EFL Tertiary Teachers' and Students' Conceptualizations and Challenges of Using AI Tools to Improve Writing Skills in Thailand and Vietnam During the Covid-19 Pandemic

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Article information	Abstract
	Artificial intelligence tools (AITs) have become a crucial resource for both English as a foreign language (EFL) teachers and students seeking to enhance their language skills. With the advent of cutting-edge AI technologies, the impact on teaching writing skills has been significant. A recent study explored the perceptions and challenges faced by Thai and Vietnamese tertiary teachers and students in utilizing AITs to excel in their writing skills during the Covid-19 pandemic. The study encompassed 40 teachers and 80 students from both countries who responded to questionnaire surveys, as well as 6 teachers and 6 students from each nation who were interviewed in a semi-structured manner. The study employed a mixed-methods approach, utilizing descriptive analysis for quantitative data analysis and content analysis for qualitative data. The findings indicated that while Thai and Vietnamese teachers believed that AITs could aid in developing writing skills during the pandemic, Vietnamese teachers struggled with integrating AITs into their writing teaching, whereas Thai teachers were neutral on the difficulties they faced with AITs. Similarly, Thai and Vietnamese students also had neutral views on the utilization of AITs for improving their writing skills. The study has significant implications for policymakers, teachers, and language educators in enhancing students' writing competence. It is therefore essential to incorporate AITs into EFL classrooms to ensure that students have access to the latest technologies that can help them improve their language skills and excel in their writing abilities.

INTRODUCTION

The Covid-19 has had a detrimental effect on many people's lives around the globe since late 2019 (Kanchai, 2021). Additionally, the spread of coronavirus has posed serious challenges for

the education sector in general and English language teaching (ELT) in particular. Consequently, there was a change from classroom-based instructions to online teaching and learning to deal with this problem (Kanchai, 2021). Notwithstanding its adverse impact, the coronavirus pandemic highlights the importance of digital literacy in ELT and learning (Alakrash & Razak, 2021), leading to teachers' and students' deployment of educational tools to increase the quality of ELT and learning (Pokhrel & Chhetri, 2021). Thus, advances in AITs have made substantial contributions toward ELT during the Covid-19 pandemic. More importantly, the adoption of AITs provides teachers and learners with an ideal opportunity to create a stimulating learning environment, experience personalized learning, and enhance students' language skills (Pokrivcakova, 2019). For example, using ChatGPT to teach writing skills can help students improve their writing performance. However, both language teachers and learners encounter some difficulties in using AI writing tools in the teaching and learning process. Specifically, Barrot (2020) indicated that Grammarly may provide inaccurate suggestions because it does not understand the writers' intentions in their writing. In addition, although Google Translate can help students improve their writing quality, it may suggest some phrases and paragraphs that are unintelligible (Chompurach, 2021).

In Thailand and Vietnam, there are similarities and differences in terms of ELT and learning. English achieves the status of a foreign language in both countries. For example, in Thailand, English performs a crucial role as a foreign language (Baker & Jarunthawatchai, 2017) as well as it is considered as a compulsory subject in tertiary education (Darasawang, 2007). In Vietnam, English as a foreign language is taught from primary to tertiary levels (Mai & Thao, 2022). However, in Thailand, students should gain thorough knowledge of speaking and writing skills since these skills tend to be neglected in classes (Chanaroke & Niemprapan, 2020) while in Vietnam, Vietnamese teachers of English should be proficient in ELT as well as be able to employ advanced technology to meet the learners' needs (Hamid & Nguyen, 2016). Apart from that, teaching sessions in Thailand and Vietnam take place in virtual classrooms during the Covid-19 pandemic. Nevertheless, both Thai and Vietnamese teachers face problems with online teaching due to their lack of experience in teaching English virtually (Thumvichit, 2021) and their difficulty in engaging learners in learning activities (Le et al., 2022).

Regarding the significance of this study, it will be beneficial to Thai and Vietnamese teachers' and learners' development of writing skills as they can help to raise EFL teachers' awareness of the importance of integrating AITs into writing activities to improve their students' writing skills. Additionally, the findings of this study could provide great insights into the challenges of utilizing AITs by Thai and Vietnamese teachers and students in terms of writing skills. While several studies have investigated the use of Artificial Intelligence Technologies (AITs) in EFL contexts in Thailand (e.g., Visaltanachoti et al., 2021) and Vietnam (e.g., Bui et al., 2023; Pham et al., 2022; Vo & Nguyen, 2021), few have specifically focused on leveraging AITs to enhance writing skills among teachers and students in these countries. Therefore, conducting this study in both Thailand and Vietnam is crucial, as its findings can significantly contribute to the advancement of writing skills among Thai and Vietnamese educators and learners through the effective use of AITs

Therefore, this study aims to examine EFL teachers' and students' conceptualizations and challenges of utilizing AITs to enhance writing skills in Thai and Vietnamese universities during the pandemic. To this end, this study endeavors to answer the research questions as follows:

1. What kinds of AI tools do EFL teachers and students in Thailand and Vietnam use to improve writing skills during the Covid-19 pandemic?
2. What are Thai and Vietnamese EFL tertiary teachers' conceptualizations and challenges of using AI tools to improve writing skills during the Covid-19 pandemic?
3. What are Thai and Vietnamese EFL tertiary students' conceptualization and challenges of using AI tools to improve writing skills during the Covid-19 pandemic?

LITERATURE REVIEW

Language policy in Thailand and Vietnam

English was taught as a foreign language at Thai academic institutions for the first time (Khamkhien, 2010). In 1996, elementary school pupils were required to take English beginning in grade one (Wongsothorn et al., 2002). The English curricula in 1996 and 2001, which emphasize autonomous learning and innovative technologies in ELT, significantly changed the course from English as an elective to English as a core subject, according to Wongsothorn et al. (2002). The English curriculum is changed at the postsecondary level to accommodate the growing need for language proficiency (Khamkhien, 2010). Consequently, English has emerged as the most widely taught foreign language in Thai colleges and institutions (Khamkhien, 2010).

Because of the Doi Moi strategy that was implemented in 1986, English is the first foreign language taught in Vietnamese schools (Hoang, 2018). English has been required from Grade 3 through higher education since 1996 (Nguyen & Nguyen, 2019). According to Pham and Dinh (2019), English is now thought to be the most widely used and significant foreign language for ELT in Vietnam. Thus, in order to involve students in the learning process, language teachers should use digital tools in their lessons (Kessler, 2018). Hence, it is evident that English has continued to be widely taught and learned in the field of English Language Teaching (ELT) in both countries to this day.

AI tools

Definitions of artificial intelligence

Artificial intelligence (AI) refers to a digital machine that can do a variety of jobs just like a human (Chiu et al., 2023a; Rupesh & Choudaiah, 2019). Furthermore, AI is defined by Chiu et al. (2023b) as a cutting-edge technology that transforms teaching methods in a variety of ways. In light of the aforementioned definitions, AI is an innovative tool that supports teachers and learners in enhancing their teaching and learning processes by responding to a wide range of user inquiries and performing various tasks effectively.

The use of AI tools in Thailand and Vietnam

It is noted that Thai and Vietnamese contexts have widely adopted AITs. Wongsuriya (2020) discovered, specifically, that using Google Translate might enhance Thai pupils' pronunciation in Thailand. Furthermore, Pingmuang and Koraneekij (2022) revealed that EFL students might employ developing technology to achieve a high degree of English language competency. According to Nghi et al. (2019), chatbots were used as learning aids by numerous foreign language centers in Vietnam to assist language learners. Additionally, Luu et al. (2021) highlight that programs such as Elsa Speak and Duolingo are effective tools for helping students enhance their speaking skills. Indeed, various Artificial Intelligence Technologies (AITs), including Google Translate, Elsa Speak, and Duolingo, have been widely utilized in English Language Teaching (ELT) in Thailand and Vietnam due to their significant benefits.

Technology Acceptance Model

The Technology Acceptance Model (TAM) has three stages. The first stage utilizes the subjective norm, output quality, results demonstrability, and perceived ease of use to predict students' perceived usefulness of the online writing system. The next stage mentions how well subjective norm, perceived usefulness, and perceived ease of use as predictors for students' intention to use the technology. The last stage explores the relationship between students' intention to use the technology and the online writing system usage behavior (Copeland & Franzese, 2021).

Previous research

Numerous studies have examined the views of EFL teachers and students on using AITs in English language teaching and learning in various settings. In China, Chang et al. (2021) investigated EFL students' writing performance and their acceptance of Grammarly. 53 EFL Chinese students participated in this study and were split into two groups: the experimental group and the control group. Pretests, posttests, and a questionnaire were among the tools. The results showed that participants' opinions about utilizing Grammarly for grammar correction were positive and that they were aware of how it could help writing skills. An investigation into the effectiveness of Grammarly in teaching writing to EFL students was conducted in Indonesia by Miranty et al. in 2021.One writing teacher and eighty students, split into two groups, participated. Pretests, posttests, questionnaires, and interviews were used in the study. The results showed that students thought Grammarly was a useful tool. Teachers also believed that using Grammarly could save them time when it came to grading pupils' work. A study on the efficiency of Grammarly as perceived by Indonesian instructors was carried out by Wijayanti et al. in 2021. Three EFL teachers were selected for this qualitative study and came to the interview. In this study, classroom observation was also employed. The findings demonstrated that instructors' opinions about using Grammarly were positive.

In addition, Chuah and Kabilan (2021) investigated how Malaysian educators felt about using chatbots to assist with instruction in mobile settings. In this study, 142 teachers responded to the questionnaires. Descriptive statistics were used to analyze quantitative data. The findings

showed that teachers had a favorable opinion of using chatbots to give students feedback. Yousofi (2022) studied how instructors and students felt about the (in)efficacy of Grammarly utilization in EFL writing classes in Afghanistan. Sixty-six students participated in this study by answering a questionnaire. In addition, 4 students and 5 teachers showed up for the interviews. The findings demonstrated that students' opinions about using Grammarly in writing were positive. Teachers also thought that Grammarly had a positive effect on their writing skills. Burkhard (2022) looked into how students in Switzerland felt about AI writing tools. A total of 365 students participated in this study by responding to the survey. The results showed that while some students used AITs, others did not.

Moreover, Jeanjaroonsri (2023) investigated how Thai EFL learners used and perceived mobile technology for writing in Thai and Vietnamese contexts. A total of 305 university students who took ESP courses participated in this study. To get the data, a questionnaire was employed. According to the research, Thai students started using language checkers and machine translations to help them write better. Bui et al. (2022) investigated students' perceptions of using QuillBot to enhance essays in Vietnam. In this study, twenty English majors participated. Pretests, posttests, and a questionnaire were used in this study to gather data. The results showed that students felt positive about using QuillBot to hone their paraphrasing abilities.

One of the most important abilities for language learners is writing (Armanda et al., 2022). However, academic writing demands critical thinking and strong writing ability (Kurniati & Fithriani, 2022), it can be challenging for language learners (Linuwith & Winardi, 2020). Since AITs are considered key advances that help language teachers and learners improve their language teaching and learning, it is imperative that they be used to polish writing skills. Language instructors faced challenges in writing teaching because their students were unable to arrange their thoughts in a logical manner (Chanyoo, 2018). It is evident that the Covid-19 age has given rise to a great number of AITs, which has led to a demand for digital literacy among teachers and students. According to Chinonso et al. (2023), teachers ought to utilize novel electronic resources to aid learners in accomplishing their educational objectives.

However, a number of studies discovered that while utilizing AITs to enhance their writing skills in various circumstances, teachers and students encountered difficulties (e.g., Fitria et al., 2022; Ghufron, 2019; Pham et al., 2022; Vo & Nguyen, 2021). For instance, Fitria et al. (2022) in Indonesia looked into how students felt about using Grammarly to wire their theses. Thirty-five students participated in the interview and questionnaire. In this study, a mixed-methods design was used. The results demonstrated that although students felt positive about using Grammarly since it may assist them in analyzing their theses, they also thought that Grammarly was unable to detect improper English tenses. In addition, Ghufron (2019) conducted research on teacher corrective feedback and the automated feedback software Grammarly in Indonesian EFL writing assessments. In order to complete questionnaires and interviews, this case study gathered 120 students and two EFL writing teachers. The findings showed that while both teachers and students had good sentiments regarding the usage of Grammarly and teacher corrective feedback, Grammarly is not useful for enhancing the structure or substance of student writing.

Vo and Nguyen (2021) conducted research on the use of Grammarly as an online grammar checker tool to enhance the writing abilities of English majors in Vietnam. This study had 37 students split into two groups: the treatment group and the non-treatment group. The results showed that accurate terms were not suggested by the free version of Grammarly. Pham et al. (2022) investigated how university students felt about Google Translate. In this study, 250 students participated in semi-structured interviews and completed a questionnaire. The findings showed that while students felt that Grammarly was a useful tool for their education, they also thought that Google Translate gave them incorrect grammar, which confused their understanding of the meanings. It follows that using AITs in the teaching and learning of the English language would inevitably provide challenges for EFL teachers and students. Given this, students ought to think about the disadvantages of AITs before using them.

In conclusion, it is evident that there is a dearth of research on the conceptualizations and challenges faced by university instructors and students when using AITs to improve writing skills in Thailand and Vietnam during the pandemic. Therefore, it is crucial to look at how Thai and Vietnamese tertiary instructors and students conceptualize AITs and the difficulties they have in using them to improve writing skills.

Theoretical frameworks

Copeland and Franzese (2021) investigated students' attitudes about an online writing system using Davis's (1989) TAM. Copeland and Franzese (2021) indicated that online writing system refers to new tools and platforms that allow writers to record their writing innovatively. Particularly, students use online resources to receive feedback so that they can recognize the mistakes in their writing and make corrections. The ability of a system to carry out tasks that assist users in reaching their objectives is referred to as output quality (Venkatesh & Davis, 2000). In this study, output quality refers to the caliber of feedback that AITs can offer students in order to help them using AITs to help them become better writers. Because the output quality can help teachers and students improve their writing performance, it is therefore a crucial part of our study.

The present study looked at how Thai and Vietnamese instructors and students conceptualized and dealt with the difficulties of employing AITs to enhance writing skills. As a result, Copeland and Franzese's (2021) model was altered since the output quality of AITs determines how much EFL students can write.
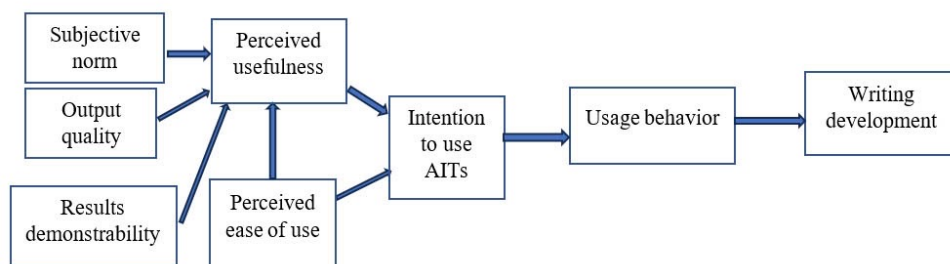
Figure 1 The theoretical framework (adapted from Copeland and Franzese's (2021) model)

RESEARCH METHODOLOGY

Data collection

To comprehensively explore the research phenomena, this study employed an explanatory sequential mixed-methods design, combining quantitative and qualitative data collection methods (Creswell, 2014). The research was conducted at two prominent universities in Thailand and Vietnam, both renowned for their undergraduate programs in English Language Studies. To ensure participant homogeneity, eligibility criteria included enrollment in the English Language Studies program and a minimum English proficiency level of B1, as defined by the Common European Framework of Reference for Languages (CEFR). The study sample comprised 120 participants, selected through convenience sampling—a non-probability sampling method suitable for studies requiring practical access to participants (Creswell, 2014).

Twenty Thai and twenty Vietnamese instructors with four to ten years of classroom experience, ages 26 to 50, made up this group. In semester 3 of 2022, they instructed writing courses in English. Additionally, in semester 3 of 2022, 40 Thai and 40 Vietnamese students, who were majoring in English and were between the ages of 19 and 22, registered in English writing courses. Due to its quick access within a short amount of time, having a varied group of people in terms of age and gender could offer a more thorough knowledge of the difficulties and advantages of employing AI tools across various situations.

Confidentiality and anonymity were guaranteed by obtaining permission from university administration and consent papers from participants. Semi-structured interviews and a closed-ended questionnaire were used to collect data. The questionnaire was divided into two parts: Part A collected general information from the participants, while Part B contained thirty items divided into three categories: twelve items dealt with conceptualizing AITs to improve writing skills; twelve items dealt with teachers' and students' challenges with using AITs to improve writing skills; and six items dealing with the output quality of AITs.

To ensure validity and applicability, the questionnaire items were adapted from Copeland and Franzese (2021) and AbdAlgane and Othman (2023), as their frameworks demonstrated established reliability and relevance to the study's focus on Artificial Intelligence Technologies (AITs). These questionnaires were thoroughly validated and effectively supported the exploration of AITs within the context of language learning. For participant comprehension, it was prepared in English and translated into Thai and Vietnamese. Six main questions were used in semi-structured interviews that were conducted in Thai and Vietnamese to get participants' opinions on how AITs should be conceptualized and the difficulties they have in doing so.

To ensure the validity and reliability of the research instruments, a pilot study was conducted involving two instructors and two students from each university. This pre-study assessment evaluated the clarity, relevance, and consistency of the questionnaire and semi-structured interview items, ensuring their effectiveness in eliciting the required data prior to the main study.The completed survey took about 25 minutes to complete and was disseminated to the 120 participants via Google Forms. Six instructors and six willing students from each university

participated in semi-structured interviews. With the consent of the interviewees, each 35-minute interview was done online via Zoom. For the purpose of data analysis, every interview was taped.

Data analysis

The Statistical Package for the Social Sciences (SPSS) version 20 program was used to evaluate the quantitative data obtained from the questionnaire using descriptive statistics (Mean: M, Standard deviation: SD). 1.00-1.80 indicates highly disagree, 1.81-2.60 indicates disagree, 2.61-3.40 indicates neutral, 3.41-4.20 indicates agree, and 4.21-5.00 indicates strongly agree on the interval scale of the mean scores. The qualitative data was analyzed using the content analysis method. The recordings were first transcribed.

Next, the transcripts were translated into English. Then, the transcriptions were read several times to identify essential concepts based on research objectives. Finally, key concepts were categorized into themes. Transcripts were sent to interviewees to check the content to ensure the trustworthiness of the data. Besides, inter-rater reliability was applied to check the accuracy of data analysis. Each interviewee was coded as T1-1 to T1-3 for Thai teachers, T1-4 to T1-6 for Vietnamese teachers, S1-1 to S1-3 for Thai students, and S1-4 to S1-6 for Vietnamese students.

The results of the interviews revealed nine themes: AI tools' usefulness, AI tools' effectiveness, awareness, the university's policy, AI tools' reliability, recommendations, AI tools' ineffectiveness, AI tools' inefficiency, and AI tools' unreliability. Those themes were divided into two categories including teachers' conceptualizations and teachers' challenges. A group of teachers' conceptualizations involves AI tools' usefulness, awareness, the university's policy, AI tools' reliability, and recommendations while AI tools' inefficiency, AI tools' ineffectiveness, and AI tools' unreliability were classified into teachers' challenges.

RESULTS AND DISCUSSION

Kinds of AI tools and the output quality of AI tools to improve writing skills during the Covid-19 pandemic

Kinds of AI tools to improve writing skills

The proportion of AITs used by Vietnamese and Thai students throughout the pandemic is shown in Table 1.

Table 1
Kinds of AITs (Students)

AI tool	Vietnamese students (%)	Thai students (%)
Grammarly	92.5%	70%
QuillBot	35%	30%
Google Translate	45%	85%

According to the data, Grammarly was the most widely used among Vietnamese and Thai students, being utilized by 92.5% of Vietnamese students and 70% of Thai students. Thai students (85%) utilized Google Translate more frequently than Vietnamese students (45%). Vietnamese and Thai students used QuillBot at the lowest rates, at 35% and 30%, respectively.

Table 2 gives a summary of the AITs used by teachers throughout the pandemic.

Table 2
Kinds of AITs (Teachers)

AI tool	Vietnamese teachers (%)	Thai teachers (%)
Grammarly	40%	32.5%
QuillBot	5%	15%
Google Translate	30%	35%
ProWriting	2.5%	-
Dict Box	-	2.5%

With 40% of Vietnamese teachers using, it to help with writing instruction throughout the pandemic, Grammarly was the most popular AI application. Also, Google Translate was used by many teachers (30%). However, Vietnamese teachers only occasionally used QuillBot, and ProWriting. However, Google Translate was the most popular AI tool among Thai teachers (35%). Grammarly and QuillBot were also utilized with 32.5%, and 15%, respectively. The Dict Box was used by a relatively tiny percentage of them (2.5%).

Interviews with teachers and students revealed the use of additional AITs which were utilized to support writing instruction, such as Turnitin, LanguageTool, and Word Tune. The findings show that during the pandemic the most frequently used tools were Grammarly, followed by Google Translate, and QuillBot.

The output quality of AI tools to improve writing skills in Thailand and Vietnam during the pandemic

The mean (M) and standard deviation (SD) scores for each item, as well as the overall mean and SD for Thai and Vietnamese teachers, are shown in Table 3.

Table 3
Output quality of AITs (Teachers)

No.	The output quality of AI tools	N = 40 Thai teachers		N = 40 Vietnamese teachers	
1	AI tools can help me improve the quality of teaching.	4.15	.98	4.20	.69
2	AI tools can help me improve the efficiency of teaching.	4.10	.96	4.10	.71
3	I believe AI tools are very useful in my teaching career.	4.25	1.06	4.10	.71
4	After using AI tools, I find it cannot enhance the quality of teaching for me.	2.20	1.39	2.55	.94
5	AI tools cannot contribute to improving the efficiency of teaching writing.	2.15	1.26	2.80	1.23
6	I am not convinced that AI tools have any usefulness in my teaching career.	2.15	1.34	2.20	1.05
	Total	**3.16**	**.47**	**3.32**	**.60**

The results in Table 3 show that Thai and Vietnamese teachers' opinions of the effectiveness of AITs in enhancing their writing skills during the pandemic; generally, they held neutral perceptions of using AI tools during the pandemic (Thai: M = 3.16, SD = 0.47; Vietnamese: M = 3.32, SD = 0.60). Both groups agreed that AI tools could improve teaching efficiency and support their careers (Thai item 3: M = 4.25; Vietnamese item 3: M = 4.10). However, they expressed neutral to negative views on AITs enhancing teaching quality (Thai item 4: M = 2.20; Vietnamese item 4: M = 2.55).

Qualitative results were similar to quantitative ones. Thai and Vietnamese participants shared:

AI tools help students check grammar, spelling, styles,... and plagiarism...(T1-3)

AI has greatly contributed to improving teachers' teaching in all areas including teaching writing... (T1-6)

Although Thai teachers (M = 3.16) had a little lower mean than Vietnamese teachers (M = 3.32) in terms of the average ratings for the overall output quality, both Thai teachers and Vietnamese teachers perceived neutrally the output quality of AI tools' effectiveness.

Moreover, there were four themes that emerged from the teacher interview results in Thailand and Vietnam, they share similar themes including types of AITs, awareness, AI tools' effectiveness, and AI tools' usefulness which were categorized as the output quality of AITs.

Table 4
Output quality of AITs (Students)

No.	The output quality of AI tools	N = 40 Thai students		N = 40 Vietnamese students	
		M	**SD**	**M**	**SD**
1	I receive valuable feedback from AI tools to complete my writing homework.				
2	The quality of feedback that I receive from AI tools is higher than face-to-face learning.	3.47	1.06	3.55	1.03
3	Using AI tools to learn writing meets my expectations.	3.22	.97	1.03	.92
4	AI tools cannot improve the quality of my writing skills.	3.20	.96	3.15	1.01
5	I am satisfied with the high quality of AI tools to develop my writing ability.	3.07	1.20	.92	1.00
6	I'm not sure about the effectiveness of AI tools in learning writing.	3.35	1.07	3.47	1.06
	Total	**3.22**	**.74**	**3.18**	**.72**

The results demonstrate that Thai and Vietnamese students' opinions of the effectiveness of AITs in enhancing their writing skills during the pandemic were generally neutral.

It shows that the average mean score of item 1 (M = 3.47, SD = 1.06) implies that during the pandemic, they valued feedback. The rest of items 2, 3, 4, 5, and 6 received mean scores ranging from 3.05 to 3.35, indicating the quality of feedback, their expectations, satisfaction with the high quality of AITs for writing development, and the improvement of their writing skills were all neutral. Therefore, Thai students state the neutral to the output quality of AITS to improve writing skills (M = 3.22, SD = .74).

Qualitative results were similar to quantitative ones. Thai participants shared:

I think AI tools can greatly improve the quality of my writing efficiently..... (S1-4)

AI tools can greatly improve my writing as they are designed to intelligently find mistakes and correct them... (S1-5)

Vietnamese students perceived employing AITs to provide useful feedback and satisfaction, according to items 1 (M = 3.55, SD = 1.03) and 5 (M = 3.47, SD = 1.06). There was some variation in the replies, as seen by the fact that the mean scores for these items ranged from 3.15 to 3.55 and the standard deviations from 1.01 to 1.06. In contrast, mean scores of items 2 (M = 1.03, SD = .92), 4 (M = .92, SD = 1.0), and 6 (M = 1.01, SD = .95) show disagreement. They think the quality of feedback that they receive from AITs during the pandemic is not higher than face-to-face learning. They do not agree that AITs cannot improve the quality of their writing skills during the pandemic, and they are sure about the effectiveness of AITs in learning writing.

Qualitative results were similar to quantitative ones. Vietnamese participants shared:

I am sure about the effectiveness of AI tools in helping me learn writing during the pandemic. (S1-1)

Some students find them helpful for identifying grammatical errors …. but may not rely on them for style... But I am sure about their effectiveness. (S1-2)

Generally, Thai students (M = 3.22, SD = .74) expressed slightly higher perceptions of the output quality of AITs to develop writing abilities during the pandemic than Vietnamese students (M = 3.18, SD = .72), based on a comparison of the overall mean scores. However, the variation between the two groups mean scores is modest. The SD shows that there was some variation in the replies within each group.

Furthermore, there were three themes that emerged from the student interview results in the two countries, they share similarities in themes such as types of AITs, awareness, and AI tools' effectiveness which were categorized as the output quality of AITs.

The total average scores in Table 8 (M = 3.16, SD = .47; M = 3.32, SD = .60), respectively imply that during the pandemic, Thai and Vietnamese teachers generally had neutral perceptions of using AITs to enhance their instruction.

Item 3 (M = 4.25, SD = 1.06) indicates they thought AITs would be helpful in their careers as teachers during the pandemic. A mean score of items 4 (M = 2.20, SD = 1.39), 5 (M = 1.15, SD = 1.26), and 6 (M = 1.25, SD = 1.34) show their disagreement with these items. They showed that they believe that AITs improved the quality of their instruction, they saw benefits from AITs in terms of enhancing the effectiveness of teaching writing and have been persuaded of the value of AITs during the pandemic in their teaching careers.

The mean ratings for items 1, 2, and 3 ranged from 4.10 to 4.20, indicating that Vietnamese teachers thought AITs could help them deliver lessons more effectively, and that they thought AITs would be helpful and efficient for their careers as teachers. Although items 4 (M = 2.55, SD = .94) and 6 (M = 2.20, SD = 1.05) have low mean scores, they indicate that some instructors believed AITs would be beneficial and useful to their teaching quality and employment as teachers during the pandemic.

Thai and Vietnamese teachers' conceptualizations of using AI tools to improve writing skills

Table 5 demonstrates that the average mean scores of Thai and Vietnamese teachers' conceptualizations of using AITs to improve writing skills during the Covid-19 pandemic are M = 3.66 (SD = .81) and M = 3.94 (SD = .38) out of five, respectively. This means that university teachers in Thailand and Vietnam agreed that utilizing AITs could improve their writing teaching during the pandemic.

From data in Table 5, Thai teachers demonstrated a strong positive inclination towards the integration of AITs during the pandemic. They perceived AITs as notably timesaving in teaching writing teaching (item 2, M = 4.25, SD = 1.33). They reported an improvement in their teaching methods (item 3, M = 4.10, SD = 1.20) and high confidence (item 1, M = 4.00, SD = 1.21) with the incorporation of AITs. The educators expressed motivation to explore innovative teaching techniques (item 9, M = 4.00, SD = 1.21). Despite neutral sentiments regarding enjoyment and necessity of AITs (item 8, M = 3.10, SD = 1.07; item 7, M = 2.85, SD = 0.98), they disagreed with the notion that they failed to recognize the importance of AITs before the pandemic (item 5, M = 2.55, SD = 1.23). Therefore, the data underscored the positive impact of AITs on various aspects of teaching writing teaching among Thai educators.

Furthermore, Vietnamese teachers reveled that they strongly agreed that AITs saved time in teaching writing teaching (item 2, M = 4.40, SD = 0.59) and improved their teaching of writing teaching assessment (item 6, M = 4.25, SD = 0.71). Additionally, they agreed that AITs enhanced their confidence, teaching methods, and motivation to explore new techniques (item 9, M = 4.05, SD = .60; item 1, M = 3.90, SD = .71; and item 3, M = 3.85, SD = .87). Interestingly, they admitted not realizing the importance of AITs before the pandemic (item 5, M = 3.65, SD = 1.08). Hence, Vietnamese teachers expressed positive views on AITs, highlighting their efficiency, impact on teaching, and institutional support.

Table 5
Thai and Vietnamese teachers' conceptualizations of using AI tools to improve writing skills

No.	Conceptualizations	N = 20 Thai teachers		N = 20 Vietnamese teachers	
		M	SD	M	SD
1	Using AI tools improves my confidence in teaching writing.	4.00	1.21	3.90	.71
2	Using AI tools saves me time in teaching writing.	4.25	1.33	4.40	.59
3	Using AI tools improves my methods of teaching writing.	4.10	1.20	3.85	.87
4	My university administrations provide me with AI tools and other software programs to teach writing skills.	3.80	1.28	3.90	.64

No.	Conceptualizations	N = 20 Thai teachers		N = 20 Vietnamese teachers	
		M	SD	M	SD
5	I do not realize the importance of AI tools to improve my writing teaching ability before the Covid-19 pandemic.	2.55	1.23	3.65	1.08
6	Using AI tools improves my teaching writing ability.	3.85	1.22	4.25	.71
7	Using AI tools helps me enjoy teaching writing skills.	2.85	.98	3.75	.85
8	Using AI tools is necessary for me to teach writing skills.	3.10	1.07	3.90	.78
9	Using AI tools improves my motivation to explore new teaching techniques for writing classes.	4.00	1.21	4.05	.60
10	AI tools provide me with various writing materials.	4.00	.91	3.65	.98
11	Using AI tools helps me provide personalized feedback to my students effectively.	3.80	1.15	3.95	.60
12	I find it easy to use AI tools to develop my writing teaching skills.	3.70	1.08	4.05	.68
	Total	**3.66**	**.81**	**3.94**	**.38**

Qualitative results supported quantitative ones, which showed that Thai teachers agreed that AITs helped them master new teaching techniques and provided personalized feedback to improve their writing teaching during the pandemic. Besides, the results revealed that Vietnamese teachers agreed that AITs provided them with different writing materials to improve their writing teaching and saved them time during the pandemic. Thai and Vietnamese teachers shared:

…Using AI tools helps to develop my teaching methods to match the modern era. (T1-2)

Some AI tools can help check students' writing…. Some AI tools can also analyze sentences, which is very useful to guide students in real-time. (T1-1)

…ChatGPT provides some sources for further references. (T1-4)

…AI tools help save time…Different learners have different writing competence. (T1-6)

In general, such findings indicate that teachers in Thailand and Vietnam understood the utilization of AITs led to their improvement in their writing teaching ability during the pandemic.

Thai and Vietnamese teachers' challenges of using AI tools to improve writing skills

Table 6 indicates that the average mean scores of Thai and Vietnamese teachers' challenges of using AITs to develop writing teaching during the pandemic are 3.27 (SD = .68) and 3.66 (SD = .70) out of five, respectively.

From data in Table 6, the key findings from Thai teachers revealed that they had mixed views on the effectiveness of AITs. They strongly agreed that AITs were ineffective in properly evaluating students' essays (item 7, M = 4.25, SD = 1.06). They agreed that AITs did not offer student engagement in writing teaching classes (item 5, M = 4.05, SD = 1.09). They believed AITs did not provide reliable information to improve their skills (item 8, M = 4.00, SD = 1.29).

However, they were uncertain about their own technical skills in using AITs (item 12, M = 3.10, SD = 1.33), as well as AITs' ability to provide appropriate feedback (item 2, M = 2.80, SD = 1.47) and foster creativity in teaching (item 6, M = 2.65, SD = 1.46). However, they disagreed that AITs were entirely ineffective (item 9, M = 2.45, SD = 1.57), unable to provide useful resources anytime and anywhere (item 11, M = 2.20, SD = 1.15), and not useful for teaching (item 10, M = 2.10, SD = 1.33). They generally did not perceive AITs as entirely ineffective or unhelpful in teaching writing.

Likewise, the key findings showed that Vietnamese teachers had varied views on AITs as well. They faced challenges in checking plagiarism (item 4, M = 4.20, SD = 1.00), while finding it useful for student engagement (item 5, M = 4.15, SD = 0.87). They agreed that AITs did not provide clear instructions (item 1: M = 4.10, SD = 0.71) but found AITs useful for effective resources (item 3, M = 4.05, SD = 0.99). However, they held neutral views on providing resources anytime, anywhere (item 11, M = 3.30, SD = 1.21), AITs' effectiveness during the pandemic (item 9, M = 3.05, SD = 1.05), and usefulness in teaching (item 10, M = 2.75, SD = 1.37). They saw benefits but also faced challenges and had neutral opinions on certain aspects of AITs in teaching writing.

Table 6
Thai and Vietnamese teachers' challenges of using AI tools to improve writing skills

No.	Challenges	N = 20 Thai teachers		N = 20 Vietnamese teachers	
		M	SD	M	SD
1	AI tools do not give me clear instructions to improve my writing teaching.	3.95	1.23	4.10	.71
2	AI tools cannot provide me with appropriate feedback to teach writing skills.	2.80	1.47	3.60	.88
3	AI tools cannot provide effective resources to enhance my writing teaching.	3.90	1.41	4.05	.99
4	I find it difficult to check plagiarism in my students' essays by using AI tools.	3.80	1.05	4.20	1.00
5	Using AI tools cannot engage students in my writing classes.	4.05	1.09	4.15	.87
6	Using AI tools does not give me much creativity to teach writing skills.	2.65	1.46	3.60	.94
7	AI tools cannot evaluate my students' essays properly.	4.25	1.06	4.00	.85
8	AI tools do not provide reliable information to help me improve my writing teaching ability.	4.00	1.29	3.75	.78
9	AI tools are ineffective in teaching writing skills.	2.45	1.57	3.05	1.05
10	AI tools are not useful for me to teach writing skills.	2.10	1.33	2.75	1.37
11	AITs cannot provide me with useful resources anytime and anywhere for my writing teaching.	2.20	1.15	3.30	1.21
12	I lack technical skills in using AI tools to teach writing.	3.10	1.33	3.40	1.14
	Total	**3.27**	**.68**	**3.66**	**.70**

Qualitative results were in line with quantitative ones. Thai and Vietnamese teachers stated:

Teachers still need to develop important skills as AI tools have their limitations and cannot do everything they want. (T1-1)

….AI tools' remediation methods are so reliable that teachers can learn a lot from their feedback. (T1-3)

It's difficult for AI tools to recognize students' paraphrasing and identify plagiarism…. (T1-6)

Teachers should not rely much on AI tools and need to be selective in their use. (T1-5)

In brief, the findings show that Vietnamese teachers agreed that they faced challenges of improving their writing teaching by using AITs during the pandemic while Thai teachers were unsure about their difficulties in using AITs to enhance their writing teaching.

Moreover, there were similarities and differences in themes between Thai and Vietnamese teachers from the interview results. Both teachers in Thailand and Vietnam had similar views on conceptualizations as they believed that AITs had a positive impact on their writing teaching development. Regarding the challenges, they concurred with AI tools' unreliability while they expressed different opinions about the inefficiency and ineffectiveness of AITs. In terms of AI tools' inefficiency, Thai teachers disagreed that AITs were not useful for their writing teaching while Vietnamese teachers were uncertain about the uselessness of AITs in their writing teaching during the pandemic. In respect of AI tools' ineffectiveness, Vietnamese teachers agreed that their creativity in writing teaching was not enhanced using AITs in the covid-19 era whereas Thai teachers had a neutral attitude toward the ineffectiveness of AITs in developing their creativity to teach writing skills.

Thai and Vietnamese students' conceptualizations of using AI tools to improve writing skills

Table 7 presents results on Thai and Vietnamese students' perception of using AITs to enhance writing skills during the pandemic. Overall, Thai and Vietnamese students are neutral about the benefits of AITs for writing improvement (M = 3.29, SD = .93; M = 3.39, SD = .08), respectively.

Key findings (Thai students) include ease in developing awareness through interactive learning with AITs (item 12, M = 3.57, SD = 1.17); familiarity and ease of use with AITs for writing assignments (item 2, M = 3.55, SD = 1.33), (item 5 M = 3.55, SD = 1.25), (item 6, M = 3.55, SD = 1.19), and (item 7, M = 3.55, SD = 1.17); receiving instant responses from AITs (item 11, M = 3.52, SD = 1.10); and lack of awareness before the pandemic (item 1, M = 2.22, SD = 1.04).

Table 7

Thai and Vietnamese students' conceptualizations of using AI tools to improve writing skills

No.	Conceptualizations	N = 40 Thai students		N = 40 Vietnamese students	
		M	SD	M	SD
1	I do not realize the importance of AITs to improve my writing skills before the pandemic.	2.22	1.04	2.45	1.19
2	I know many useful AITs for my writing assignments.	3.55	1.33	3.65	1.12
3	I know how to use AITs to improve my writing skills.	3.40	1.19	3.65	.94
4	I understand how to use AITs to develop my writing ability.	3.30	1.26	3.62	.97
5	I find it easy to use AITs to improve my writing skills.	3.55	1.25	3.60	.98

No.	Conceptualizations	N = 40 Thai students		N = 40 Vietnamese students	
		M	SD	M	SD
6	I find it convenient to use AITs to do my writing homework anywhere and at any time.	3.55	1.19	3.72	1.03
7	I enjoy learning writing skills by using AITs.	3.55	1.17	3.45	1.03
8	I improve my writing skills by using AITs.	3.42	1.15	3.60	1.03
9	I find it ineffective to improve my writing skills by using AITs.	2.37	1.12	2.42	1.27
10	I find it useful to use AITs to do my writing assignments.	3.47	1.19	3.62	1.19
11	I receive AITs' instant responses.	3.52	1.10	3.52	1.03
12	I find it easy to develop my writing ability through an interactive learning environment with AITs.	3.57	1.17	3.42	1.17
	Total	**3.29**	**.93**	**3.39**	**.80**

Key findings (Vietnamese students) include the convenience of using AITs for writing homework (item 6, M = 3.72, SD = 1.06); familiarity and ease of use with useful AITs (item 2, M = 3.65, SD = 1.12) and (item 3, M = 3.65, SD = .94); perception of ineffectiveness in improving writing skills through AI tool used during the pandemic (item 9, M = 2.42, SD = 1.27).

Moreover, the interviews results of Thai and Vietnamese students revealed the conceptualization of using AITs as follows:

I recommend all students learn to use new technologies to utilize in their language learning. (S1-1)

They helped generated ideas and allowed for self-correction and editing before submitting assignments. (S1-4)

Thai and Vietnamese tertiary students' challenges of using AI tools to improve writing skills

Table 8 displays results on Thai and Vietnamese students' challenges using AITs for writing skills improvement during the pandemic. Overall, Thai and Vietnamese students hold a neutral view on utilizing AITs for writing improvement (M = 2.99, SD = .64; M = 2.90, SD = .77), respectively.

Key findings (Thai students) include: critical result analysis is required when using AITs (item 12, M = 3.62, SD = 1.07); difficulties in avoiding plagiarism arise with AITs for essay writing (item 11, M = 3.35, SD = 1.00); students lack experience in using AITs for writing homework (item 1, M = 2.70, SD = 1.11); uncertainty exists on how to use new AITs for writing homework (item 10, M = 2.60, SD = 1.03).

Table 8
Thai and Vietnamese students' challenges of using AI tools to improve writing skills

No.	Challenges	N = 40 Thai students		N = 40 Vietnamese students	
		M	SD	M	SD
1	I lack experience in using AI tools to do my writing homework before the covid-19 pandemic.	2.70	1.11	2.77	1.04
2	The content of my writing assignments is not improved by AI tools.	2.87	1.06	2.47	1.01
3	AI tools' responses change sentences' meanings in my essay writing.	3.22	1.04	3.07	.97
4	AI tools cannot identify errors in my writing assignments.	2.97	1.09	3.05	1.08
5	AI tools misunderstand my questions related to my writing homework.	3.27	1.06	3.02	.99
6	My essays are unconvincing by using AI tools.	2.92	.91	2.75	.89
7	My creativity is not developed by using AI tools for my writing assignments.	2.82	.95	2.92	1.09
8	AI tools do not provide relevant responses for my writing improvement.	2.77	.94	2.80	1.04
9	AI tools' instructions are not clear for my writing homework.	2.75	1.10	2.52	1.13
10	I do not know how to use new AI tools for my writing homework.	2.60	1.03	2.82	.95
11	It is difficult to avoid plagiarism in essay writing by relying on AI tools.	3.35	1.00	3.25	1.10
12	Using AI tools for writing improvement requires critical analysis of their results.	3.62	1.07	3.35	1.16
	Total	**2.99**	**0.64**	**2.90**	**.77**

Key findings (Vietnamese students) include: critical result analysis is required when utilizing AITs (item 12, M = 3.35, SD = 1.16); difficulties in avoiding plagiarism arise with AITs for essay writing (item 11, M = 3.25, SD = 1.10); unclear instructions from AITs (item 9, M = 2.52, SD = 1.13); AITs do not improve writing content (item 2, M = 2.47, SD = 1.01).

The interviews results of Thai and Vietnamese students revealed the challenges of using AITs as follows:

I strongly agree that the information provided by AI tools is subject to errors, therefore it is necessary to think critically before using that information. (S1-3)

Some students find them helpful for identifying grammatical errors…..but may not rely on them for style, organization, or content feedback…. (S1-6)

Besides, six themes emerged from the interview results. Four themes belong to the category of conceptualizations, namely frequency of use, AI tool's usefullness, awareness, and AI tools' reliability. The other two themes belong to the category of challenges, namely the AI tools' unreliability and lack of experience.

In summary, Thai students use AITs more frequently than Vietnamese students. However, there are no differences in the challenges faced by students from both countries.

DISCUSSION

This study produced a number of important conclusions. First, teachers in Vietnam and Thailand thought that using AITs could improve their capacity to teach during the pandemic. This result was consistent with the claims made by Miranty et al. (2021), Wijayanti et al. (2021) and Yousofi (2022), and that using GR was beneficial in that it might raise teachers' proficiency in teaching writing. One possible explanation for this finding is that participants in both nations would have found AITs useful during the pandemic because they would have had less work to do in terms of proofreading students' written assignments for grammar faults. A further rationale for this would be that AIT support could help them refine their instructional strategies. Additionally, it appears that participants' institutions provided them with a lot of support during the pandemic about Microsoft Teams and Zoom software.

However, during the pandemic, Vietnamese instructors faced numerous difficulties when using AITs, which hindered their ability to improve students' writing skills. The results were consistent with Ghufron's (2019) research on the application of an automated feedback tool in EFL writing courses, which suggested that AITs might produce unsuitable content for language instructors. This explains why AI systems' lack of human elements prevented them from providing teachers with useful resources. Furthermore, it may be concluded that AITs lacked credibility due to their propensity to disseminate inaccurate material, impeding teachers' efforts to enhance their writing skills throughout the pandemic. Thai teachers, on the other hand, had mixed opinions regarding the use of AITs, which might have made it harder for them to advance their writing teaching in the COVID-19 era.

This conclusion differed in part from Chuah and Kabilan's (2021) study, which found that teachers were in favor of using chatbots to teach language since they allowed them to provide feedback to their pupils. Given that Thai teachers included digital technology into their writing teaching during the COVID-19 pandemic, it can be inferred that they developed technical proficiency in using AITs for their writing lessons during that time. As such, they were conversant with the AIT's design and thought it was user-friendly, which made it easier for them to use AITs to instruct writing skills. Furthermore, because individuals were aware of the advantages and disadvantages of AITs, their writing teaching was unaffected by the irrelevant responses from AITs throughout the pandemic.

The conception and difficulties in applying AITs to enhance writing skills during the pandemic by Thai and Vietnamese students demonstrate a neutral stance. Both groups were aware of the advantages and discovered that creating their awareness was simple. Burkard's (2022) research on students' perceptions of AI writing tools is in line with this. In line with Zheng and Warschauer's (2017) discussion of the transformative effects of technology on language acquisition, they also highly value the convenience and have the knowledge needed to use AITs effectively. Nevertheless, there are difficulties in assessing AI tool output critically and resolving query understanding constraints. These difficulties line up with the hurdles to e-learning identified by Octaberlina and Muslimin (2020) and the disadvantages noted by Chang et al. (2021) while utilizing AITs for essay writing.

In terms of the output quality of AITs, the results align with previous studies demonstrate the ability of AITs to enhance pedagogical approaches while also shedding light on the influence of cultural elements on educators' perspectives and challenges (Liu et al., 2021). Previous research on the benefits of integrating technology into language learning (Kessler, 2018) found that teachers of Vietnamese and Thai had positive opinions of AITs' output quality. Vietnamese educators showed that they were aware of the advantages these resources could offer to their pedagogical approaches. They demonstrated the extensive use of AI programs.

CONCLUSION AND IMPLICATIONS

Results show that teachers in Vietnam and Thailand thought using AITs improved their writing skills during the pandemic. Nonetheless, there are differences in the difficulties in using AITs to improve writing teaching skills. While Thai EFL teachers had neutral opinions regarding the obstacles they faced when teaching writing, Vietnamese teachers found it difficult to use AITs to teach writing teaching skills during the pandemic. Additionally, students from Thailand and Vietnam expressed uncertainty regarding the ways in which using AITs improved their writing skills and the difficulties they encountered when learning to write in the Covid-19. Regarding the output quality of AITs, instructors and students from Vietnam and Thailand held unbiased views.

Furthermore, the results point to a troubling distinction between Vietnamese and Thai students' perceptions of AITs. Vietnamese students' tendency to express positive satisfaction with their AIT performance suggests that they are receptive to the use of technology in the classroom. It can be the outcome of societal perceptions of accepting innovation and adjusting to the modern world. However, Thai students' neutral viewpoint may suggest a degree of caution and worry when it comes to trusting AITs, which could limit their openness to embracing AITs in the Thai educational system.

Nonetheless, there are various educational implications of the current study. First and foremost, language instructors must to get a thorough grasp of AITs and evaluate how well they improve WSs. Second, it is crucial that language instructors make use of advanced AITs and raise students' understanding of how to support their writing skills with AITs. Thirdly, language instructors should give their students thorough explanations of the benefits and drawbacks of AITs so they can choose the best AITs to enhance their writing skills.

Finally, in order to involve students in their learning process, teachers could incorporate AI applications into their writing tasks. In order to encourage their students to complete writing assignments, policymakers should also give language instructors access to a variety of contemporary digital tools. It is imperative that university administrations provide a range of AIT training programs so that teachers can feel comfortable utilizing chatbots. Teachers should also give students the right kind of help and direction so they can get the most out of using AITs to enhance their writing skills. Students should keep using AITs with further instruction from teachers.

However, the study is constrained by the small sample size drawn from just two universities as well as the lack of departmental views. It is challenging to generalize the results as a result. Thus, in order to provide a more complete data analysis, future research could aim to recruit a larger number of participants. To improve the data' generalizability, additional Thai and Vietnamese universities should be included in future research. Lastly, to acquire a more thorough grasp of the subject, future research might take administrators' and curriculum developers' points of view into account.

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