Protocol

INTRODUCTION AND INFORMED CONSENT

Self-introducing and outlining the aim of the interview and research questions.

Hello, my name is Harry, and I am a student researcher in the Master in TESOL program in the College of Humanities, Arts and Social Sciences at Flinders University. Thank you for being here today and agreeing to participate in this interview session for the research project on *International Postgraduate TESOL Students' Perceived Impacts of Generative AI Tools on Their Academic Writing Confidence: Multiple Case Studies in Flinders University in South Australia*

You have been invited to participate in this research project because you meet the following criteria:

- Being an international postgraduate student on international student visa
- Currently being a continuing student in the Master of TESOL program at Flinders University
- At least completing one semester of the Master of TESOL study program at Flinders University
- Speaking and writing English as your second/foreign language
- Consenting to participate voluntarily in one-on-one semi-structured interviews in English which lasts around 1 hour long in a study room at Flinders University's Central Library
- Consenting to have your interview's audio recorded, transcribed and thematically analysed to seek answers to the research questions and research aim.
- Having experience in using Generative AI tools for your written assignments

In this project, Generative AI Tools (GAIT) will be defined as any online websites or apps, including but not limited to ChatGPT, GrammarlyGo, Co-pilot and Gemini, in which students enter a prompt to create content or receive feedback. This study will focus on GAIT when used for academic writing purposes.

This research seeks answers to the main research questions of:

RQ 1: What are the perceptions of Generative AI Tools, as perceived by Postgraduate TESOL students at Flinders University, South Australia?

RQ 2: What are the impacts of the use of Generative AI Tools on the academic writing confidence as perceived by Postgraduate TESOL students at Flinders University, South Australia?

2. The participant will be given a copy of the participant information sheet and an informed consent form sign.

"Before we begin, here is an informed consent form for you to read. If you agree to participate in this interview on the voluntary basis sign the form at the bottom. Please read it carefully, and if you have any questions or issues, feel free to ask me right away".

3. The interview will start after the participant has signed the informed consent form.
The interview approximately 30 minutes to 1 hour long and has 4 main sections. The first part of the interview is an introduction and will aim to understand your basic background information as an international postgraduate student in Flinders University's TESOL program, followed by the main two sections with open-ended questions about your personal experiences with GAIT and your AWC and the final section will allow you to provide any recommendations or feedback based on your personal experiences.
The interview will be conducted in English, only the audio will be recorded, and it will later be transcribed for research purposes. You will have the chance to revise the transcripts to correct any errors that may occur.

The interview is comprised of **12 questions.**
Please ask me if there are any questions that need further explaining. Feel free to let me know if you need to take a break at any time. You can withdraw from the interview any time without penalty.
We will now begin with the first question of the interview.

Section	Main Interview Questions	Sub-interview Questions/Prompts	Relevance of Each Interview Question
PART 1 – OPENING AND INTRODUCTION (1 main interview question)	Researcher thanks the interviewee for agreeing to participate in the interview and starts with Question 1. **Q1: Could you briefly introduce yourself and your background?**	Confirm nationality Is English your first or second language? How long have you been learning English before coming to Australia? IELTS scores (overall scores and writing scores) How long have you studied in South Australia? Self-rate your current academic writing confidence (1 - 3) How well have you done in your written assignments compared to your oral assignments?	To gather relevant background information about participants, their academic writing scores and confidence and knowledge about AI
PART 2 - The Perceived Use of Generative AI Tools (GAIT) at Flinders University (4 interview questions in this part)	**Q2: Can you tell me about any AI tools that you are familiar with?**	Could you give some examples? (i.e. - Chat GPT, Grammarly, etc.) What do you know about these tools? How do you know about them? Which ones are you most familiar with and why?	To assess participants' familiarity with Generative AI tools
	Q3: Have you ever used them for your academic writing of assignments at Flinders? If yes, can	What types of assignment are you most likely to use AI for in your program? To what	

	you share your experience in using them?	extent can assignments be done with the support of the AI (%)? When you are given an assignment which academic writing support comes to your mind first? Lecturers, Student Learning Support Services, or AI?	
	Q4: To what extent does your use of GAITs help with your AWC?	Why have you used AI tools for academic written assignments? How often? What were the outcomes of using it? What type of assignment was it and how did AI assist you? - How did this experience affect your academic writing confidence? How would you feel if you could no longer use GAIT for academic writing? How was your perceived AWC before and after using GAIT?	To gauge the prevalence and context of AI tool usage at Flinders University
	Q5: How have you seen Generative AI	How have you seen GAIT tools being	

	tools being used at Flinders University?	used by your classmates/friends at Flinders University? How about lecturers? How about others (e.g., learning advisors?	
PART 3: Perceived Impacts of GAIT on AWC (4 interview questions in this part)	**Q6 To what extent have GAITs positively impacted your AWC? How?**	Are there particular features of these GAI tools that really boost your AWC? How have GAITS made you feel more confident in academic writing process? How has GAIT made you feel more confident in your academic writing products? Could you describe a situation where using generative AI tools led to an increase in your academic writing confidence?	To reveal the perceived positive impacts of GAIT on academic writing confidence
	Q7 To what extent have GAITS negatively impacted your AWC? How?	Have you experienced any drawbacks or challenges with generative AI tools that negatively impacted your academic writing confidence?	To reveal the perceived negative impacts of GAIT on academic writing confidence To explore specific examples of negative impacts on writing confidence

		What specific issues did you encounter, and how did they affect your academic writing confidence? How did you address these challenges, and what would you do differently next time? Could you describe a situation where using generative AI tools led to a decrease in your academic writing confidence? What lessons did you take away from this experience?	
	Q 8 In what ways has your perceived academic writing confidence improved since you started using generative AI tools?	Do you feel more reliant on AI tools, or have they enhanced your confidence in independent academic writing skills? -	To assess the perceived AWC improvements due to GAIT usage
	Q9 Considering your overall experience, what are the perceived impacts of GAITs on your academic writing confidence? Why?	In one sentence, could you describe your perceived impacts of GAITs on your AWC? How has this influenced your view on the role of	To assess the overall perceived impacts of GAIT on academic writing confidence and gain insights into participants' perspectives

		AI in academic writing?	
PART 4 Recommendation/ Conclusion (3 interview questions in this part)	**Q10 What recommendations would you give to your peers about using GAIT for improving AWC?**	Any tips, tricks, or things to avoid?	To gather students' recommendations for peers on using AI tools
	Q11 What are your recommendations for university lecturers and topic coordinators to better support international students like you in using generative AI tools responsibly and ethically for academic writing confidence building?	How could lecturers integrate AI tools into their teaching to better support students? What kind of guidance or resources would be most helpful? What else could be done to help improve your AWC apart from using AI tools? Best option for you?	To gather students' suggestions for academic staff, university lecturers, topic coordinators and other stakeholders
	Q12: Are there any further comments you would like to make in relation to this research project? Thank you for your time.		

4. At the end of the interview, the participants will be thanked for their time and later will be sent the transcript for their verification.

Appendix 6: 04 Single Case Study Reports

CASE STUDY 1: THAI STUDENT

No.	Main Themes	Sub-themes	Case study 1 (TH student)
1	**Background**	*1.1 Age (Years)*	35
		1.2 Student Status	Postgraduate international student from Thailand.
		1.3 Education background	Bachelor's degree in liberal arts majoring in English
		1.4 Geographical location	Lived in Sydney for 8 years; moved to Adelaide 2 years ago. English is a second language, studied since early childhood; Thai is their first language.
		1.5 Years studying at Flinders University's Master of TESOL program	2 years
		1.6 English language proficiency	IELTS overall score: 7 (Writing 6.5)
2	**Self-rated Levels of Academic Writing Confidence (AWC)**	*2.1 Self-rated AWC **before** using GAITs*	Self-rates writing confidence as 2 out of 3
		*2.2 Self-rated AWC **after** using GAITs*	Confidence increased slightly from 2 to 2.5 after using AI tools
3	**The Use of GAITs for Academic Writing**	*3.1 Most frequently used GAITs for Academic Writing (What?)*	Grammarly ChatGPT Copilot
		3.2 Actual specific tasks in which GAITS were used for written assignments (For what?)	The student is using ChatGPT at the start of assignments to structure and summarise ideas and generate content. Also using it for outlining assignments and expanding ideas.

			Using Grammarly continuously for grammar and formatting to align writing with native-speaker standards. Mostly for grammar checking, formatting, and improving sentence structure. Copilot is being used for finding additional literature and references beyond course material.
		3.3 Sources of used GAITs (from whom/where)?	Learned about Grammarly from a lecturer Learned about ChatGPT through friends Self- Discovered Copilot independently.
		3.4 Perceived percentage of written assignments assisted by AI (%)	25
4	**Perceived Impacts of GAITs on AWC**	*4.1 Perceived Positive Impacts of GAITs on AWC (+)*	• The student reported that Grammarly made their writing sound more like a native speaker. • ChatGPT led to more efficient completion of assignments leaving more time for the student to think about their ideas. • The student felt more motivated and quicker at writing, which led to increased writing confidence.
		4.2 Perceived Negative Impacts of GAITs on AWC (-)	• The student felt that their overreliance on Grammarly may lower confidence in grammar skills without the tool for example exams or tests,

			writing with pen and paper • The student felt that usingChatGPT could lead to inaccurate summaries and AI-generated content not aligning with course material, affecting their confidence in presenting original viewpoints.
		4.3 Overall Perceptions on the use of GAITS and at Flinders	AI is seen as a valuable tool for saving time and enhancing productivity, but overreliance may negatively impact independent writing skills. AI tools are commonly used at Flinders University; students and lecturers accept and integrate them into academic practices. AI is considered important in the academic process, particularly for tasks like literature reviews and grammar checks.
5	**Recommendations**	*5.1 Recommendations for **Peers***	Use AI tools as assistants (co-writers) rather than sole authors. Learn from AI-generated content to improve independent writing skills. Avoid complete reliance on AI for writing assignments; maintain a personal viewpoint.

		*5.2 Recommendations for **University lecturers and coordinators***	Design assignments that are less suitable for AI generation (e.g., reduce dependence on traditional literature reviews). Provide ethical guidelines and proper training on AI usage. Incorporate AI tools into teaching practices, such as live demonstrations of appropriate usage.

1. Case Study Report 1 for Thai Student (TH)

1.1 Student Background

The participating student from Thailand (TH) student is a 35-year-old postgraduate international student from Thailand, currently enrolled in Flinders University's Master of TESOL programme. TH student holds a bachelor's degree in liberal arts, majoring in English from her home country, Thailand. After living in Sydney for eight years, she moved to Adelaide two years ago. English is her second language, which she has studied since early childhood, while Thai is her first language. Her English language proficiency, based on her IELTS scores is quite high with an overall score of IELTS 7.0, with an IELTS writing score of 6.5. She has been studying at Flinders University for two years now.

1.2 Self-rated Levels of Academic Writing Confidence (AWC)

On the Likert scale of 1 (least confident) to 3 (most confident), TH student self-rated her writing confidence before using Generative AI Tools (GAITs) to be 2 out of 3. After incorporating AI tools into her academic routine, her self-rated confidence increased slightly to 2.5 out of 3.

1.3 The Perceived Use of GAITs for Academic Writing

In the interview, TH student revealed her frequent use of three GAIT tools which were Grammarly, ChatGPT, and Copilot. ***First***, she told the researcher that she used ChatGPT to help structure and summarise ideas at the beginning of assignments, to generate content, and to outline and expand ideas. ***Second***, Grammarly was employed throughout her writing process, specifically for her grammar checking, formatting, and improving sentence structure to meet native-speaker standards. ***Third,*** Copilot, in her view, assisted her in finding additional literature and references beyond the course material. She told the researcher that she learned about Grammarly from a lecturer, discovered ChatGPT through friends, and independently found Copilot. Overall, she estimated that AI tools assisted her in completing around 25% of her written assignments.

1.4 The Perceived Impacts of GAITs on AWC

TH Student perceived both positive and negative impacts of GAITs on her academic writing confidence (AWC). On the positive side, according to her, Grammarly helped make her writing sound more like a native speaker, while ChatGPT enabled quicker and more efficient completion of assignments, giving her more time to focus on her ideas. These benefits were perceived to have led to her increased motivation and faster writing, which in turn has helped improve her overall academic writing confidence level. However, in the interview, she also expressed her concerns about her overreliance on these tools. She feared that depending too much on Grammarly could weaken her grammar skills, particularly in situations where she could not use AI tools, such as in exams. Additionally, she was worried that ChatGPT may produce inaccurate summaries or generate content that does not align with course material, potentially undermining her ability to present her own viewpoints. Despite these concerns, she perceived AI as a valuable tool for saving time and enhancing her writing productivity.

1.5 TH Students' Recommendations

In this interview, TH student made three (03) recommendations in relation to the use of GAITs for improved AWC. ***First***, for her peers, she recommended using AI tools as assistants or co-writers, rather than relying on them as sole authors. TH Student further suggested learning from AI-generated content to enhance independent writing skills and advised against completely depending on AI for assignments, encouraging students to maintain their own academic viewpoints. She also recommended that AI be used as a co-writer and not as a sole author.

Second, for university lecturers and coordinators, she recommended designing assignments that could not be easily completed by AI for example, those assignments that reduce students' reliance on traditional literature reviews.

Third, she also emphasised the need for policy makers to provide ethical guidelines and proper training on AI use, and advocated for incorporating AI tools into teaching practices, including live demonstrations of appropriate usage.

1.6 A Summary of Case Study 1 in Response to Research Questions

In response to Research Question 1, the findings from this case study reveal that TH student viewed GAITs as valuable aids in enhancing her academic writing efficiency, providing structural guidance, grammar suggestions, and expanded access to references. She appreciated GAITS tools like Grammarly, ChatGPT, and Copilot, perceiving them as beneficial in improving her AWC by enabling native-like academic writing and accelerating her writing processes. However, she perceived GAITs as supportive tools rather than central ones for her writing process. She aimed to use them as supplements rather than primary sources. She also expressed concern over potential overreliance on these tools, worrying that they might lessen her independent academic writing skills.

In response to Research Question 2, the findings from this case study suggest that GAITs were perceived to have positively impacted TH student's academic writing confidence, although with mixed outcomes. On the one hand, she believed that GAITs helped increase her confidence by making her writing process faster and enhancing her ability to produce

clear, grammatically correct text that sounds more like a native speaker. This perceived improvement in her writing quality motivated her to write more and enabled her to focus more on idea development. On the other hand, she was worried that relying on these tools could affect her grammar proficiency and her ability to formulate original ideas without AI support, particularly in contexts where AI assistance is unavailable.

CASE STUDY 2: BANGLADESHI STUDENT

No.	Main Themes	Sub-themes	Case Study 2 (BAN Student)
1	**Background**	*1.1 Age (Years)*	31
		1.2 Student Status	Bachelor's degree in English
		1.3 Education background	Recently moved to Australia; currently in their third semester of a Masters of TESOL at Flinders University.
		1.4 Geographical location	English is their second language, learned during school; Bangla is their first language.
		1.5 Years studying at Flinders University's Master of TESOL program	1.5 years
		1.6 English language proficiency	IELTS overall score: 6.5 (Writing score: 6)
2	**Self-rated Levels of Academic Writing Confidence (AWC)**	*2.1 Self-rated AWC **before** using GAITs*	Self-rates AWC as 2 out of 3.
		*2.2 Self-rated AWC **after** using GAITs*	Confidence increased from 2 to 2.5 after using AI tools.
3	**The Use of GAITs for Academic Writing**	*3.1 Most frequently used GAITs for Academic Writing (What?)*	ChatGPT Grammarly Pictory
		3.2 Actual specific tasks in which GAITS were used for written assignments (For what?)	Mostly using ChatGPT to generate initial ideas Using Grammarly to suggest vocabulary, structure sentences and correct grammar Primarily using AI tools for assignments that require writing, such as essays and literature reviews.

		3.3 Sources of used GAITs (from whom/where)?	Found out about ChatGPT from friends They discovered Grammarly from advertisements Pictory was introduced by a lecturer
		3.4 Perceived percentage of written assignments assisted by AI (%)	30
4	**Perceived Impacts of GAITs on AWC**	*4.1 Perceived Positive Impacts of GAITs on AWC (+)*	• The student feels AI tools have increased their writing speed and improved vocabulary and sentence structure. • They feel more confident because AI helps fill gaps in their knowledge and assists in structuring ideas.
		4.2 Perceived Negative Impacts of GAITs on AWC (-)	• The student acknowledged that reliance on AI tools could reduce their critical thinking and creativity • They think that they may become dependent on AI-generated ideas rather than developing their own. • Concerned that AI might "kill creativity."
		4.3 Overall Perceptions on the use of GAITS and at Flinders	They see enthusiasm among peers and think that GAIT is useful for the future of academic writing but it is important to be aware of the potential risks of over-reliance. The student perceives a positive attitude toward AI tools among peers and faculty.

			AI tools are widely used in certain courses, such as "Artificial Intelligence in Education".
5	**Recommendations**	*5.1 Recommendations for **Peers***	Recommends using AI tools to assist with assignments but advises against becoming too dependent on them. Encourages peers to use AI tools to gain initial ideas but to rely on their own critical thinking and creativity.
		*5.2 Recommendations for **University lecturers and coordinators***	Suggests lecturers should make AI tools available and educate students on ethical usage. Recommends transparency in how much AI-generated content is used in assignments and encourages a balance between AI assistance and original student work.

2. Case Study Report 2 for Bangladeshi Student (BAN)

2.1 Student Background

BAN student is a 31-year-old postgraduate international student from Bangladesh, currently enrolled in the Master of TESOL program at Flinders University. BAN student holds a Bachelor's degree in English from Bangladesh. Recently moving to Australia in the last 2 years, BAN student is now in his third semester at Flinders. English is BAN student's second language, which she began learning in high school, while Bangla is his first language. His English language proficiency, based on IELTS scores, is an overall score of IELTS 6.5, with his IELTS writing score of 6.0.

2.2 Self-rated Levels of Academic Writing Confidence (AWC)

On the Likert scale of 1 (least confident) to 3 (most confident), BAN student self-rated their academic writing confidence before using Generative AI Tools (GAITs) at 2 out of 3. After using GAITs, their self-rated confidence slightly increased to 2.5 out of 3.

2.3 The Perceived Use of GAITs for Academic Writing

In the interview, BAN student shared that they frequently use three GAIT tools: ChatGPT, Grammarly, and Pictory. ***First***, BAN student explained that she used ChatGPT mostly to generate initial ideas and structure assignments. ***Second***, Grammarly was used constantly throughout the writing process to improve vocabulary, suggest sentence structure, and correct grammar. ***Third***, Pictory was used occasionally to generate visual summaries. BAN student learned about ChatGPT from friends, discovered Grammarly through advertisements, and was introduced to Pictory by a lecturer. Overall, BAN student estimated that GAITs assisted her to complete about 30% of their written assignments.

2.4 The Perceived Impacts of GAITs on AWC

BAN student perceived both positive and negative impacts of GAITs on heracademic writing confidence. On the positive side, GAITs have contributed to her faster writing and improved vocabulary and sentence structure. BAN student felt more confident in their writing because GAITs were perceived to help fill gaps in their knowledge and offer structured support in organising ideas. However, BAN student expressed concerns about possible negative effects, including a reduction in their critical thinking ability and creativity. He was worried that overreliance on AI-generated ideas could prevent her from developing her own ideas, expressing a fear that GAITs might "kill creativity." Despite these concerns, BAN student viewed GAITs as valuable tools for improving efficiency and productivity in her writing.

2.5 BAN Student's Recommendations

In the interview, BAN student provided three recommendations regarding the use of GAITs for improved AWC. First, for their peers, BAN student recommended using AI tools as aids but cautioned against over-dependence. They encouraged peers to use GAITs for generating initial ideas but to prioritise their own critical thinking and creativity. Second,

BAN student suggested that university lecturers and coordinators ensure AI tools are available to students and provide education on ethical AI usage. They recommended that students were transparent in the amount of AI-generated content used in assignments, encouraging a balance between AI assistance and original work. Lastly, BAN student highlighted the importance of awareness about AI tools and suggested policymakers could introduce guidelines that would encourage responsible use of AI in academia.

2.6 A Summary of Case Study 2 in Response to Research Questions

In response to **Research Question 1**, the findings from BAN student reveal a practical yet cautious perception of GAITs' uses for academic writing confidence. BAN student frequently utilised ChatGPT, Grammarly, and Pictory, employing these tools to generate ideas, improve vocabulary, and structure sentences, which has led to an increase in self-rated confidence from 2 to 2.5 out of 3. BAN student saw GAITs as helpful tools for idea generation and language accuracy, noting that they helped enhance writing efficiency and fill knowledge gaps. However, BAN student also emphasised the importance of maintaining individual critical thinking and creativity, highlighting a need for balancing when using AI tools.

In response to **Research Question 2**, the perceived impacts of GAITs on BAN student's academic writing confidence are both positive and negative. On the positive side, GAITs have led to faster writing, enhanced vocabulary, and a structured approach, all of which have increased BAN student's confidence in handling assignments. However, BAN student expressed concerns about the potential for AI tools to limit creativity and critical thinking, fearing overreliance could weaken independent skills in the long term. Despite these concerns, BAN student maintained a generally positive outlook on GAITs, viewing them as valuable tools for productivity while recommending moderation and the use of critical thinking when engaging with these tools.

CASE STUDY 3: VIETNAMESE STUDENT

No.	Main Themes	Sub-themes	Case Study 3 (VIE Student)
1	**Background**	*1.1 Age (Years)*	24
		1.2 Student Status	Bachelor in English from Vietnamese university
		1.3 Education background	Lived in Australia for almost one year; currently in the second semester of Master of TESOL at Flinders University.
		1.4 Geographical location	English is their second language; started learning English at age 12 as part of school; Vietnamese is their first language
		1.5 Years studying at Flinders University's Master of TESOL program	1 year
		1.6 English language proficiency	IELTS overall score 6.5 (Writing score: 6.5).
2	**Self-rated Levels of Academic Writing Confidence (AWC)**	*2.1 Self-rated AWC **before** using GAITs*	Self-rates AWC level as 1 out of 3
		*2.2 Self-rated AWC **after** using GAITs*	Now feels more confident, rated AWC as 2 after using AI tools.
3	**The Use of GAITs for Academic Writing**	*3.1 Most frequently used GAITs for Academic Writing (What?)*	Grammarly ChatGPT QuillBot

		3.2 Actual specific tasks in which GAITS were used for written assignments (For what?)	ChatGPT and QuillBot used primarily to improve the speed of writing, paraphrasing, Grammarly is being used continuously for checking grammar and spelling and suggesting words, phrases, sentences. Uses AI tools for most assignments, especially those over 1,000 words.
		3.3 Sources of used GAITs (from whom/where)?	Learned about Grammarly through YouTube ads Discovered ChatGPT through a friend. QuillBot recommended by university friends.
		3.4 Perceived percentage of written assignments assisted by AI (%)	70
4	**Perceived Impacts of GAITs on AWC**	*4.1 Perceived Positive Impacts of GAITs on AWC (+)*	• The student mentioned these tools improve their writing speed and efficiency. • Helped with spelling, grammar, and sentence structure • Boosted their confidence when completing complex assignments. • AI tools like Grammarly help avoid spelling errors that previously impacted grades.
		4.2 Perceived Negative Impacts of GAITs on AWC (-)	• Overreliance, which negatively affects confidence when AI is

			unavailable (e.g., during tests) • Concerns about losing independent writing skills and creativity. • Feels less confident in written tests without AI support.
		4.3 Overall Perceptions on the use of GAITS and at Flinders	Believes AI tools make writing sound more professional, however there can be an over-dependence on AI, which affects students' confidence in writing independently. All their friends have been using AI tools to write their assignments Lecturers have only recommended GAIT for referencing purposes
5	**Recommendations**	*5.1 Recommendations for **Peers***	Use AI tools sparingly to make writing sound more professional Encourages peers to be aware of over-dependence on AI, which can affect their confidence in writing independently.
		*5.2 Recommendations for **University lecturers and coordinators***	Teach students how to use GAIT ethically and responsibly Spend time explaining assignments so that students don't immediately turn to AI for help

3. Case Study Report 3 for Vietnamese Student (VIE)

3.1 Background

VIE student is a 24-year-old international postgraduate from Vietnam, currently enrolled in the Master of TESOL program at Flinders University, South Australia. VIE student holds a bachelor's degree in English from a Vietnamese university. Having lived in Australia for nearly a year, she is now in her second semester of Master of TESOL. English is her second language as she been learning it from age 12 as part of her school education, with Vietnamese as her first language. Based on her IELTS scores, VIE student has an overall proficiency score of IELTs 6.5, with a Writing 6.5.

3.2 Self-rated Levels of Academic Writing Confidence (AWC)

On a Likert scale of 1 (least confident) to 3 (most confident), VIE student rated her academic writing confidence at 1 before incorporating Generative AI Tools (GAITs) into her academic writing. After using GAITs, she now rates her confidence level at 2 out of 3, after finding it easier to complete written tasks with AI assistance.

3.3 The Perceived Use of GAITs for Academic Writing

VIE student frequently used three GAITs: Grammarly, ChatGPT, and QuillBot. She used ChatGPT and QuillBot primarily for improving the speed of writing and paraphrasing text. Grammarly was used throughout her writing process to check grammar and spelling while suggesting more accurate wording and sentence structures. VIE student applied these tools to almost all of her written assignments, especially those exceeding 1,000 words in length. She discovered Grammarly through YouTube advertisements, were introduced to ChatGPT by a friend, and learned about QuillBot through recommendations from other university friends. VIE student estimated that AI tools assist her to complete up to around 70% of their written assignments.

3.4 The Perceived Impacts of GAITs on AWC

VIE student identified both positive and negative impacts of GAITs on her academic writing confidence. Positively, these tools help her complete assignments faster and improve spelling, grammar, and sentence structure, boosting her confidence when tackling complex assignments. Grammarly, in particular, was perceived to have been instrumental in minimizing spelling errors, which previously affected their grades.

On the negative side, VIE student was concerned about overreliance on these tools, which was perceived to have affected her confidence when writing independently. She felt particularly uncertain in test environments where AI support is unavailable, worrying that her dependence on GAITs might weaken her creativity and independent writing skills.

Overall, VIE student perceived GAITs as tools that made her writing sound more professional. However, she also believed that excessive reliance on AI can reduce students' confidence in her ability to write independently. VIE student noted that all her friends also used AI tools for assignments, and although lecturers have recommended GAITs, they primarily suggested them for referencing purposes rather than for broader academic writing assistance.

3.5 VIE Student's Recommendations

In the interview, VIE student offered two primary recommendations. ***First,*** VIE student suggested using AI tools in moderation to make writing appear more polished and professional. However, she warned against overdependence, encouraging peers to maintain her confidence in independent writing. ***Second,*** VIE student recommended that lecturers focus on teaching students how to use GAITs ethically and responsibly. They also suggested that lecturers spend additional time explaining assignment expectations, to reduce the need for students to rely immediately on AI assistance.

3.6 A Summary of Case Study 3 in Response to Research Questions

In response to Research Question 1: The VIE student perceived Generative AI Tools (GAITs) as valuable resources for enhancing the professionalism and efficiency of their academic writing. They primarily used Grammarly, ChatGPT, and QuillBot to assist in grammar and spelling correction, to improve sentence structures, and to paraphrase content in particular for assignments that have a word limit of 1000 words or longer. VIE student saw GAITs as helpful aids, allowing her to complete assignments faster and more accurately. The VIE student highlighted that GAITs were integral to her writing process, estimating that these tools were applied to complete approximately 70% of her written assignments. This reliance suggested that VIE student saw GAITs as a key to handling complex writing tasks. While VIE student acknowledged that their friends also used GAITs and that lecturers recommended these tools (primarily for referencing), they mentioned the need to maintain a balance, emphasising the importance of using GAITs in moderation to avoid dependency.

In response to Research Question 2: VIE student reported that GAITs have had both positive and negative impacts on their academic writing confidence. On the positive side, the use of Grammarly, ChatGPT, and QuillBot has increased their writing speed, reduced spelling and grammar errors, and improved sentence coherence. VIE student felt that these tools have provided her with greater assurance when tackling complex assignments, enhancing her confidence level from 1 to 2 out of 3 on a Likert scale. VIE student attributed this confidence boost to Grammarly's role in expanding her vocabulary and minimising spelling errors, which has positively impacted her grades.

However, VIE student also identified negative impacts, noting that overreliance on GAITs has diminished her confidence when writing without AI support, such as during exams or quizzes. They expressed concern that their dependence on GAITs may be undermining their creativity and independent writing abilities. Consequently, they were worried that the prolonged use of AI tools could weaken essential writing skills, affecting their confidence when AI assistance was unavailable. To address these challenges, VIE student recommended that lecturers provided more guidance on ethical and responsible AI usage and suggested that peers use GAITs selectively to build their independent writing skills and protect against overdependence.

CASE STUDY 4: SRI LANKAN STUDENT

No.	Main Themes	Sub-themes	Case Study 4 (SRI Student)
1	**Background**	*1.1 Age (Years)*	27
		1.2 Student Status	Bachelor of Teaching from Sri Lankan university
		1.3 Education background	Lived in Australia for 2 years; currently in the third semester of Master of TESOL at Flinders University.
		1.4 Geographical location	English is their second language; starting learning English from an early age when they began school
		1.5 Years studying at Flinders University's Master of TESOL program	1.5 years
		1.6 English language proficiency	IELTS overall score 8.0 (Writing score: 8.0)
2	**Self-rated Levels of Academic Writing Confidence (AWC)**	*2.1 Self-rated AWC **before** using GAITs*	Self-rates their AWC as 2 out of 3.
		*2.2 Self-rated AWC **after** using GAITs*	Increased to 2.75 after using AI tools
3	**The Use of GAITs for Academic Writing**	*3.1 Most frequently used GAITs for Academic Writing (What?)*	ChatGPT Notion
		3.2 Actual specific tasks in which GAITS were used for written assignments (For what?)	ChatGPT and Notion are mainly being used for proofreading, checking grammar and spelling, generating ideas, and referencing in written assignments.
		3.3 Sources of used GAITs (from whom/where)?	They first learned about both of these tools from a university friend.
		3.4 Perceived percentage of written	25

		assignments assisted by AI (%)	
4	**Perceived Impacts of GAITs on AWC**	*4.1 Perceived Positive Impacts of GAITs on AWC (+)*	• AI tools have enhanced their academic writing confidence through increasing the speed at which they can complete written assignments • The student found that their vocabulary had improved • They perceived their written work as being more coherent
		4.2 Perceived Negative Impacts of GAITs on AWC (-)	• The participant feels a strong dependence on these tools • Reduced ability to write independently • Weakened critical thinking and research skills.
		4.3 Overall Perceptions on the use of GAITS and at Flinders	The participant sees AI tools as beneficial for increasing writing efficiency and producing more professional results. However, they express concerns about the potential for over-reliance, which may damage the development of critical thinking and authentic learning skills. Almost everyone is using AI, it is widespread across the campus The student believes that some students are using GAIT too much
5	**Recommendations**	*5.1 Recommendations for **Peers***	Recommends peers use AI tools selectively, mainly for proofreading and referencing,

			Important to avoid overreliance to ensure academic writing skills development
		5.2 Recommendations for ***University lecturers and coordinators***	Suggests university lecturers and coordinators provide clear guidance on responsible and ethical use of AI tools.

4. Case Study Report 4 for Sri Lankan Student (SRI)

4.1 Student Background

SRI is a 27-year-old international postgraduate student from Sri Lanka, currently enrolled in the Master of TESOL program at Flinders University. She holds a bachelor's degree in teaching from a Sri Lankan university. SRI has lived in Australia for the past two years and is now in her third semester at Flinders. Sinhalese is her first language with English as a second language which she began learning in her early school years. SRI student's English language proficiency is high, with an IELTS overall score of IELTS 8.0, including an IELTS writing score of 8.0.

4.2 Self-rated Levels of Academic Writing Confidence (AWC)

On a Likert scale of 1 (least confident) to 3 (most confident), SRI initially self-rated their AWC as 2 out of 3. After integrating Generative AI Tools (GAITs) into her studies, she now rates her AWC at 2.75, reflecting a notable increase in perceived AWC.

4.3 The Use of GAITs for Academic Writing

SRI student frequently uses ChatGPT and Notion for academic writing. These GAITs are primarily utilised for proofreading, grammar and spelling checks, generating ideas, and referencing. SRI first discovered both tools through a university friend and estimates that

these tools assisted her to complete approximately 25% of her written assignments, mostly for enhancing coherence and ensuring accuracy in her writing.

4.4 The Perceived Impacts of GAITs on AWC

SRI perceives both positive and negative impacts of GAITs on her academic writing confidence. On the positive side, she believed that AI tools have increased her writing efficiency, enabling her to complete assignments faster. Additionally, she felt that GAITs have improved her vocabulary and made her writing more coherent, contributing to a more professional output in written assignments. However, SRI expressed concerns about becoming overly dependent on GAITs, which she feels has impacted her ability to write independently and weakened her critical thinking and research skills. SRI student fears that excessive reliance on these tools might affect her AWC negatively as authentic learning and her critical thinking could be impacted.

While SRI views AI tools as beneficial for enhancing writing quality and efficiency, they are cautious about the risks of over-reliance. She observed that GAIT usage is widespread on campus, with many students using some form of GAITs for assignments. SRI has observed that some students may be using these tools excessively, potentially at the expense of developing important academic skills.

4.5 SRI's Recommendations

For peers, the SRI student recommended using AI tools selectively, focusing on tasks like proofreading and referencing, to prevent over-reliance and to support the development of strong independent writing skills. For University Lecturers and Coordinators, SRI suggested that university staff should provide explicit guidance on the responsible and ethical use of GAITs to help students balance AI assistance with authentic learning.

4.6. A Summary of Case Study Report 4 in Response to Research Questions

In Response to Research Question 1, the SRI student perceives Generative AI Tools (GAITs) as beneficial resources for enhancing the quality, coherence, and professionalism of her academic writing. She primarily used ChatGPT and Notion for proofreading, grammar

and spelling checks, idea generation, and referencing, which she saw as effective means to increase their writing efficiency and AWC. However, despite holding the opinion that GAITs could produce higher quality written work, SRI student was cautious about potential over-reliance. While she appreciated how these tools contributed to a faster workflow, she was mindful of the importance of using GAITs selectively. SRI student believed that AI tools are widely used across the campus, with many students depending heavily on GAITs. This observation strengthened her perspective on the need for balanced usage to protect the development of independent academic writing skills.

In Response to Research Question 2, the SRI student reported both positive and negative impacts of GAITs on their academic writing confidence. Her positive perceived impacts were that AI tools had significantly improved her vocabulary, enhanced the coherence of their writing, and allowed her to complete assignments more efficiently. As a result, SRI student's self-rated confidence increased from 2 to nearly 3 on a Likert scale, marking a notable improvement in their perceived ability to manage academic writing tasks. They believed that this boost in confidence was particularly linked to GAITs support in achieving professional-quality work. On the negative side, SRI student was concerned about a growing dependence on GAITs, which she feared may weaken her ability to write independently and negatively impact the development of critical thinking and research skills. SRI student recommended that her peers use AI tools selectively for specific tasks such as proofreading and referencing. Additionally, she suggested lecturers provide clear guidance on responsible GAIT use, supporting students to benefit from AI without compromising her essential academic skills and AWC.