

EFFECTS OF ONLINE COLLABORATIVE WRITING ACTIVITY TO ENHANCE
EFL STUDENTS' ARGUMENTATIVE WRITING ABILITY



A Dissertation Submitted to University of Phayao
in Partial Fulfillment of the Requirements
for the Doctor of Philosophy Degree in English

May 2025

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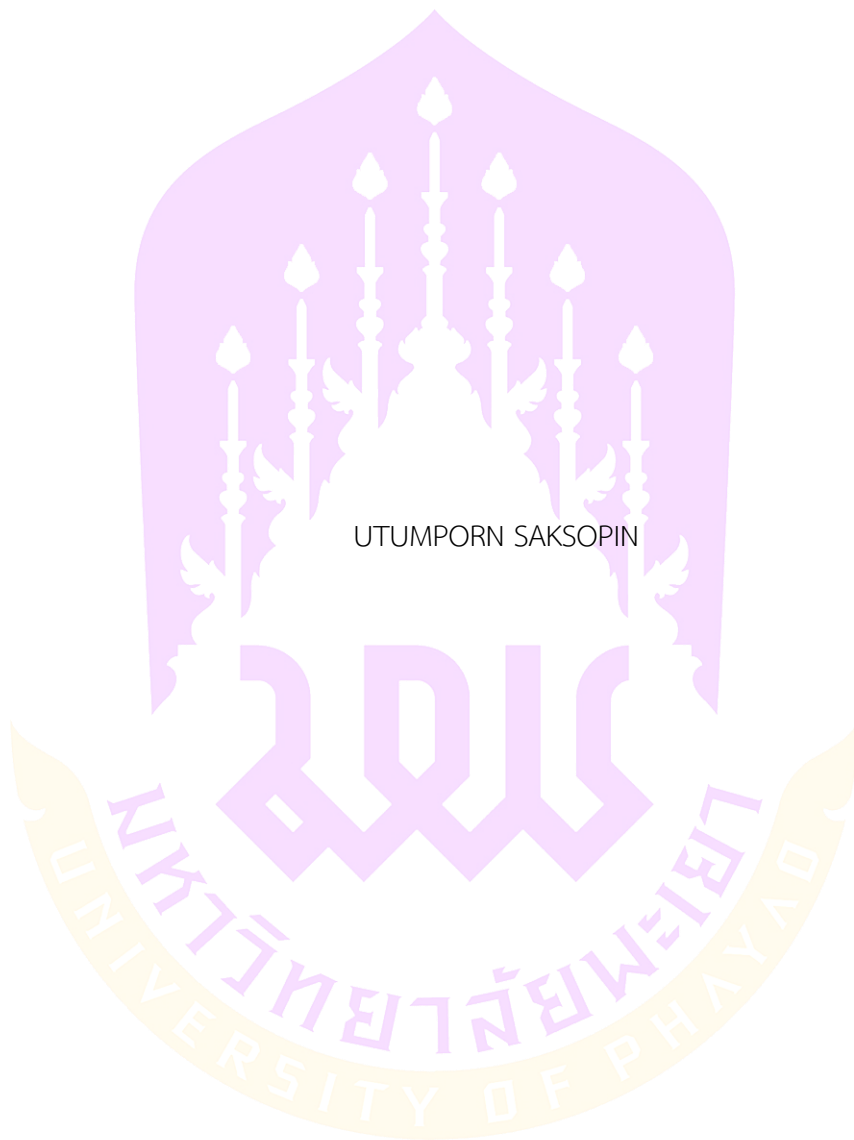
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UTUMPORN SAKSOPIN

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Dissertation

Title

Effects of Online Collaborative Writing Activity to Enhance EFL Students'
Argumentative Writing Ability

Submitted by UTUMPORN SAKSOPIN

Approved in partial fulfillment of the requirements for the
Doctor of Philosophy Degree in English
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ABSTRACT

The purposes of the present study were 1) to investigate the effects of online collaborative writing activity on EFL students' argumentative writing abilities and 2) to explore the students' perspectives toward online collaborative writing activity via MS Teams. The study involved twenty third-year students enrolled in the Academic Writing course at the University of Phayao. These students were selected through purposive sampling and categorized into advanced, intermediate, and novice learners based on their writing proficiency. The instruments consisted of online collaborative writing lesson plans covering six weeks, with four hours for each class. Data were collected from the students' pre-test and post-test, argumentative writing assignments, questionnaires, a semi-structured interview, and conversations observed and documented during online collaborative writing activities. This study revealed two significant findings as follows. First, the study assessed the impact of proficiency levels on group and individual writing performance through an online collaborative writing activity. The results showed that learners' argumentative writing post-test scores were higher than pre-test scores across all proficiency levels. Group performance yielded the highest scores, followed by individual post-test scores. This approach contributed to the improvement of learners' analytical, evaluative, and content-creation skills, resulting in more effective group work. Furthermore, online collaborative writing activity facilitated tasks such as information gathering and utilizing various functions, making the writing process more efficient. Second, EFL learners utilized various peer scaffolding behaviors throughout the writing activities. Notably, Thai EFL learners at all proficiency levels were able to act as scaffolders for their peers, sharing their knowledge and skills, as they may have been expert writers in different areas. Furthermore, scaffolding strategies played a crucial role in developing essential 4C skills (critical thinking, communication, collaboration, and creativity) among EFL students, which are vital for success in both academic and real-world contexts.

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CHAPTER I

INTRODUCTION

Background and Rationale of the Study

English teaching in Thailand emphasizes developing the essential skills of listening, speaking, reading, and writing. Learners of English need to develop all four language skills. Among these skills, it is commonly presumed that the acquisition of writing skills presents the greatest challenge in second language learning (Matsuda, 2019). This is mostly because writing is a cognitive process that encompasses thinking abilities, verbal instructions, critical analysis, and systematic organization. Students are required to exert effort while composing a written text, as they must consider several aspects of writing, encompassing the generation of ideas as well as the accurate expression of those ideas utilizing appropriate forms of the target language. To effectively convey their thoughts and experiences, individuals must engage in planning, reviewing, and editing their writing to ensure that the intended message is comprehended. Both students and teachers need to be aware of the areas where writing skills can be improved, thereby enabling them to develop their writing proactively. Good writing skills are essential for success in any academic or professional field that involves writing (Murtiana, 2019; Santanatanon, et al., 2019; Saputra, et al., 2021; Tasya, 2022).

EFL Learners' Writing Problems

There are still limitations on writing in English within institutions. Students commonly struggle with their English writing abilities. Boonyarattanasoontorn (2017) emphasized that the scarcity of practice chances is a significant barrier for students to improve their English writing skills in the language classroom. Although students may spend a lot of time memorizing English vocabulary and grammar rules, they have few chances to apply their knowledge practically. As well as Goldsmith and Sujaritjan (2020) also provided additional confirmation that Thai students face a scarcity of opportunities to enhance their English writing abilities both inside and outside the language classroom, which can hinder their progress in writing. Additionally, Thai

students do not have enough chances to practice their English writing, while their teachers have a heavy workload and insufficient time to provide feedback and revision activities (Kongpetch, 2006).

Aside from the previously stated issues with students' problems in English writing, there are further prevalent hurdles. According to various researchers, Thai students in different levels of education frequently exhibit a lack of confidence in their written English abilities. Students who experience language anxiety or hold negative perceptions about English usage may face difficulties in achieving academic success (Alavi, 2021; Guzman, 2022; Phosa, 2020). Additionally, many students lack familiarity with various types of writing. They often have limited exposure to composing longer texts, such as sentences, paragraphs, or essays (De Vleeschauwer, 2023; Ruengkul, 2020). Consequently, when students encounter these writing styles in their academic assignments, they may face difficulties and challenges. Moreover, the process of composing English writing is complex and requires the use of all skills in order to be successful. The complexity of the skill makes it difficult to accomplish. Many researchers have found consistent evidence that students commonly face various problems and make errors in their writing. These issues include frequent grammatical errors, limited variation in grammatical structures, inappropriate vocabulary usage, limited vocabulary, deficient spelling, inadequate comprehension of the topic, insufficient clarity in self-expression, inadequate punctuation, poor handwriting, and overall carelessness (De Vleeschauwer, 2023; Raissah & Aziz, 2020). Due to the complexity of writing assignments, it is common for language learners to make errors. These issues arise from the fundamental writing abilities needed in the English writing process to improve English language skills for learners at all levels, including undergraduate students who still struggle with English writing.

Based on the researcher's experience, it has been observed that some students in the class struggle with English writing for several reasons. These include a lack of confidence in expressing their ideas in writing, as well as the need to attend to multiple aspects of writing, such as content, grammar, vocabulary, and mechanics including punctuation, capitalization, and spelling. Students also find it challenging to synthesize details or concepts into a coherent whole, which affects the overall

clarity and organization of their writing. Typically, students demonstrate weak grammar and have a limited vocabulary, leading to frequent errors in sentence structure. Moreover, they often fail to adequately support their ideas, which negatively impacts the quality of their writing. In addition, students are generally assigned to write in basic genres such as essays, paragraphs, problem-solution writing, and expository writing. However, these types of writing are not typically considered effective in developing critical thinking skills (Hyland, 2013). Furthermore, it is evident that many Thai university students lack the linguistic competence, experiential background, and cultural capital necessary to compose effective argumentative paragraphs in English. Therefore, it is necessary for instructors to adjust their teaching methods by integrating various theories and techniques to help address students' writing problems.

The Significance of Writing for Thai EFL Undergraduates

Students at the college level need to be fluent in English writing to be successful in their studies. Some courses or programs require students to complete writing assignments such as essays, reports, and research papers in English (Phosa, 2020). Students have the option to enroll in writing courses that aim to enhance their writing skills, particularly for those pursuing an English major. However, students are not familiar with writing in sentence level. Moreover, when they write, they tend to overly concentrate on grammatical structures. Due to the primary focus in English writing classes in Thailand tends to be on the formal aspects of language, including form, format, and language use, rather than on content (De Vleeschauwer, 2023; Guzman, 2022; Phosa, 2020; Ruengkul, 2020).

Furthermore, many Thai students are still unable to write effective paragraphs even after receiving instruction on basic English language structures. Students who feel they are not competent in writing English will avoid writing. This is problematic in Thailand, where students will not write as they feel that making mistakes will lead to a loss of face (Goldsmith & Sujaritjan, 2020). In order to help students improve their English writing skills and boost their confidence, it is crucial to emphasize the significance of regular writing practice. By encouraging students to engage in consistent writing activities, starting with simple paragraphs and moving on to different genres of writing, they can gradually enhance their skills. Starting with basic forms of writing, such as

descriptive writing, and gradually advancing like argumentative writing as students gain experience ensures a steady development in their proficiency.

The Importance of Argumentative Writing

As part of studying writing at the college level, one genre of writing that students need to master is argumentative writing (Sari & Kaba, 2019). This is a type of writing that uses logical arguments, facts, and evidence to support a certain point of view. It often relies on references to expert authority to make its case seem indisputable. It is also concerned with the analysis and interpretation of the world around us, and its main goal is to persuade someone to agree with its point of view (Aini, 2021; Tasya, 2022). Argumentative writing is important for university students, it allows students to effectively express their ideas using appropriate academic patterns and methods, fostering a more impactful and proficient understanding of their thoughts. However, the biggest difficulty that they are likely to encounter is using complex syntactic patterns and the proper elements, which are extraordinarily complicated (Ka-kan-dee & Kaur, 2015 as cited in Moonma, 2022).

Hence, writing argumentatively presents a significant challenge for English learners due to the nature of its demands. Additionally, university writers, particularly those writing in a second language, may still be in the process of acquiring the conventions of academic communication. As a result, students often struggle to meet the expectation of producing effective arguments (Hirvela, 2013; Tardy, 2010). To enhance students' argumentative writing abilities, educators must employ effective pedagogical strategies that support the learning process. Such approaches help students improve their writing skills and address the challenges they encounter in writing.

The researcher is interested in the concept of the 21st-century modern classroom as a collaborative learning environment designed to promote interactive and participatory learning experiences. One approach to achieving this is through techniques such as displaying learning objectives and designating a specific area for questions. These strategies promote critical thinking and active student participation. The purpose of these new techniques is to encourage greater collaboration among students. The adoption of 21st-century learning practices can help individuals develop

adaptive problem-solving skills, global thinking, and digital fluency (Lawrence & Kean Wah 2016).

Collaborative Learning to Enhance EFL Writing

Researchers and educators have introduced a new teaching methodology for English writing known as 'Collaborative learning'. This approach aims to enhance learners' ability to work effectively in groups. It recognizes that each learner possesses individual differences and acknowledges that when learners interact and collaborate, the collective brainstorming process leads to the emergence of more meaningful and innovative ideas (Vygotsky, 1978 as cited in Al-Yafaei & Mudhsh, 2023).

In the 21st century, language learning is evolving to meet the demands of an increasingly interconnected world. Language learners not only need proficiency in the target language but also require a set of skills that align with the needs of the 21st century. Consequently, the EFL classroom should shift away from traditional language mastery approaches and embrace new methods that integrate content, culture, technology, and lifelong skills (Taylor, 2009).

Collaborative learning is also considered a crucial 21st-century learning skill that allows learners to work together in pairs or groups to address shared challenges. It facilitates the exchange of ideas, knowledge, and resources in order to accomplish common task objectives. Engaging in collaborative learning activities also enables students to develop social skills that foster accountability, cooperation, and a sense of community (Mulligan & Garofalo, 2011, p. 5, as cited in Kaweera, et al., 2019). Indeed, collaboration in the learning process not only enhances academic growth but also nurtures essential social skills. This combination of academic and social development offers learners with various affective benefits, particularly within the dynamic context of 21st-century learning environments.

Collaborative learning is based on the idea that people learn better when they are working together (Vygotsky, 1978 as cited in Al-Yafaei & Mudhsh, 2023). In EFL classes, collaborative learning is highly valued for its ability to enhance students' comprehension of new concepts. This approach not only facilitates the use of the target language but also aids learners in mastering language skills through active engagement with peers (Novita, et al., 2020). Additionally, implementing collaborative

learning in EFL classes goes beyond merely assigning group tasks. It involves active negotiation and sharing of meaning among students. This method fosters communication among students as they explain and discuss the knowledge and information they acquire, based on their understanding of the materials. Students become active participants in seeking information, discussing, and constructing knowledge. The lecturer's role shifts from being the sole source of information to that of a facilitator of learning. This approach encourages students to take intellectual and social responsibility for their learning, benefiting from both individual and peer assistance. Collaboration among students of varying performance levels fosters accountability for their own learning processes as well as those of their peers (Alkhalaf, 2020; Normawati, et al., 2023).

In EFL writing instruction, collaborative learning has been integrated with writing skill development, leading to the emergence of the collaborative writing technique. In order to improve students' writing skills, some teachers employ collaborative writing methods. This allows students to learn from and work with their peers, resulting in a more effective learning experience (Storch, 2019).

The Beneficial of Collaborative Writing

In collaborative writing, at least two authors contribute to developing a singular text. Students are required to collaborate on the planning, drafting, reflecting, and revising of their compositions under this method. It promotes the mediation of thoughts among EFL learners, encouraging them to ruminate on language usage and work together to clarify any uncertainties they may have regarding language (Storch, 2019; Wonglakorn & Deerajviset 2023; Zhang, 2021).

Collaborative writing is a common and beneficial practice in many language classrooms today. It helps students to develop their writing skills and learn from one another (Moonma & Kaweera, 2021). In the context of teaching and learning, the learning process is a social activity that benefits from social interactions. By interacting with others, students can gain new knowledge and improve their skills. The success of this writing process relied heavily on student involvement and collaboration; it created an environment in which students could learn from each other. This approach values the social nature of the writing process (Alkhalaf, 2020; Rahayu, 2021).

Previous studies have consistently demonstrated the beneficial effects of collaborative writing on students' writing abilities. Collaborative writing is a strategy where students work together in pairs or triads to produce a formal paper. This approach enhances writing quality and encourages idea generation and feedback from each other. It is beneficial at every stage of the writing process, from brainstorming to drafting, revising, and editing. Each student is responsible for improving their individual writing quality while working on a writing project together. This approach helps students of varying abilities work effectively in completing assignments (Azodi & Lotfi, 2020; Such, 2021; Sundgren & Jaldemark, 2020; Zhang, 2021). Furthermore, collaborative writing also gives students a chance to come up with new ideas and provide feedback to their peers (Anggraini, et al., 2020). This indicates that the collaborative strategy is more effective in enabling students to produce better-quality writing products.

Collaborative writing has been used in several classrooms across various disciplines to enhance 21st-century learning abilities, sometimes referred to as success skills, which are vital for college students. The Partnership for 21st Century Skills (2010) is a collaboration of leading corporations and education policymakers that created the multidimensional Framework for 21st Century Learning to illustrate that learning extends beyond the study of key disciplines. The four primary components of 21st-century skills are: core subjects; learning and innovation skills; information, media, and technology skills, including ICT literacy; and life and job skills (Partnership for 21st Century Skills, (2010). Learning and innovation skills are attributes of students equipped for the 21st century, including the 4Cs: Critical Thinking, Creativity, Communication, and Collaboration.

Collaborative writing is an efficacious approach for cultivating the 4Cs by involving students in significant real-world issues and inventive problem-solving activities. Thus, it is important for educational institution, particularly in EFL classes, to provide students with activities and processes that foster the acquisition and enhancement of skills like as creativity, critical thinking, teamwork, self-direction, and cross-cultural awareness (Fandiño, 2013). Language classes provide an ideal setting for students to learn and practice these skills. By integrating the four main language skills along with communicative and intercultural competence, language classes facilitate the process

of learning languages. The 4C skills are crucial in language learning processes, and language teachers must recognize and incorporate suitable activities and tasks to reinforce these skills. Numerous resources offer various methods and techniques to work on these skills in language lessons, which have been proven to be convenient by various studies.

A research was performed on the importance of adopting 4C skills in English courses. The majority of these studies conclude that providing students with 4C skills is crucial, as it enables them to engage in a constructive university environment and become oriented towards their future careers. Employers value these soft skills when hiring recent college graduates, as they indicate that an individual is a valuable team member and capable of resolving challenges promptly (Dung, 2020, as cited in Tran, 2021).

Additionally, the focus of this study is to utilize collaborative writing activities as a means to enhance students' argumentative writing skills, drawing insights from the analysis of their prior writing. Wonglakorn & Deerajviset (2023) discovered that collaborative writing can improve students' argumentative writing skills, while also fostering positive attitudes toward writing. They noted that students appreciated the ability to exchange a variety of ideas and assist each other in refining their written tasks. Similarly, Retnary (2021) indicated that the use of collaborative writing techniques provided students with an opportunity to enhance their argumentative writing skills. The implementation of the collaborative writing technique empowered students, fostering their motivation, responsibility, and confidence, thereby creating smoother and more enjoyable learning processes. Therefore, employing this strategy effectively addresses the development of students' writing abilities and helps overcome difficulties students encounter in producing argumentative writing. This activity provides an opportunity to explore how social interaction plays a crucial role in learning and providing feedback among learners during the writing process. This dynamic social interaction enhances the learning experience, fostering improved writing abilities and promoting a deeper understanding of the writing process.

Gaps in the Previous Study

The present study is interested in using collaborative writing activities to help the third-year English majors improve their argumentative writing skills, based on the analysis of their previous writing. Writing collaboratively can help students improve their writing quality and provide an opportunity to generate ideas and feedback from one another. Furthermore, collaborative writing also gives students a chance to come up with new ideas and provide feedback to their peers (Anggraini, et al., 2020). This indicates that the collaborative strategy is more effective in enabling students to produce better-quality writing products.

However, this study aims to address a gap in previous research on argumentative writing, which has predominantly centered on individual work evaluation. The focus is on exploring collaborative strategies to improve students' argumentative writing skills at the tertiary level. The researcher plans to employ online collaborative writing activities and innovative teaching methods to fill this gap. Moreover, the study assessed students' achievement in argumentative writing through collaborative group activities, taking into account learners with different levels of English proficiency (Novice, Intermediate, and Advanced).

Over the past few years, technology has drastically transformed education, particularly in English language teaching. Apart from group writing activity, writing tools can play a vital role in classroom writing (Barrot, 2021; Cancino & Panes, 2021; Lin, et al., 2022; Loncar, et al., 2021). Technology and the Internet's growing utilization have significantly impacted language education, including EFL instruction (Hung, 2021). The utilization of digital resources and platforms, such as wikis, blogs, podcasts, and Google Docs has surged in popularity as a method of establishing dynamic and collaborative writing atmospheres for EFL learners (Fathi, et al., 2021; Hafner & Ho, 2020; Hung, et al., 2022). These Sophisticated tools offer students a captivating environment to enhance their English skills, promoting active learning, collaboration, and the development of essential social competencies (Barrot, 2021; Liu, et al., 2023; Xu, et al., 2019). The concept of employing technology for online collaborative writing instruction is gaining appeal among EFL educators due to its ability to address the

constraints of time and space in traditional learning environments (Rahimi & Fathi, 2022; Xu, 2021).

This study emphasizes the significance of online collaborative activities in university students for argumentative writing, as these activities are seen as essential for enhancing learning outcomes in the online learning environment. Numerous research studies have extensively investigated the benefits of online learning, leveraging a variety of digital resources and platforms such as wikis (Ara, 2022; Liu, et. la, 2022), blogs (Pham & Nguyen, 2020; Rahayu, 2021), podcasts (Chaves-Yuste & De-la-Peña, 2023; Makina, 2020), and Google Docs (Aldawi & Maher, 2023; Valizadeh, 2022). However, there remains a notable dearth of research focusing on the challenges related to online collaborative writing, specifically when utilizing Microsoft Teams as the platform. This study attempts to bridge this research gap by examining the challenges encountered by EFL students at the tertiary level during their online collaborative writing through Microsoft Teams.

Finally, this study aims to explore Thai EFL students' perspectives on online collaborative writing, with a particular focus on the practical skills they demonstrate while engaging in online argumentative writing. The researcher examines diverse viewpoints on various aspects of collaborative writing activities, which are designed to enhance learners' abilities in collaboration, communication, critical thinking, and creativity. Gaining meaningful insights into students' experiences with online collaborative writing can provide educators with a deeper understanding of how to effectively support and adapt this approach to better address learners' individual needs.

Therefore, based on these premises, the researcher can adapt and apply the research conducted by Ghada and Nuwar (2023) to investigate the domain of online writing activities designed to improve argumentative writing. Comparative research was conducted by Moonma & Kaweera (2021) on collaborative argumentative writing activities in EFL classrooms. A study was undertaken by Nguyen and Le (2023) to examine the perspectives of EFL learners concerning the implementation of Microsoft Teams. Rojabi (2020) researched the perspectives of EFL learners regarding Microsoft Teams-facilitated online learning. The investigation conducted by Tran (2021) centered on Microsoft Teams in the context of EFL instruction for incoming undergraduates.

This study intends to investigate the effects of online collaborative argumentative writing activity and to explore the perspectives of EFL university students concerning online collaborative writing activity using Microsoft Teams. Twenty third-year English major students at the University of Phayao participated in this study. The researcher divided the students into 5 groups, each consisting of 4 individuals. Each group comprised members categorized as advanced, intermediate, and novice learners, all collaborating on online collaborative argumentative writing activities together. Furthermore, the researcher employed a comprehensive approach encompassing both qualitative and quantitative data. The researcher used lesson plans, pre-test & post-test, online argumentative writing tasks, Microsoft Teams instructional guide, video recordings, semi-structured interview, and two questionnaires as research instruments. During online collaborative writing activities, students collaborate within their groups to complete online argumentative writing assignments through Microsoft Teams. The researcher utilized The Test of Written English (TWE) Scoring Guide in 2014 (Educational Testing Service, 2014) as the assessment criteria to score writing assignments. The scores from the pre-test and post-test were compared to assess individual writing abilities and track the writing development of advanced, intermediate, and novice learners. The scores from the online argumentative writing assignments will be used to compare the writing scores of each group's pieces of work. The researcher randomly selected students for a semi-structured interview about online collaborative writing activity. Furthermore, the study employed video recordings and questionnaires to gather insights into students' perspectives regarding practical skills in online collaborative writing activities. Addressing these gaps in the research could result in more comprehensive and relevant findings, leading to a deeper understanding of the effects of online collaborative argumentative writing and the perspectives of EFL university students engaging in online learning via Microsoft Teams.

Experimental Research Design

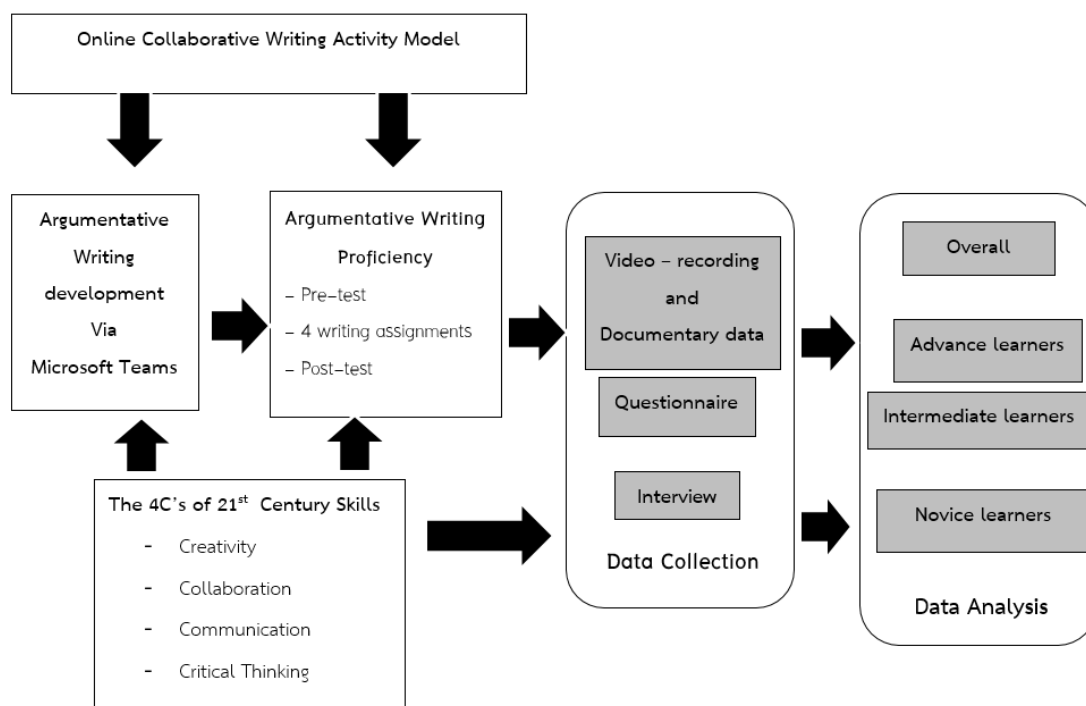


Figure 1 Conceptual Framework for Online

Collaborative Argumentative Writing

This research aimed to enhance students' argumentative writing abilities using a collaborative learning approach facilitated by Microsoft Teams. The study tested its effectiveness with third-year undergraduate Thai EFL students, categorizing them into advanced, intermediate, and novice learners. Data collection involved semi-structured interviews, questionnaires, video recordings, and documentary data. The independent variable in this study was the implementation of online collaborative learning through Microsoft Teams. The dependent variables included the mean scores from both the pre-test and post-test of students' writing, as well as scores from four assignments. Additionally, the investigation of students' perspectives on online collaborative writing was included.

With these rationales in mind, the outcomes of this study are anticipated to contribute an insights into the impacts of collaborative argumentative writing through

Microsoft Teams. Furthermore, the findings aim to offer valuable perspectives on improving the writing proficiencies of Thai EFL students and enhancing the quality of instruction delivered by English teachers in Thailand.

Purposes of the Study

1. To investigate the effects of online collaborative writing activity on EFL students' argumentative writing abilities.
2. To explore the students' perspectives toward online collaborative writing activity via MS Teams.

Research Questions

1. What are the effects of online collaborative writing activity on EFL students' argumentative writing ability?
2. What are the students' perspectives toward online collaborative writing activity via MS Teams?

Scope of the Study

This study aimed to investigate the effects of online collaborative writing on argumentative writing abilities and explore the students' perspectives on the 4C's of 21st-century skills toward online collaborative writing via MS Teams of Thai EFL students, the study confines itself to the followings:

1. The population of the study was third-year undergraduates majoring in English major in the School of Liberal Arts at the University of Phayao, Phayao, Thailand.
2. The participants of this study consisted of 20 third-year English major students from the School of Liberal Arts who were enrolled in Academic Writing (146311) during the 2024 academic year at the University of Phayao.
3. The study was conducted in the School of Liberal Arts at the University of Phayao, Phayao Thailand.
4. The research was implemented through an online collaborative writing activity model comprising six lesson plans focused on collaborative argumentative

paragraph writing. Each lesson was conducted weekly over a four-hour period, totaling 240 minutes per session.

5. In this study, students were required to compose argumentative paragraphs of at least 200 words on four different topics during the implementation phase, in order to assess their argumentative writing skills. The selected topics were adapted from IELTS examination prompts and covered themes such as education, family, social issues, and media.

6. The variables of this research comprised of one independent variable and two dependent variables. The independent variable was online collaborative writing activity through Microsoft Teams and the dependent variables were argumentative writing and students' perspectives on the 4C of 21st-century skills.

Significance of the study

This study aims to investigate the effects of online collaborative argumentative writing activity and to explore the students' perspectives toward online collaborative writing activity via Microsoft Teams. Hence, the findings of this study will be advantageous for both students and English teachers. Firstly, this study holds importance as it will furnish an alternative collaborative writing activity model. Writing teachers can employ this model with their students to enhance their writing skills through the implementation of collaborative steps.

Secondly, employing a collaborative learning approach, the study will leverage Microsoft Teams as the online platform of choice. This platform offers an integrated digital environment that promotes real-time collaboration among students. Within this environment, students can seamlessly collaborate on shared documents concurrently, enhancing the interactivity and engagement of the writing process. Furthermore, the platform facilitates interactive feedback, contributing to a more comprehensive understanding of writing strengths and areas for enhancement. The incorporation of Microsoft Teams empowers students to become familiar with a widely used digital collaboration tool prevalent in professional contexts. This immersive experience fosters the development of digital literacy, positioning students for success in their future academic and professional pursuits.

Thirdly, this study will provide a foundation for English writing instructors to develop strategies that take into account the varying English proficiency levels of students when engaging in online collaborative writing. Its significance lies in enabling teachers to tailor their approach based on students' proficiency levels when assigning group work. This approach will assist teachers in overseeing the composition of groups, whether they consist of students at similar or differing proficiency levels. Importantly, students will have the autonomy to select their team members, even if their English proficiency levels differ. This empowerment aims to alleviate any anxiety they may experience while participating in online collaborative writing activities.

Finally, this study will help positively writing teachers. It will help them understand how to give students different types of writing assignments. One important type is argumentative writing, which is really important for university students. When students work together on these assignments, it can promote the 4C of 21st-century practical skills such as creativity, collaboration, communication, and critical thinking when they collaborate in writing in groups. This happens because the groups have more skilled members. This leads to more talking and sharing of ideas among group members. It also helps students show their perspectives when they work on their writing assignments. Writing teachers can apply these aspects in teaching writing to improve effectiveness.

Definition of Terms

In this study, there are seven important terms; argumentative writing, argumentative paragraph, collaborative writing, online collaborative writing, Microsoft Teams, students' perspectives, and 4C 21st-century skills are defined as follows.

Argumentative writing refers to a genre that presents a debatable topic, expresses the writer's viewpoint, and defines the topic's scope. In this study, the writing process was divided into three stages: pre-writing, while-writing, and post-writing. During pre-writing, students engaged in planning activities to develop a structured first draft. In the while-writing stage, they revised their work by focusing on vocabulary, content, and organization, producing second and third drafts. Finally, in the post-writing stage,

students participated to proofread and finalize their writing, resulting in the publication of the completed draft.

Argumentative Paragraph refers to a structured form of writing that begins with a clear main claim, supported by reasons, examples, evidence, and factual details, and concludes with a summary that reinforces the central argument. In this study, the paragraph structure was adapted from Reid (1988). Students were required to compose argumentative paragraphs of at least 200 words on four topics (education, family, social issues, and media) based on IELTS prompts, to assess their argumentative writing skills. The writing was evaluated using the TOEFL writing scoring criteria (ETS, 2014).

Collaborative Writing refers interaction among group members at all stages of the writing process, as adapted from Moonma & Kaweera (2022). In this study, students were divided into five groups of four, with each group consisting of advanced, intermediate, and novice learners. Collaborative writing was found to be a valuable social activity that fosters learning and development through teamwork. Researchers identified two key aspects of its effectiveness: the collaborative nature of the entire writing process and group-based collaboration, both of which are essential for producing high-quality work.

Online Collaborative Writing refers to the online collaborative writing activities, based on Moonma's (2022) model, were implemented to enhance students' argumentative writing proficiency. In this study, Microsoft Teams was utilized as the online platform throughout all stages of the collaborative writing process. Students worked in groups to complete argumentative writing tasks, allowing the researcher to examine the effects of the online collaborative writing activities on students' writing skills and explore their perspectives on these activities.

Microsoft Teams (MS Teams): refers to an online application facilitating in Academic Writing courses. It encompasses diverse features like chat, document sharing, collaborative tools, and audio/video calls with screen-sharing options. The study underscores its success as an effective online tool that continuously promotes students in online learning.

Students' perspectives: refers to the perspectives on practical 21st-century skills of Thai EFL students toward online collaborative writing via Microsoft Teams. The research explores multiple perspectives concerning online collaborative writing activities, focusing on improving language learners' collaboration, communication, critical thinking, and creativity skills.

4C 21st-century skills: refers to the 4 C, which begin with a "C" in English, are frequently referred to as the 21st century learning skills: critical thinking, creative thinking, communicating, and collaborating. These skills are recognized as essential for individuals to adapt to the complex order of the present era. The development of critical thinking skills will enable the accurate, ethical, and enlightening synthesis of the information that has been sought and acquired. The results of this information synthesis can be interpreted and transformed into a new product by enhancing creativity skills. Communication and collaboration abilities are indicative of adaptability, self-expression, and collaboration regarding a situation or issue.

Structure of the Dissertation

The dissertation consisted of five chapters. Chapter one provided background information and introduced the necessity of the study, the purpose of the study, the research questions, the scope of the study, the significance of the study, the definition of terms, and the structure of this study.

Chapter two presented the theoretical background of principles of second language writing, argumentative writing, collaborative learning, collaborative writing activities, and online collaborative writing activities.

Chapter three described the overall methodology adopted for this research, the research design, participants of the study, research procedure, research instruments, data collecting instruments, and statistical method.

Chapter four detailed the effect of implementing online collaborative writing on the argumentative writing skills of EFL students. The discussion of these findings was aligned with the research questions and objectives outlined for the study.

Chapter five summarized the implementation of online collaborative writing and its effects on the argumentative writing skills of EFL students, as well as their

perspectives on the 4C's of 21st-century skills toward online collaborative writing via MS Teams. The chapter also discussed the limitations of the research and provided recommendations for teaching and further research concerning EFL learners. Additionally, it drew implications for integrating online collaborative writing into mainstream pedagogical approaches.

This chapter provided background information and introduced the importance of the study. It addressed the writing challenges encountered by Thai EFL students in creating argumentative writing. Additionally, it emphasized the significance of integrating Online Collaborative Writing activities and demonstrated how these activities helped students to produce effective argumentative writing.

The next chapter or Chapter 2, presented the review of related literature including the principles of second language writing, argumentative writing, collaborative learning, collaborative writing activities, as well as online collaborative writing activities. The final section of the chapter presented the related research on argumentative writing, collaborative writing activities, and online collaborative writing activities, including the identifying gaps of the previous research.



CHAPTER II

REVIEW OF RELATED LITERATURE AND RESEARCH

The intention behind this chapter is to carefully introduce fundamental ideas that form the theoretical foundation for this study. The chapter offers several theoretical frameworks from prior research for consideration. It considers the main principles of second language writing in an EFL and Thai context, including argumentative writing and the importance of collaborative learning. It also explores how collaborative writing can be a powerful language-learning and teaching tool. In addition, this chapter examines the implementation of Microsoft Teams as an online platform for educational institutions as well as explores other relevant research on the topic.

The review of the literature was divided into five main parts, namely;

1. Principles of Second Language Writing
 - 1.1 Writing Skills
 - 1.2 English Writing in the EFL Contexts
 - 1.3 English Writing in Thai Contexts
 - 1.4 Genres of English Writing
 - 1.5 Approaches to the Teaching of Writing
 - 1.6 EFL Writing Assessment
2. Argumentative Writing
 - 2.1 Definition of Argumentative Writing
 - 2.2 Characteristics of Argumentative Writing
 - 2.3 The Advantages of Argumentative Writing
 - 2.4 Teaching Argumentative Writing
 - 2.5 Structure Elements of Argumentative Writing
 - 2.6 Stages of Writing Argumentative Writing
 - 2.7 Related Research of Argumentative Writing
3. Collaborative Learning Teaching Approach
 - 3.1 Definition of Collaborative Learning
 - 3.2 Background of Collaborative Learning

3.3 The Importance of Using Collaborative Learning in the English Language Classroom

3.3.1 The Use of Collaborative Learning Method

3.4 Collaborative Learning in an Online Environment

3.4.1 Online Historical Note

4. Collaborative Writing Activities

4.1 The Development of Collaborative Writing

4.2 The Nature of Collaborative Writing

4.3 Group Formation in Collaborative Writing

4.4 How Collaborative Writing can Facilitate Learning

4.5 Interactive Processes of Learners in Collaborative Writing

4.6 Related Research on Collaborative Writing

5. Online Collaborative Writing Activities

5.1 Collaborative Learning in an Online Environment

5.1 Computer-mediated Collaborative Writing

5.2 Sociocultural Learning Theory in Online Collaborative Learning

5.3 Microsoft Teams as an Online Learning Platform for Education

Institutions

5.4 The Definition of Microsoft Teams

5.5 Microsoft Teams as a Means of Online Teaching Facility

5.6 The Basic Features of Microsoft Teams

5.7 Microsoft Teams Platform

5.8 Advantages of Microsoft Teams for Online Learning

5.9 Related Research on Microsoft Teams

Principles of Second Language Writing

1. Writing Skills

Writing in a foreign language is a crucial but demanding skill that requires extensive training and practice. Writing proficiency necessitates a range of competencies, including cognitive abilities, knowledge, and experience. The term 'writing' encompasses various writing styles, including digital or online writing. Abou-Shaabab (2003) defines

writing as a multifaceted process that involves producing written messages on paper or a computer display. While writing is considered a fundamental skill similar to speaking and listening, it requires clarity, relevance, and engagement to be effective. Unlike speaking or listening, written communication may not always receive immediate feedback from readers. Researchers such as Giltrow, et al. (2005) acknowledge the importance of writing skills, but also note the difficulty that language learners face in developing these skills. Hyland (2004) defines writing as a means of expressing the writer's intended message clearly and concisely.

2. English Writing in the EFL Contexts

Developing writing skills is an important aspect of mastering the English language for EFL learners, and it is also a significant component of language performance (Phuket & Othman, 2015). Teaching and learning English writing in EFL contexts is a challenging task owing to the intricate nature of English writing and the limited linguistic knowledge of EFL learners (Derakhshan & Karimian, 2020; Ghoorchaei & Khosravi, 2019; Nguyen & Suwannabubpha 2021; Syafii & Miftah, 2020). EFL learners often find writing challenging because it requires mastery of syntax and morphology, a diverse vocabulary, and a clear understanding of grammar forms (Cumming, 2001). However, with time and practice, writing skills can be greatly improved. To help EFL learners produce well-structured and well-written texts, minimum requirements have been established (Bram, 2002). These requirements specify that academic writing should adhere to correct English grammar and rules, including subject-verb agreement, verb tense, punctuation, articles, prepositions, and spelling.

The development of writing skills has gained importance among EFL learners with varying mother tongues in secondary schools, universities, and professional settings (Leki, 2001). Santos (2000) concurs with the growing need for English writing skills among non-native students or EFL learners due to three reasons: the rise of international linguists specializing in writing, the publication of more articles, news, and publications in English, and the increasing number of international students pursuing their degrees in English-speaking countries.

The English language is a global language that is used for various purposes, especially academic, business, and professional purposes (Chuenchaichon, 2014).

In an academic context, when teaching English writing to EFL learners, it is important to cover grammar structures, vocabulary, idea or topic construction, and other important aspects such as word spelling, the use of articles and punctuation, and paragraph coherence (Celce-Murcia & McIntosh, 2002). The aforementioned contents and goals are then compiled into English writing lesson plans to be executed in an EFL classroom context (Nation, 2008). In the classroom, teaching English writing means teaching the learners to write sentences, paragraphs, texts, essays, and papers. Thus, different topics can be given to students to help them organize their ideas when writing paragraphs or texts.

In conclusion, EFL students need to have proficient writing skills to match the expectations of the academic, technological, and business domains. In today's global education and business landscape, EFL learners must excel in writing to stay competitive. Although producing a well-written English text demands knowledge of grammatical rules and organizational skills, EFL learners should recognize the significance of having sound English writing skills.

3. English Writing in Thai Contexts

Most EFL learners have learned English since they were in primary school, including the four skills. Thailand is the EFL context, English is not widely used in general social contexts, but in more specific contexts such as academic context (Chuenchaichon, 2014). Thai universities in the educational context of Thailand provide English writing courses, which can either be required or optional. Therefore, it is crucial for Thai university students to acquire English writing skills to finish written assignments and take written exams (Tan & Manochphinyo, 2017). Thai students are required to learn English from a young age, as it is one of the compulsory foreign language subjects offered in primary school. However, Pawapatcharaudom (2007) argued that even at the university level, most Thai students still have serious problems with writing skills. While Thai students have made some progress in their English proficiency in recent times, their performance levels are still not satisfactory, particularly in universities.

Although English has been taught in Thailand for many years, university students still face challenges in developing their writing skills due to insufficient emphasis on extended writing in their education (Franco & Roach, 2018; Nguyen, 2018).

The writing ability of Thai students is not considered satisfactory and there are several factors that may contribute to this. According to Thai educators, the teaching of English in Thailand has evolved from the grammar-translation methodology to the communicative approach, which was introduced in 2002 (Sukavatee & Khlaisang, 2023; Taladngoen, 2019). The present National Educational Act highlights project-based learning, which promotes independent learning and reduces the dependence on teachers for assistance. However, Thai students are generally passive and hesitant to question their teachers or elders. Additionally, despite the incorporation of communicative language teaching in the Thai education system, it appears to be insufficient in equipping EFL students with the requisite English language skills, particularly due to cultural variations. Although the Thai educational system has been attempting to adopt modern teaching methodologies, traditional approaches remain predominant. Even with the Thai government's initiatives to enhance English language education, numerous students continue to hold unfavorable attitudes towards the subject, which causes them to face challenges in learning English. Thus, teachers must devise effective strategies to help students overcome their cultural biases and improve their English proficiency (Chanaroke & Niemprapan, 2020; Nguyen, 2019c; Nguye & Suwannabubpha, 2021; Stone, 2017; Sundrarajun, 2020).

To conclude, Thai EFL learners frequently encounter writing as their most formidable skill. This difficulty stems from the multifaceted nature of writing, encompassing content, context, process, register, rhetorical elements, and various linguistic features. Furthermore, the contentious nature of teaching writing in Thai context has led to a continued reliance on traditional approaches. These methods revolve around comprehending language patterns and enhancing writing abilities through texts provided by the instructor.

Apart from practical teaching and learning strategies, the different types of English writing can significantly impact the learning and performance of learners when engaging in writing tasks. In the context of Thai EFL learners encounter significant challenges when it comes to writing, particularly in argumentative form. This difficulty stems from the comprehensive process of identifying a topic, providing

support for the argument, drafting, revising, and ultimately editing to produce effective argumentative writing.

The subsequent subsection expands into the discussion of different types of writing, each carrying its unique purpose and significance.

4. Genres of English Writing

The genre of English writing across the Thai curriculum in educational institutions can be categorized based on its anticipated structure and the intended purpose of the written content. They represent different approaches individuals employ to engage, communicate, and collaborate with others. Writing serves various communicative functions including inviting, describing, apologizing, persuading, etc. When it comes to writing instruction, there are different forms: narrative writing, exposition writing, description writing, and argumentation writing (Mulvaney & Jolliffe, 2005). The genre of English writing mirrors various actions, reactions, and interactions in diverse situations. The approach to different genres of English Writing is introduced to assist all students in effectively learning the language (Derewianka, 2015).

There are various genres of writing across the Thai curriculum in educational institutions, and each has its distinct purpose and significance. According to Meer (2022), some of these types include:

Narrative Writing

Narrative writing involves utilizing specific components that collaborate to generate fascination for both the writer and the reader. The writing approach employed creates a sense that the reader is actively participating in the story as if the story is being told exclusively to them. Narrative writing can be applied to creating fictional stories, plays, or synopses of stories.

Narrative writing is a form of writing that aims to tell a story. This type of writing usually involves characters, dialogue, and situations such as actions, conflicts, and resolutions. The author or writer of a narrative creates a cast of characters and presents the story as though it is happening to them. Examples of narrative writing include novels, poetry, and short stories.

Expository Writing

Expository writing, also referred to as informative writing, is a form of writing used to explain a particular topic or subject matter without including the author's personal opinion. It presents factual and objective information about a person, place, or thing, providing a clear and concise explanation of the topic.

Expository writing is a category of writing that aims to explain or describe a topic or idea by providing supporting details. This type of writing is typically focused on presenting factual information and does not include personal opinions or biases. Examples of expository writing include textbooks, encyclopedias, scientific articles, journals, atlases, biographies, and news articles.

Descriptive Writing

Descriptive writing is a form of writing that aims to create a vivid and detailed image in the reader's mind by using elaborate language. Its purpose is to help the reader experience what the author experienced, by appealing to the senses of sight, sound, taste, smell, and touch. This type of writing uses descriptive adjectives, figurative language, and imagery to bring out the details that allow the reader to visualize the scene. Descriptive writing can be found in poetry, nature writing, and descriptive passages. The effectiveness of descriptive writing depends on the author's ability to provide specific details.

Argumentative Writing

Argumentative writing aims to present the author's viewpoint and persuade the reader to agree with it. It is based on argumentation theory, which is an interdisciplinary study of how people reach conclusions through logical reasoning based on premises, whether or not those claims are valid. This theory covers civil debate, dialogue, conversation, and persuasion and examines the rules of inference, logic, and procedural rules in artificial and real-world settings to understand how to create convincing arguments. Argumentative writing provides justification and reasons to persuade others to accept the author's position. It is commonly used in letters of complaint, advertisements, affiliate marketing pitches, cover letters, and newspaper opinion and editorial pieces.

This research concentrated on argumentative writing because Thai learners face challenges in their English language writing, specifically in the form of argumentative writing. Ka-kan-dee and Kaur (2015) discovered in their study that Thai EFL learners struggled to generate proficient argumentative writing due to their lack of familiarity with this particular writing genre. Moreover, Thai EFL university students could not create logical argumentative writing due to insufficient training and practice in writing skills during their high school levels (Pijarn,2020; Saito, 2010).

As mentioned earlier, the genres of English writing vary in complexity, with some being easier than others. A writer must have a thorough understanding of the topic they are addressing in order to effectively convey their thoughts and ideas to the reader. Furthermore, the writer must possess a range of language skills and be able to select the appropriate language register for the genre of writing. There are two types of writing-formal and informal-and each requires different language skills.

5. Approaches to the Teaching of Writing

With an increasing emphasis on writing, multiple teaching approaches have been developed, which are regarded as complementary and offer a comprehensive understanding of the complexities of writing (Hyland, 2003). In EFL/ESL writing classrooms, teachers utilize various methods that reflect different perspectives with different areas of focus, such as language structures, writing process, and genre. The language structure approach considers writing as something that is created by emulating existing models. To this end, a four-step process is employed to teach writing, which includes familiarization (introduction of grammar and vocabulary), controlled writing (manipulation of fixed patterns), guided writing (imitation of sample texts), and free writing (using developed patterns to write a paragraph, essay, or letter). In contrast, the writing process approach views writing as a process that involves the writer actively producing their own texts. Various models of writing processes are available, and the next section will provide an overview of some of these models. In addition to the language structures and writing process approaches, the genre approach also emphasizes the communicative purpose of texts. This approach focuses on teaching students how to effectively communicate their ideas through different genres. As the

demand for strong writing skills increases, the literature contains numerous studies on various approaches to teaching writing.

5.1 Product Approach

A product approach is a conventional method where learners are prompted to imitate a model text, typically introduced and analyzed in the early stages (Hasan & Akhand, 2010). For instance, in a classroom-oriented towards the symbolic product approach, learners are given a standardized model of texts. Learners are expected to adhere to the standard in order to produce a new piece of writing. According to Steele (2004), the product approach comprises four stages: familiarization, controlled writing, guided writing, and free writing, as follows:

5.1.1 Familiarization: Learners engage in studying pattern texts, aimed at emphasizing the characteristics of the genre. For example, in learning formal letter writing, students are directed to observe paragraphing and formal language usage. Similarly, when reading stories, students focus on identifying techniques utilized by the writer to enhance narrative engagement.

5.1.2 Controlled writing: This phase entails structured practice of highlighted conventions, often in isolation. For example, when learning formal letter writing, learners may practice the language used for making formal requests, such as rehearsing the structure "I would be grateful if you would...".

5.1.3 Grided writing: This stage is deemed the most crucial, focusing on organizing ideas. Emphasis is placed on prioritizing ideas within this approach, suggesting that the organization of thoughts holds greater significance than the actual language control and imagery.

5.1.4 Free writing: This marks the culmination of the learning process. Learners are given a range of comparable writing tasks from which to choose. They demonstrate their fluency and proficiency in language usage by independently applying the structures, skills, and vocabulary they have been taught to produce the final product.

The primary goal of the product-based approach is to generate appropriate texts with a focus on utilizing grammar and syntax correctly. Badger and White (2000) argued that the product-based approach is perceived as writing primarily

concerned with the instructor of the writing course providing knowledge of language structure and the form of texts. This writing approach is considered more suitable for beginners as it allows them to practice language skills that can prepare them for advancement to higher levels. However, due to the limitations of self-propelled initiatives in writing development inherent in the product-based approach, writing experts introduced the process approach, which can further enhance beginners' writing skills to a higher level. Detailed information on the process approach is provided as follows.

5.2 Process Approach

The process approach views writing as a dynamic process wherein the writer generates ideas and then revisits these raw ideas to refine and reconstruct them in order to convey meaning more effectively (Samsudin, 2015). According to this approach, learners can develop texts using brainstormed ideas, gather information, and select topics of personal interest to work on. Moreover, they receive feedback from peers or teachers throughout the writing process. As Polio and Williams (2009) indicated, writing is an "exploratory and recursive, rather than linear, predetermined process, and often peers intervene at one or several points in the writing process" (p. 491). In the process approach, writing primarily focuses on linguistic skills such as planning, drafting, and revising, whereas linguistic knowledge such as grammar and sentence structure may be less emphasized compared to the product approach (Badger & White, 2000). In the process approach, greater emphasis is placed on the actions of writers as they compose a text rather than on textual features, and the role of learners is more that of independent producers of texts (Curry & Hewings, 2003; Duong, 2015). Thus, writing in the process approach encourages learners to enhance their language usage and acquire additional linguistic resources through feedback from both the teacher and peers during the writing process.

Curry and Hewings (2003) present a perspective on the writing process, stating that it comprises seven key stages: prewriting, planning, drafting, reflecting, peer-reviewing, revising, editing, and proofreading, as illustrated in Figure 2. The current study primarily uses this model as it offers a well-organized and systematic approach for learners to follow on their own. In particular, the reflecting stage enables learners

to self-evaluate their written work effectively. The details of each stage are presented below.

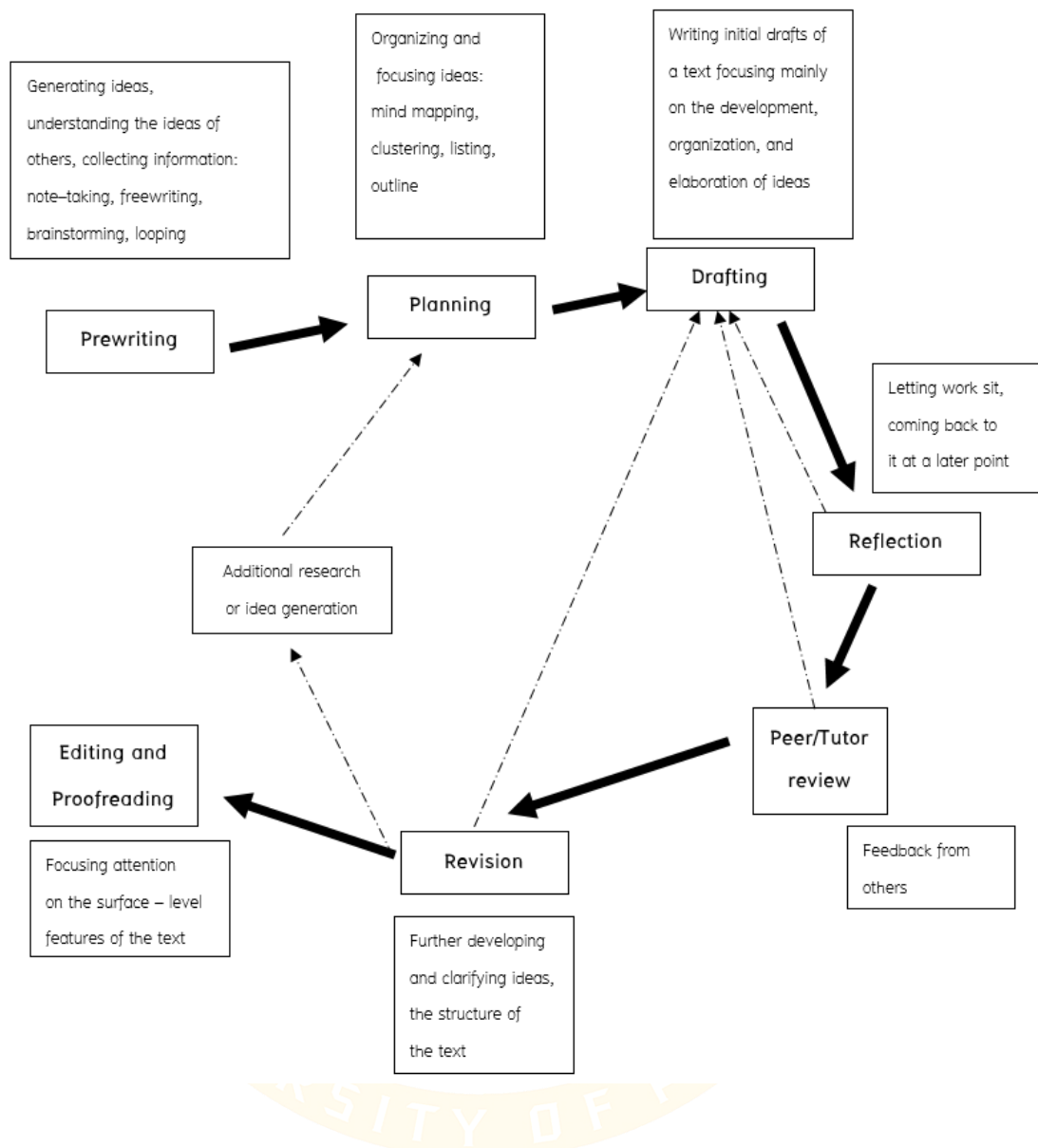


Figure 2 The writing process approach (Curry and Hewings, 2003)

Prewriting

To initiate the writing process, the prewriting stage serves to gather ideas, collect information, and organize thoughts. Brainstorming and freewriting are two common prewriting strategies. Brainstorming involves generating ideas through discussion or reading, without considering their potential for development. On the other hand, freewriting involves generating ideas spontaneously on a particular topic within a set time limit.

Planning

At this stage, the focus is on arranging and structuring ideas using various techniques such as mind mapping, clustering, listing, and outlining. The goal of planning is to create a framework that facilitates the drafting process.

Drafting

In the initial draft, the emphasis is on developing the meaning and utilizing ideas collected during prewriting strategies, with less focus on linguistic accuracy. Subsequent drafts are produced following reviews and feedback from peers or instructors.

Reflecting

When a writer spends some time away from their work and then revisits it with new eyes and feedback from others, it is called reflecting on a piece of writing. This process can help identify areas for improvement and strengths in the writing. It is a valuable tool for learning from mistakes and enhancing writing skills. Furthermore, constructive criticism from other individuals can aid in developing writing abilities.

Peer/tutor reviewing

The process of giving feedback to learners can be done by either their peers or teachers. Typically, feedback from teachers is perceived to be of higher quality than feedback from peers because teachers are considered to be experts on the subject matter, while students may not feel competent enough to offer valuable feedback. However, Curry and Hewings (2003) argue that learners' intellectual development may be hindered if they always follow their teachers' suggestions, even if they do not agree or comprehend them. On the other hand, the use of peer reviews

during training and practice can help learners improve their critical thinking skills and understand how readers respond to their writing.

Revising

After receiving feedback from peers or teachers, learners continue to revise their drafts.

This means that they must organize and refine their ideas. Mora-Flores (2009) outlines a more comprehensive set of activities to be carried out during this stage:

1. Revising ideas, taking into account purpose, clarity, and effectiveness. Adding more information, such as details and examples, can improve clarity and effectiveness.
2. Incorporating descriptors such as adjectives, adverbs, and prepositional phrases;
3. Including sensory details and removing any repetition of ideas, words, or phrases;
4. Substituting words such as adjectives, repetitive function words, adverbs, pronouns, proper nouns, synonyms;
5. Rearranging ideas, focusing on clarity and discourse (sequence, order of thoughts, order of sentences, order of paragraphs);
6. Adding an introduction, subheadings, and closing or conclusion;
7. Incorporating features of different genres, such as transition words, cue words, and different forms of language.

When editing a peer's draft, the author should consider the earlier steps of reflection and drafting.

Editing and proofreading

The last stage of the writing process involves revising, proofreading, and refining the text. Learners need to understand that several elements, including formatting, referencing, footnotes, and linguistic accuracy, can impact their grades. Students can improve their spelling by consulting with peers or using computer programs and dictionaries. Mora-Flores (2009) suggests that the editing stage should focus on spelling, grammar, mechanics, verb tenses, and sentence structures.

As previously explained, the process approach emphasizes how texts are produced rather than solely focusing on the outcome. Consequently, writing is seen as a complex and recursive process (Forbes, 2019; Martínez, et al., 2020; Zhang & Hyland, 2018). In a process-based writing approach, the teacher assumes the role of a facilitator, while students become more self-directed learners. Feedback and revision are considered crucial elements in this approach to writing. Process writing challenges learners to evaluate and arrange their thoughts (Barnett, 1992), cultivate collaboration with their peers (Nunan, 1991), and discover possibilities to oversee and regulate their own writing (Nicolaidou, 2012). However, educators have acknowledged that explicit instruction in writing is necessary. This involves teaching learners various genres to help them assimilate into the target culture and social context (Gibbons, 2014). According to some researchers, the process approach is seen as solely focusing on language skills and writing processes in the language classroom (Elson, 2011; Gibbons, 2014). For this reason, educators have adopted a new approach known as the "genre approach" to familiarize writers with various types of writing genres. The genre approach will be discussed in the following subsection.

5.3 Genre Approach

The genre-based approach views writing as a social and cultural practice. The purpose of writing is related to the context in which it occurs and the conventions of the target discourse society. In this regard, interconnected genre knowledge must be explicitly taught in the language classroom. Advocates of the genre-based approach view linguistics as a practical tool that language teachers can utilize in their classes. They use linguistic analysis to demonstrate to learners how distinct patterns of lexis, grammar, syntax, or structure sequentially support each particular genre (Hyland, 2007). Some researchers argue that similarities exist between the genre approach and the product approach, as both view writing primarily as linguistic input with a focus on correct syntax. However, the genre approach distinguishes itself by placing greater emphasis on the social context for the writing to be accepted by the target community or readership (Badger & White, 2000). In other words, genre refers to socially recognized ways of using language to adhere to community norms or to achieve common goals shared within a particular society or culture (Gibbons,

2014). Swales (1990 as cited in Kitjaroonchai & Suppasetseree, 2021) defines genre as "a class of communicative event, the members of which share some set of communicative purpose" (p. 58). This implies that language learners must acquire language registers, styles, or specific terms commonly used by a particular group or community of professional organizations.

The genre-based approach to writing skill development places readers at its core, aiming for writing to achieve its purpose by gaining social acceptance from a community of readers who share similar social norms. This suggests that language learners must produce written messages for an audience, whether known or unknown or someone who possesses language proficiency (Duong, 2015). Kitjaroonchai & Suppasetseree (2021) proposes that the genre approach highlights the reader and the conventions that a piece of writing must follow. The readership acknowledges certain rules, necessitating a genre-based writer to develop a writing style that conforms to social norms. However, Hyland (2003a) contends that initially in the writing process, teachers may assume an authoritative role to scaffold or assist learners. As learners become more independent and capable of constructing their own writing alongside the provided model, the teacher's role will shift from a distinct mentor to a facilitator.

Genre-based writing possesses distinctive linguistic features, including rhetorical structure, grammatical patterns, language registers, and lexical units (Dalimunte & Pramoolsook, 2020; Visser & Sukavatee, 2020). Furthermore, genre-based writing exhibits distinctive characteristics, tailored for a specific target audience and intended purpose (Coulmas, 2013). For instance, argumentative writing, aims to persuade audiences to take a stance on an issue, justify it, or convince them to adopt the writer's perspective. This genre of writing is often regarded as one of the most challenging for students to master (Wingate, 2012). In argumentative writing, the text typically follows a defined structure. It begins with a statement raised by the author, presenting controversial or debatable issues along with background information. This is followed by presenting arguments supported by evidence. Each argument is presented sequentially, followed by a recapitulation and conclusion in which the author reaffirms their position and provides recommendations (Gibbons, 2014). Argumentative writing is elucidated in sequential order with logical reasons, employing connectives and

conjunctions associated with reasoning extensively. Language features, such as specific words or phrases related to the debatable issue, are employed precisely to indicate the author's stance toward the issue (Gibbons, 2014). Therefore, the teacher of an argumentative writing course needs to introduce the process and model the language features used in this particular genre.

Teaching and learning writing through a genre-based approach involves three stages: modeling a text, joint construction, and independent construction of a text (Hyland, 2003b). The flow chart depicted in Figure 3 illustrates the cyclic procedures of teaching and learning writing through a genre-based approach created by linguists and educators from Australia (Gebhard, 2019).

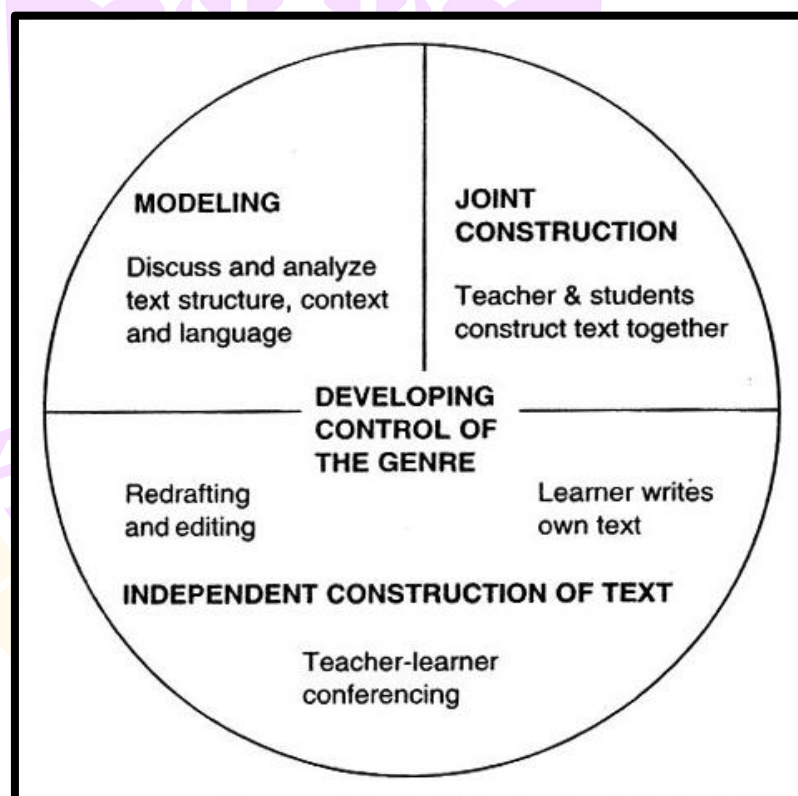


Figure 3 The Teaching and Learning Cycle

Note: Hyland, 2003b, p. 21

As illustrated in Figure 3, the genre teaching and learning cycle encompasses three main stages that can enhance language learners' ability to write more systematically, progressing from a dependent step to a more independent one by utilizing distinctive linguistic characteristics. The three stages inherent in genre-based writing are discussed below.

Stage 1: Model a text. In this stage, the teacher selects a specific genre and presents it to the class for discussion and analysis of its structure. The teacher guides learners to understand the context and models the language used in that genre to fulfill its communicative purpose. Learners study lexical items, grammatical or structural patterns, and practice the textual features of language used in that genre to develop their own texts (Dirgeyasa, 2016; Worden, 2019)

Stage 2: Joint construction. In this stage, learners are guided to write using provided words or phrases, which they can adjust to suit their context based on the model provided. The emphasis is on demonstrating the process of producing a specific text type and discussing language features associated with that genre with learners (Gibbons, 2014). Typically, learners work collaboratively with their teacher to construct texts at this stage.

Stage 3: Independent construction of a text. In the final stage of the genre writing approach, learners apply what they have learned from the previous stages to independently construct a specific genre. The teacher allows them to create a text autonomously, allowing them to manipulate the acquired knowledge. However, the teacher must ensure that learners have a deep understanding of the features of a particular genre to produce texts that are appropriate and acceptable to the target readership (Dirgeyasa, 2016).

In the genre-based writing approach, language learners are trained to develop linguistic features, styles, registers, rhetorical patterns, and language becomes a practical tool to serve their communicative purpose. The genre-based approach has emerged as the newest writing approach among the major three approaches and is considered effective in teaching university students to become familiar with different genres of academic writing (Visser & Sukavatee, 2020; Worden, 2019).

6. Writing Assessment

According to Weigle (2002), Three traditional approaches have conventionally been employed to evaluate learners' writing, each distinguished by the scoring criteria utilized. These approaches include holistic assessment, analytic assessment, and Primary trait assessment. The details of the three traditional approaches will be outlined as follows:

Trait-Based Assessment

Trait-based assessment emphasizes writers' ability to effectively write within a specific range of discourse. It focuses on task effectiveness in achieving a singular goal. In second-language writing assessment, trait-based assessment has not garnered widespread usage.

Nodoushan (2014) stated that trait-based approaches to scoring writing are context-sensitive. It primarily relied on predetermined criteria to differentiate between good and poor writing, providing a basis for evaluating each piece of writing. Trait-based instruments are crafted to precisely delineate the specific topic and genre characteristics of the activity under assessment. The objective of trait-based scoring approaches is to establish criteria for writing tailored to each prompt and the writing generated in response to it. Consequently, trait-based approaches are inherently task-specific.

According to Hyland (2003), trait-based approaches can be categorized into two main types: primary-trait scoring and multiple-trait scoring. The following sections offer distinct definitions of each scoring system as follows:

Primary-trait scoring is similar to holistic scoring in that it focuses on a primary trait for evaluation. In this method, a single score is assigned based on the criteria designated for scoring (Nodoushan, 2014). However, it diverges from holistic scoring in that the criteria for scoring a piece of writing are narrowed and refined to focus solely on one characteristic relevant to the specific writing task in question (Hyland, 2003). Frequently, the primary trait assessed in writing activities is regarded as a critical quality, and this particular characteristic is the focus of scoring. Examples of primary characteristics to be achieved may include appropriate text

staging, creative response, effective argumentation, referencing of sources, audience design, and similar attributes (Nodoushan, 2014).

Multiple-trait scoring bears a strong resemblance to analytic scoring. In both approaches, various features of the writing task are evaluated. However, analytic scoring utilizes a predetermined set of features that need to be achieved. Nodoushan (2014) said that multiple-trait scoring is task-specific, with the features to be scored varying from one task to another. This necessitates raters to assign separate scores for different writing features. Given that each writing task possesses a distinct set of relevant writing features, multiple-trait raters are tasked with ensuring that the components being scored align with the features pertinent to the specific writing assessment activity. Therefore, many raters consider multiple-trait scoring to be the ideal scoring procedure for writing assignments.

Holistic assessment

The holistic scoring approach suggests using a single scale to evaluate diverse writing performances, disregarding individual writing components or error counts. However, this method may obscure differences between compositions and offer limited feedback to learners and teachers, failing to capture important distinctions across different writing tasks (Bailey, 1998 as cited in Saito, 2010).

However, White (1984, as cited in Weigle, 2002) argues for the benefits of holistic scoring, which emphasizes rewarding writers for their strengths rather than focusing on deficiencies. This approach directs the reader's attention to the positive aspects of writing, prioritizing what is deemed essential within the context, and efficiently conveying important information about these aspects. Holistic scoring, capturing the reader's authentic and personal response to a text, is considered more valid than analytic scoring methods. The latter's tendency to focus excessively on individual parts risks obscuring the overall meaning of the text.

Holistic assessment operates under the assumption that the development of all facets of writing proficiency occurs simultaneously. This form of evaluation centers on a solitary grade that is derived from the comprehensive impression. Although comparatively lower in reliability than the analytical assessment, this evaluation remains

acceptable. One widely recognized illustration of a holistic assessment is the TOEFL writing score guide.

Table 1: An example of a holistic scoring rubric “TOEFL writing score standard”

Table 1 iBT/Next Generation TOEFL Test Integrated Writing Rubrics (Scoring Standards)

Score	Task Description
5	A response at this level successfully selects the important information from the lecture and coherently and accurately presents this information in relation to the relevant information presented in the reading. The response is well organized, and occasional language errors that are present do not result in inaccurate or imprecise presentation of content or connections.
4	A response at this level is generally good in selecting the important information from the lecture and in coherently and accurately presenting this information in relation to the relevant information in the reading, but it may have minor omission, inaccuracy, vagueness, or imprecision of some content from the lecture or in connection to points made in the reading. A response is also scored at this level if it has more frequent or noticeable minor language errors, as long as such usage and grammatical structures do not result in anything more than an occasional lapse of clarity or in the connection of ideas.
3	<p>A response at this level contains some important information from the lecture and conveys some relevant connection to the reading, but it is marked by one or more of the following:</p> <ul style="list-style-type: none"> ● Although the overall response is definitely oriented to the task, it conveys only vague, global, unclear, or somewhat imprecise connection of the points made in the lecture to points made in the reading. ● The response may omit one major key point made in the lecture. ● Some key points made in the lecture or the reading, or connections between the two, may be incomplete, inaccurate, or imprecise.

Table 1 (Cont.)

Score	Task Description
	<ul style="list-style-type: none"> ● Errors of usage and/or grammar may be more frequent or may result in noticeably vague expressions or obscured meanings in conveying ideas and connections.
2	<p>A response at this level contains some relevant information from the lecture, but is marked by significant language difficulties or by significant omission or inaccuracy of important ideas from the lecture or in the connections between the lecture and the reading; a response at this level is marked by one or more of the following:</p> <ul style="list-style-type: none"> ● The response significantly misrepresents or completely omits the overall connection between the lecture and the reading. ● The response significantly omits or significantly misrepresents important points made in the lecture. ● The response contains language errors or expressions that largely obscure connections or meaning at key junctures, or that would likely obscure understanding of key ideas for a reader not already familiar with the reading and the lecture.
1	<p>A response at this level is marked by one or more of the following:</p> <ul style="list-style-type: none"> ● The response provides little or no meaningful or relevant coherent content from the lecture. ● The language level of the response is so low that it is difficult to derive meaning.
0	<p>A response at this level merely copies sentences from the reading, rejects the topic or is otherwise not connected to the topic, is written in a foreign language, consists of keystroke characters, or is blank.</p>

Analytic assessment

Weigle (2002) suggests that analytic scoring involves evaluating scripts across multiple dimensions of writing, such as content, organization, cohesion, register, vocabulary, grammar, or mechanics, based on the assessment's goals. This approach provides a detailed understanding of a test taker's writing proficiency across various aspects, making it preferable to holistic scoring methods. Furthermore, analytic scoring provides significant advantages over holistic schemes by offering more valuable diagnostic insights into students' writing abilities. Moreover, in certain studies, it is found to be more effective in rater training, as novice raters find it easier to understand and apply the criteria across separate scales (Weigle, 2002). Analytic scoring proves particularly beneficial for second-language learners, as they often demonstrate variations in different aspects of writing. Compared to holistic scoring, it tends to offer greater reliability. Furthermore, scoring schemes that provide multiple individual scores are associated with enhanced reliability (Hamp-Lyons, 1991, as cited in Weigle, 2002).

According to Nodoushan (2014) pointed out that analytic scoring addresses a common issue in holistic scoring by avoiding the amalgamation of various writing qualities into a single score. Instead, evaluators using analytic scoring assess written texts against a set of criteria essential for good writing. These criteria are delineated into specific categories, with evaluators assigning scores for each category. This approach ensures that the distinct characteristics of good writing are not condensed into a single overall score, thereby providing richer information than a holistic score. Analytic scoring processes delineate and sometimes assign weights to individual components, resulting in a clearer definition of the features being assessed. This method proves more effective in distinguishing weaker texts. Analytic scoring rubrics typically encompass separate scales for content, organization, grammar usage, vocabulary, and mechanics (Hyland, 2003).

Table 2 An example of an analytic scoring rubric from Hyland (2003)

Criteria	Score	Description
Content	5	Ideas clearly stated
	4	Ideas fairly clear
	3	Ideas indicated, but not clearly
	2	Ideas hard to identify or unrelated
	1	Ideas missing
Organization	5	Well organized and coherent
	4	Moderately well organized and relatively coherent
	3	Not very well organized and somewhat lacking coherence
	2	Poorly organized and relatively incoherent
	1	Poorly organized and generally incoherent
Grammar use	5	Very few grammatical errors
	4	Only minor grammatical errors
	3	Major and minor grammatical errors
	2	Frequent grammatical errors
	1	Very frequent grammatical errors
Vocabulary	5	Excellent choice of vocabulary
	4	Good vocabulary
	3	Average vocabulary
	2	Weak vocabulary
	1	Very weak vocabulary
Mechanics	5	Accurate spelling and punctuation
	4	A few spelling and punctuation errors
	3	Some spelling and punctuation errors
	2	Frequent spelling and punctuation errors
	1	Many spelling and punctuation errors

Argumentative Writing

Writing an argumentative is important for university students, given its necessity in academic endeavors within classrooms and future professional pursuits. This genre of scientific paper incorporates arguments, explanations, evidence, and reasoning, aiming to persuade readers to adopt the writer's standpoint on a particular idea (Abbas & Herdi, 2018; Oshima, 2004; Permata et al. 2019).

1. Definition of Argumentative Writing

Argumentation is the process of making your ideas and opinions clear to yourself and to others. It helps you move from a private point of view to a well-defined position that you can defend in public. In this sense, the structure of an argument typically consists of two parts: the statement of an opinion, followed by one or more reasons for holding that opinion (Crusius & Channell, 2000). Moreover, Intraprawat (2002) defines argumentation as an attempt to persuade someone to accept a certain point of view (claim). The authors must provide evidence to support their claims, including facts or their own opinions, to convince the reader.

An argumentative writing is defined as the style of writing that aims to convince the reader of the veracity of a statement. By writing an argumentative, the author has to defend their point of view (Oktavia, et al., 2014). According to Rachmawati (2016), argumentative writing involves taking a stance on a particular issue and providing supporting reasons, along with evidence. Layaalia (2015) provides another definition, stating that argumentative writing explores a topic, collects and analyzes evidence, and presents a concise position on the subject. Both definitions emphasize the importance of supporting arguments with evidence to make a persuasive case.

In conclusion, the explanations above underscore the importance of having a strong understanding of the subject matter when writing an argumentative to be able to effectively persuade the reader. Argumentative writing requires the writer to be able to effectively communicate their deep understanding and extensive knowledge of the subject. This is why argumentative writing is seen as the most advanced level of writing, with a clear descriptive purpose and well-defined boundaries.

In this study, the researcher utilized the model of argumentative paragraphs as writing assignments for the students. The researcher developed a lesson plan and

created a lesson incorporating knowledge and understanding of argumentative paragraph writing, its characteristics, key components, detailed methods, and steps of writing, along with examples of argumentative writing works to enhance students' clearer comprehension.

2. Characteristics of an Argumentative Writing

An argumentative writing is typically characterized by three stages: thesis, argument, and conclusion. These stages represent the basic structure of the writing and help to organize the main points (Hyland & Hyland, 1990). The details of each stage are as follows.

2.1 Thesis statement

One of the primary steps in argumentative writing is to introduce the reader to the main points that will be argued in the writing. The writer first needs to get the reader's attention by writing a thesis. The writer's primary goal should be to ensure that the reader understands the content of the writing, rather than impressing them with the thesis. Giving a detailed overview of the topic is important for contextualizing it in the thesis.

Zemach and Rumisek argue that the thesis statement of argumentative writing should not simply state a fact, but should be something that can be debated or discussed, and that expresses the writer's opinion (Zemach & Rumisek, 2005). The most effective way to engage readers is to present them with controversial statements that they can agree or disagree with. This allows them to form their own opinions and connect with the material on a personal level.

2.2 Argument

In this stage, the reasons for the introduction given in the thesis will be discussed. The thesis needs to be supported by better evidence, which can come from the writer's conclusion as well as other sources. As an author, it is important to be confident in your assertions to maintain the reader's trust. When constructing an argument, it is important to back up your claims with evidence or references.

2.3 Conclusion

The final stage of argumentative writing is to assess the quality of the argument and confirm the validity of the thesis. The conclusion of the writing provides a brief summary of the main points discussed and draws conclusions based on the data presented. Some writers would use persuasive language in their concluding remarks to make their overall argument more convincing.

Persuasion is a crucial element of argumentative writing, as it seeks to convince the reader to adopt the writer's viewpoint rather than just inform or describe the topic. The writer should provide clear and convincing arguments in support of their position on a controversial issue, to persuade the reader to adopt a similar stance. This can be done by appealing to reason and common sense, and showing that their position makes the most sense when compared to alternatives (Weyand, et al., 2018). The supporting paragraph contains connections between the arguments and the premises. In addition, the writer needs to include counter-arguments in argumentative writing, which are statements or paragraphs that oppose the premises presented. This is necessary to demonstrate that the writer has considered the opposing viewpoints and to provide a balanced perspective (Bailey, 2011). The opposing statements or paragraphs should be followed by a rebuttal or paragraph to convince the reader that the opposing statements or paragraphs are problematic or untrue. In the counter-argument and re-talk, there should be a disruptive term and a contrasting relationship. To conclude, some various transitional words and phrases are frequently utilized in argumentative writing, and authors need to recognize and use them appropriately to ensure that their writing is logical and well-structured.

3. The Advantages of an Argumentative Writing

The argumentative writing can be beneficial for students in terms of improving their skills. Argumentative writing is an important tool for developing critical thinking and analysis skills. It helps students learn how to develop and objectively defend an argument (Thompson, 2019). When writing an argument, students need to provide evidence to support their claims. Argumentative writing equips students with research skills, such as identifying trustworthy sources, condensing pertinent information, and merging data to support their claims. To substantiate their arguments,

writers may use various forms of evidence, including quotes from experts, examples, statistics, and data.

Argumentative writing can aid in the development and improvement of students' critical thinking skills. Critical thinking is an important skill that students learn in school. The capacity to create persuasive arguments helps students break down the elements of rational thinking, recognize faults in other arguments, and create stronger arguments themselves. In the real world, people who can write strong arguments may be more likely to spot faulty reasoning or fallacies in other people's arguments (Nwaka, 2015).

As argumentative writing requires in-depth knowledge to support the arguments, students are expected to have broad knowledge to write argumentatively. In order to be well-informed and support their argument, students need to be able to consider and incorporate counterarguments into their thinking.

All things considered, university students are anticipated to pen more convoluted compositions. Argumentative writing is one type of writing that presents a challenge to the students' writing aptitude. There are both theoretical and pedagogical reasons for encouraging university students to practice writing argumentatively. Additionally, it is crucial for educators to not only instruct students on how to write in an argumentative style, but also to offer guidance on how to practice and improve their writing skills in this particular genre.

4. Teaching Argumentative Writing

Teaching writing poses challenges due to its nature as a productive skill, requiring time and effort for learners to improve their writing abilities. Hyland (2003) stated that participating in a writing course offers individuals an opportunity to improve their skills and expand their perspectives on a particular topic. The teacher serves as a facilitator, fostering a positive and cooperative environment where students can create their interpretations and meanings. In teaching writing, it is essential for teachers to align the objectives with students' age and proficiency levels, as well as with the national curriculum standards. This alignment ensures the selection of writing tasks that are both suitable and authentic (Yuksel & Inan, 2014). Before students start writing, teachers ought to furnish them with sufficient exposure to real-life samples

and facilitate collaborative analysis of these samples within the classroom setting. When activities are genuine and reflect real-life scenarios, students can connect with them more effectively, enabling them to achieve the intended learning objectives.

The aim of creating argumentative writing is for students to employ critical thinking skills and substantiate their ideas with evidence, aiming to persuade readers through their writing. The objective of teaching argumentative writing is to equip students with the ability to engage in critical and thoughtful arguments in real-life situations. Students typically need clear guidance and input when it comes to writing, as they often do not naturally develop the skills to construct robust arguments independently (Clayton, 2015). The following will outline several steps for teaching argumentative writing.

According to Tasya (2022), writing involves a series of steps, including close reading, brainstorming, developing a case, structuring coherent arguments, drafting, and revising. Therefore, the initial focus in teaching argumentative writing is to ensure students possess a clear understanding of the structure inherent to argumentative writing. Students ought to comprehend and be exposed to instances of writing incorporating a thesis statement or an argumentative assertion, supplemented by supporting evidence and a conclusive statement. Introducing such examples undoubtedly facilitates their ability to develop a thoroughly constructed argument.

The next step in teaching argumentative writing involves assisting students in acquiring supporting data for their arguments. Guiding students with precise data search methods proves advantageous in fortifying their claims effectively. Constructing an argument essentially involves the act of exploration (Hillocks, 2010 as cited in Tasya, 2022). Students form a claim as they gather data and engage in critical analysis of their topic.

After accumulating data, students can begin to pose questions about the topic, eventually leading to the formulation of a defensible statement known as a claim. The questions posed should offer various perspectives and possibilities for clarification. These strong questions will transform into a claim, forming the basis of the thesis statement.

While teaching argumentative writing, it is crucial for the teacher to emphasize that the arguments made should be open to consideration from various perspectives. Examining the argument from an alternative perspective empowers students to fortify their stance and artfully counter opposing viewpoints. Additionally, in supporting the argument, evidence can originate from a wide array of sources, including electronic or printed materials, interviews, surveys, observations, and even personal experiences. When presenting evidence in their writing, students should also explain the rationale and connection between the evidence and the argument. Another critical aspect to emphasize when teaching argumentative writing is the consistent use of appropriate transition signals and debating claims to fortify the strength of their writing. Ultimately, teachers must prioritize students' engagement in writing activities and their capability to excel in composing an argumentative (Alek, 2014; Tasya, 2022).

5. Structure Elements of Argumentative Writing

According to Hatch (1992), the traditional framework for structuring argumentative text comprises an introduction, an explanation of the case under consideration, an outline of the argument, proof, refutation, and a conclusion. Nevertheless, it is important to note that there exists a multitude of diverse patterns for constructing argumentative texts beyond the classical format typically associated with this genre.

Mccann (1989, as cited in Saito, 2010) explains that there are various patterns for structuring written argumentative discourse. The initial pattern, referred to as the "zigzag solution," it can be configured in two distinct manners contingent upon the writer's stance. When advocating for a position, the pattern takes the form of a sequence involving pros, cons, pros, cons, and pros. Conversely, if the writer opposes the position, the sequence reverses to cons, pros, cons, pros, and cons. The second pattern encompasses the presentation of the problem and refutation of the opposing argument, followed by the proposed solution. Similar to the first pattern, it necessitates countering the opposition's argument once more. The third pattern is the one-sided argument, in which the writer presents a singular perspective without offering any counterarguments or refutations. The fourth pattern involves the writer's choice to

reject some viewpoints while endorsing others, or alternatively, to combine different viewpoints. The fifth pattern starts with the arguments from the opposition, and then the writer presents their own argument. The sixth pattern, known as the "other-side question," includes raising questions about the opposition's argument without directly refuting it. The seventh pattern is characterized by the absence of a refutation. It features two different viewpoints, with one of them being favored.

Reid (1988) suggests that argumentative writing can be organized into three fundamental structures. Importantly, not all paragraphs are necessary and can be omitted based on the writing's length. The three fundamental organizational plans for argumentative writing are shown in the following.

Plan A

- I. Introduction (+ thesis statement of intent)
- II. Background paragraph about the topic (Optional: depending on the assignment, audience, and the available material)
- III. Pro argument #1 (weakest argument that supports the opinion)
- IV. Pro argument #2 (stronger argument that supports the opinion)
- V. Pro argument #3 (strongest argument that supports the opinion)
- VI. Con (Counterarguments and refutation)
- VII. Solution to the problem (Optional: depends on assignment, audience, and the available material)
- VIII. Conclusion (summary + solution, recommendation, or call to action)

Plan B

- I. Introduction (+ thesis statement of intent)
- II. Background paragraph about the topic (Optional: depending on the assignment, audience, and the available material)
- III. Con (Counterarguments and refutation)
- IV. Pro argument #1 (weakest argument that supports the opinion)
- V. Pro argument #2 (stronger argument that supports the opinion)
- VI. Pro argument #3 (strongest argument that supports the opinion)
- VII. Solution to the problem (Optional: depends on the assignment, audience, and available material)

VIII. Conclusion (summary + solution, recommendation, or call to action)

Plan C

I. Introduction (+ thesis statement of intent)

II. Background paragraph about the topic (Optional: depending on the assignment, audience, and available material)

III. Counterargument #1 + Pro argument to refute it

IV. Counterargument #2 + Pro argument to refute it

V. Counterargument #3 + Pro argument to refute it

VI. Solution to the problem (Optional: depends on the assignment, audience, and available material)

VII. Conclusion (summary + solution, recommendation, or call to action)

In this study, the researcher incorporates Reid's (1988) framework as Plan A for structuring argumentative writing. The model in Plan A lies in its structured approach to organizing argumentative writing. It offers a clear sequence of components, starting from an introduction with a thesis statement, followed by optional background information, progressively building up three supporting arguments, addressing counterarguments and refutation, and optionally providing a solution. This structured framework ensures a logical flow of arguments and allows for adaptability by allowing certain sections to be omitted based on factors like assignment requirements, audience, and available material. Ultimately, it provides a systematic yet flexible structure for creating argumentative writing.

6. Stages of Writing Argumentative Writing

Crafting engaging and credible argumentative writing does not happen effortlessly; it requires following several essential steps to enhance its appeal and credibility. The ability to write well is the result of learning how to think, write, and revise effectively, which requires specialized skills that not everyone naturally possesses (Brown, 2000). Argumentative writing's effectiveness relies on several key factors: statement precision, word choice, writing clarity, conciseness, and the strength of supporting evidence (Endy, 2019). The details of the stages of writing argumentative obtained from many researchers (Hyland & Hyland, 1990 cited in Rahayu, 2021; Kitjaroonchai & Suppasetseree, 2021; Saito, 2010) are as follows:

6.1 The first step in writing an argument involves selecting a topic. Occasionally, topics are assigned beforehand, requiring writers to choose from among them. Alternatively, writers have the freedom to select the topic they wish to discuss in their writing. When selecting a topic, consider something engaging that pertains to the course. Another useful suggestion when choosing a topic for writing is to frame it as a question. This approach aids in narrowing the focus and maintaining coherence in the writing.

6.2 The second step is to think or brainstorm. One way to approach this is to compile all existing information on the topic, as well as any areas that have not been explored yet. Brainstorming is a technique that can help people see what writers have already known about a topic, what needs to be thought about, and what else needs to be known about the topic. The initial stage of writing is beneficial for writers as it helps them to stay informed about the topics they will be addressing in their writing.

6.3 The next step is to conduct research. This step is very useful for gathering evidence to support the arguments. However, conducting research is not something that can be done quickly or easily. It will be beneficial to take more time to collect evidence before beginning to write. The process of research is ongoing throughout writing. To ensure your research is as efficient as possible, take the time to plan so that you can complete your writing before the deadline. After conducting the necessary research, be sure to take note of the relevant information.

6.4 The upcoming step is to write a thesis statement. The thesis statement is the most important part of the writing. The inclusion of a thesis statement in the introductory paragraph is very helpful in orienting the reader to the main argument of the writing. A good thesis statement should contain the main idea of the entire paper in one statement from the author's point of view. The thesis statement needs to be easily comprehensible and brief, enabling the reader to grasp and connect with the content of the writing.

6.5 The next step is to draft. Outlining in this step writers can write argumentative writing. Writers are free to explore the ideas and include the research they have done in the previous steps. During the drafting process of argumentative

writing, it is essential to maintain focus on the purpose of the text and ensure that evidence is included to support the arguments being presented. The writer should also pay attention to the use of transition signals to effectively connect ideas. Additionally, maintaining a clear organizational structure and writing coherent sentences throughout the text are essential for ensuring reader comprehension of the discussion.

6.6 After completing a draft, the subsequent step involves editing it. Editing the writing enhances accuracy and readability. During the editing process, carefully review each word and sentence to ensure completeness, conciseness, and clarity in English. Obtaining feedback from peers or experts is advantageous for effective editing. Having others check the writing for mistakes can help identify errors that may have been overlooked independently.

6.7 Once the initial draft is finished, the following step is to revise it. The writer should review their work in light of the previous steps in the writing process. It is typical for the final version to differ from the first draft as a result of several revisions. Referring back to the outline can help determine whether the paper is still aligned with its initial purpose.

In this study, the stages of argumentative writing (Hyland & Hyland, 1990 cited in Rahayu, 2021; Kitjaroonchai & Suppasetserree, 2021; Saito, 2010) will be adapted and integrated into the process of argumentative writing activity. These steps emphasize key elements of argumentative writing, aiming to enhance writing skills by fostering effective thinking, writing, and revising abilities. They were thoughtfully selected and structured to guide writers systematically for achieving successful writing practices.

7. Related Research on Argumentative Writing

Several scholars have investigated argumentative writing, with some conducting content analyses of the rhetorical patterns of argumentation, while others have adopted a process and genre-based approach to instructing argumentative writing.

Dang, Chau, and Tra (2020) conducted a study on the challenges faced by English majoring sophomores at Tay Do University when writing argumentative essays. The researchers utilized both questionnaires and interviews as instruments to collect data from 90 English-majoring sophomores and two English language teachers. Their aim was to identify the common challenges encountered by sophomores when writing

argumentative essays. The results revealed that these students faced difficulties with linguistic competence (including vocabulary, grammar, and coherence), as well as with organizing and developing their argumentative essays. Additionally, the study found that the students lacked critical thinking skills.

To bridge the gap of Dang, Chau, and Tra (2020), the researcher plans to conduct an experimental approach. This aims to help students learn and understand the methods and steps involved in writing argumentative essays. Additionally, students will compose argumentative essays through a writing activity model, which includes scoring criteria to evaluate each piece of writing. By comparing scores among different essays, students can identify weaknesses in their writing and make necessary improvements for enhanced effectiveness in subsequent writing tasks. Moreover, pre-tests and post-tests will be administered to compare the developmental progress in the ability to write argumentative essays. The researcher utilized several research instruments, including lesson plans, pre-tests, post-tests, and argumentative essay assignments for the study.

Kitvilairat and Modehiran (2018) conducted a study to investigate the impact of argumentative writing instruction using a genre-based approach and critical thinking framework on the argumentative writing ability of upper secondary school students, as well as their attitudes towards this approach. The researchers used a pretest, a lesson plan, a posttest, and a questionnaire as research instruments. The results indicated that the students' argumentative writing ability significantly improved after receiving the instruction, with higher scores on the post-test than the pre-test (at a significance level of .05). Additionally, the students' feedback towards the argumentative writing instruction was positive.

To address the deficiency identified in Kitvilairat and Modehiran (2018), the researcher intends to undertake a study involving university students. These participants will be categorized into three groups according to their proficiency levels: advanced, intermediate, and novice learners. Students will be grouped into four to compose argumentative writing for each assignment, employing an argumentative writing activity model derived from Moonma's (2022) work as a guide. Furthermore, this research will investigate the students' perspectives while they will be instructed

to participate in group work and complete argumentative writing tasks. This investigation will aim to collect insights into their experiences and perceptions regarding collaborative writing, ultimately guiding the improvement of instructional approaches. Video recordings and questionnaires will be utilized to collect data, aiming to understand the students' perspectives on argumentative writing activities.

Lingaiah and Dhanapal (2020) researched to investigate how graphic organizers and instructional scaffolding impact argumentative essay writing performance among TESL undergraduates. The study employed an experimental pre-test and post-test design, involving 60 TESL undergraduates, where the experimental group received instruction using the 'Graphic Organizer with Instructional Scaffolding' (GOIS) delivery mode, while the control group received instruction using the 'No Graphic Organizer No Instructional Scaffolding' (NGNI) delivery mode. The findings showed that the GOIS delivery mode significantly improved the overall argumentative essay writing performance of the experimental group when compared to the control group. The study suggests that adopting the GOIS approach could be an effective strategy for educators to improve their students' argumentative writing skills.

From the gaps in Lingaiah and Dhanapal (2020), the researcher utilized online collaborative learning for argumentative writing through Microsoft Teams. The collaborative method using the online platform Microsoft Teams enables real-time collaboration, encourages interactive engagement among participants irrespective of their physical locations, and offers a range of tools that support the effective completion of argumentative writing tasks. An instructional guide, adapted from Microsoft Teams (2018), was created to elucidate the utilization of Microsoft Teams and its diverse functions. In online collaborative writing activities, students collaborate within their groups to complete online argumentative writing assignments through Microsoft Teams, aiming for successful outcomes following the steps of the collaborative writing activities model. The data collection tools consist of an adapted Microsoft Teams user guide from Microsoft Teams (2018), Online collaborative argumentative writing assignments will be conducted, along with a semi-structured interview designed to gather comprehensive insights and detailed information.

In conclusion, the relevant research on argumentative writing by Dang, Chau, and Tra, (2020); Kitvilairat and Modehiran, (2018); Lingaiah and Dhanapal, (2020) can be utilized to adapt research data or address gaps in this study as follows;

This study has conducted to investigate the effects of online collaborative argumentative writing and to explore the students' perspectives toward online collaborative writing via Microsoft Teams of EFL university students. The researchers used lesson plans, pre-test & post-test, online argumentative writing tasks, group assessment checklist, Microsoft Teams instructional guide, video recordings, semi-structured interview, and questionnaires as research instruments. During online collaborative writing activities, students form groups of four and collaborate within their groups to complete online argumentative writing assignments through Microsoft Teams. The researcher utilized the Test of Written English (TWE) Scoring Guide in 2014 (Educational Testing Service, 2014) as the assessment criteria to score writing. The scores from the pre-test and post-test will be compared to assess individual writing abilities and track the writing development of advanced, intermediate, and novice learners.

Additionally, the scores from the online argumentative writing assignments were used to compare the writing scores of each group's pieces of work. The researcher randomly selected students for a semi-structured interview about online collaborative writing. Furthermore, the study employed video recordings and a questionnaire to gather insights into students' perspectives regarding practical skills in online collaborative writing activities.

Previous research offers valuable guidance on how to enhance argumentative writing. Currently, there is a rising interest among educators and researchers in improving writing instruction for university students. It would be advantageous for EFL instructors in Thai universities to introduce a variety of activities or writing techniques that can lead to more effective instruction and, as a result, improve their students' argumentative writing abilities. These could be exemplified by graphic organizers with instructional scaffolding, peer writing, or collaborative writing which can be illustrated in the following sections.

Collaborative Learning

As mentioned above, collaborative learning could be theoretically applied to EFL writing classes in order to develop student writing. The following provides theoretical background and previous research to clarify this method's fruitful results in EFL writing classes.

1. Definition of Collaborative Learning

Collaborative learning is a form of collaboration where individuals work together towards shared objectives. The study of collaborative learning investigates how cooperation can enhance educational results, and offers tactics for organizing group activities to enable students to learn more efficiently and attain better academic accomplishments (Johnson & Johnson, 1989; Olsen & Kagan (1992) as cited in Kessler, 1992). Collaborative learning has numerous benefits for EFL teachers. It can improve the classroom environment by utilizing collaborative learning techniques to motivate students to work in groups and successfully complete their assignments. Collaborative learning can be a powerful tool for student learning as it enables them to work collaboratively and share knowledge. When students learn as a group, they share the responsibility for seeking knowledge and obtaining answers, as well as coming up with new ideas. By adopting each other's experiences and reflections, the group can work together more effectively and achieve their common goals.

2. Background of Collaborative Learning

The idea at the core of Collaborative Learning is grounded in the Constructivism theory, which asserts that learning is a process whereby the learner actively builds their understanding of the subject matter. This approach contrasts with more traditional approaches that focus on delivering information to learners in a pre-organized form. Constructivist learning activities are designed to immerse learners in real-world situations where they can apply their existing knowledge. This approach is highly effective in helping learners retain and build upon what they already know (Eggen & Kauchak, 1988, p.184); Ausubel (1968) states that under constructivism, learners are encouraged to construct knowledge through their own analytical and self-reflective thinking processes, rather than passively receiving information from teachers. The teacher can help the students by creating learning situations in which

the students' real experiences are different from the new experiences they are encountering. This will help the students to adapt and change their perspectives. It has been suggested that teachers should facilitate the learning process by highlighting the differences between students' prior knowledge and the new information being presented in a lesson. By doing so, students can integrate the new information with their existing knowledge to gain a deeper understanding. Kelly's theory of personal constructs (1991a) posits that our understanding of the world is shaped by mental patterns or constructs that we form based on our experiences. This theory offers a useful framework for comprehending how we make sense of the world.

3. The Importance of Using Collaborative Learning in the English Language Classroom

3.1 The Use of Collaborative Learning Method

Johnson and Johnson (1989) suggested that different structures can be used for learning, such as competitive, individual, or cooperative learning. However, they recommended that collaborative learning should have a primary role in any classroom. According to Kessler (1992), McDonell's study found that learners who engage in group work become more skilled in the language as they consult with one another, seek opinions and information, and engage in meaningful conversations, exchanging ideas, feelings, and needs. This way, they can connect new language information to what they already know and use their innate learning ability in a supportive and accepting environment.

In conclusion, students who are educated in a cooperative classroom setting are likely to have a greater ability to confront future challenges. They are likely to have stronger communication, collaboration, and critical thinking abilities, enabling them to effectively resolve issues and negotiate. If students can achieve their objectives, they will be successful not only in school but also in their lives outside the classroom.

4. Collaborative Learning in an Online Environment

Vygotsky and Cole (1978) as well as Wenger (1999) have highlighted the impact of social perspectives on language acquisition. Their research is grounded on the notion that language learning and social interaction are interrelated and that

social interaction can enhance language proficiency. To better understand how collaborative learning functions in a virtual learning setting, it is important to first review the theory behind it.

Research studies in recent years have emphasized the significance of technology in language education. These studies have examined how the internet and virtual technologies can be utilized to enhance the curriculum and make language learning more effective. online environments have been investigated extensively, and this article will provide a brief overview of their characteristics.

4.1 Online learning Historical Note

Before the advent of the Internet, distance education primarily involved correspondence courses, which were often supplemented with follow-up phone calls. This form of learning typically involves self-instruction or independent learning.

In the 1990s, the growth of the internet led to the emergence of virtual learning environments (VLEs), which allowed learners from various locations to connect online. VLEs provide an effective and compelling method of learning, with several benefits over traditional learning settings (Kargidis, et al., 2003; McPherson & Nunes, 2002, 2004; Piccoli, et al., 2001). Computer-based VLEs enable users to communicate with each other and access various learning resources. VLEs are relatively open, making them suitable for learning (Piccoli, et al., 2001). Online learning is a type of learning that can be referred to by several terms, including but not limited to distance learning, virtual learning, open learning, and network-based learning. These terms are often used interchangeably to describe this mode of education. Keller (2005) suggests that some researchers use the term "learning management system" (LMS) to refer to virtual learning environments (VLEs) that connect to other administrative systems within universities. The use of information and communication technologies (ICT) is a key feature of all these terms, with ICT-supported environments providing a delivery vehicle for these technologies. Interactive learning environments are beneficial because they allow administrators to track and analyze data to see how students are using the tools available to them. This information can be used to improve the learning experience for all students. Such environments allow for a wealth of learning opportunities, including access to tons of exercises, reading materials, and internet

resources. Following the course design, learners can be motivated to pursue their own learning preferences in these environments. Moreover, such environments provide ample opportunities for sharing information, interacting with others, and collaborating on different learning activities.

Several authors, including Kargidis, et al. (2003), Nunes and Fowell (1996), and Stamatis, et al. (1999) have suggested that virtual environments can be advantageous for both teachers and learners due to the numerous opportunities they provide for interaction and collaboration. McPherson and Nunes (2004) summarized their findings, which demonstrated how VLE technology could offer opportunities for interactions and collaborations.

1. Providing course materials electronically is a convenient approach for students to access the content of the course.
2. The ability for students to study at their own pace and choose when to study according to their own learning style is very important.
3. Accommodation of different ability levels is important to ensure a fair and inclusive learning environment.
4. Creating channels of communication between teachers and students, and among students themselves, is essential.
5. The increased availability of information has made it easier to find and use information.
6. Flexibility and convenience are the advantages of having the ability to update course documentation more effortlessly.

McPherson and Nunes (2004), categorized these environments into three main types: Workstation, which is a multimedia PC primarily used by learners and educators to access the web; Communication technologies, which allow learners to network and access the web extensively; and Software tools, which are used by educators to create and deliver online learning content.

Dabbagh and Kitsantas (2005) classify web-based pedagogical tools (WBPT) into four categories:

1. Collaborative and communicative tools, including email, discussion forums, and chat tools;

2. Content creation and delivery tools, which allow instructors to upload course syllabus, content, and assignments, and students to access course resources and readings; Administrative tools for managing course information, functions, and student information, interactions and contributions; and Assessment tools for posting grades and tracking student progress.

Utilizing technology can greatly affect the online learning environment. Lajoie (2005), it is crucial for educators to emphasize the way they use teaching tools, rather than the tools themselves. Although having the right tools is important, they will only be effective if they are used in line with the instructor's goals for the class. The focus of studies has shifted from structural and technological issues to transactional issues, such as teaching and learning, from a pedagogical perspective. For instance, research now investigates how learners create their learning environment, negotiate meaning, and develop new understanding in the context of distance learning.

Researchers such as Brandl (2005); Carey (1999); Dabbagh (2004); Devlin (2006); Gilead (2006), and Olson (2001) investigated how VLE technologies like WebCT, Moodle, Blackboard, Luvit, and First Class can facilitate more socio-constructivist approaches to teaching and learning, which align with learning goals and three primary modes of communication and interaction: student with learning materials, student with teachers, and student with peers. Virtual learning environments also provide various online resources for instructors to create courses and monitor student engagement and advancement. The utilization of various online tools can enable educators to observe important aspects and detect potential areas where students may require additional assistance. These include monitoring student engagement with the learning environment, participation in online activities, receiving feedback on the learning experience, and providing support and guidance. Research studies conducted by Swan (2004) and Gunn (2001) have shown that student attitudes toward distance learning are largely favorable, with high levels of satisfaction. In addition, VLEs can aid in tracking student outcomes such as grades and test scores.

Many universities have integrated virtual learning environments (VLEs) into their teaching and learning practices, using them to supplement face-to-face classes and even deliver fully virtual courses. However, in the early stages of

development, the role of online learning is often limited to providing access to lecture notes, resources, and recorded lectures. This approach reflects the traditional method of imparting knowledge to students through unalterable concepts and definitions (Bonk & Cunningham, 1998; McPherson & Nunes, 2004). The conventional lecture format involves a lecturer speaking to a group of students who are simply listening without much interaction. This teaching approach is commonly referred to as the 'sage on the stage' paradigm. McPherson and Nunes (2004) point out that educational designers often rely on their prior understanding of how people learn and their own educational experiences when developing instructional materials, content, and strategies. Many developers of online learning tend to replicate the traditional classroom approach in their applications, whether intentionally or subconsciously. This tendency is frequently based on the behaviorist model of education, which is influenced by the developers' personal education. During the early days of computer-based instruction, knowledge transfer was often conceptualized as a one-way process from teacher to student, akin to pouring fluid from a full vessel to an empty one (Kay, 1991). This teaching method is no longer effective with the current interactive, collaborative, and self-directed nature of modern educational practices. Additionally, the behaviorist approach to technology tends to emphasize its capabilities rather than its potential uses in support of effective teaching and learning. According to McPherson and Nunes (2004), the behaviorist approach to technology may divert the attention of researchers, instructional designers, and educators from crucial questions regarding the effective use of technology in teaching and learning. Therefore, it is essential to focus on how technology can support these activities. Additionally, Mason (1998) highlights the importance of designing course materials specifically for online learning to ensure their effectiveness.

Numerous academics have written instructional manuals on creating efficient websites for online learning courses (Lee & Owens, 2000; Smith & Ebooks Corporation., 2008; White & Weight, 2000). Extensive research has been conducted on the impact of various tools, including electronic bulletin boards, interactive television, and collaborative computer technology, on the learning process (Bozik & Tracey, 2002; Chadwick & Russo, 2002). According to Thierry (1996), online learning provides a

more adaptable curriculum that considers the unique needs and differences of learners, surpassing the conventional constraints of classroom schedules. Online learning also enables learning to happen simultaneously across multiple locations, at different times within the same place, or at various times across different places.

To be successful, online learning must have well-designed courses that utilize appropriate teaching methods, and the instructors must be qualified and able to facilitate the courses online (McPherson & Nunes, 2004).

In conclusion, students who engage in collaborative learning can develop important skills like communication, collaboration, creativity, and critical thinking, which can prepare them for future challenges in school and beyond. Consequently, the researcher plans to utilize this approach in developing a new methodology for teaching English writing that emphasizes collaboration. The subsequent section will examine the theoretical and pedagogical basis of collaborative writing activities to apply them in the writing process.

Collaborative Writing

Collaborative writing (CW) refers to the collective creation or joint authorship of a text involving two or more writers (Brooks & Swain, 2008). Furthermore, CW is well substantiated by extensive research within cooperative learning, which entails students collaborating in small groups where everyone can actively engage in collective tasks without direct and immediate teacher supervision (Cohen, 1994).

This writing approach has been extensively studied in the field of second language learning, emphasizing its significance in the development of writing skills. These activities enhance language development and writing proficiency by involving students in producing, receiving feedback, and revising written content. Storch (2005) suggests that online collaborative writing tasks can boost students' writing proficiency as they capitalize on shared ideas, rectify errors, and gain diverse perspectives. Additionally, collaborative writing activities contribute to improved language accuracy as students learn to self-correct and provide feedback on grammar, spelling, and punctuation to their peers (Laufer & Hulstijn, 2001; Liang, 2010; Shehadeh, 2011). This process facilitates the development of precise and accurate language skills.

1. The Development of Collaborative Writing

Numerous studies have explored collaborative writing in various contexts, with research conducted on writing in both first language (L1) and second languages (L2). The writing process in L2 cannot be comprehensively understood without considering how individuals write in their L1.

According to research conducted in the field of writing composition, collaborative writing can be a more effective way for students to learn compared to traditional instruction methods where they are taught by a single teacher. This approach allows for a more collaborative learning environment, as multiple students work together. Bruffee (1995) found that students can benefit greatly from this approach in college composition courses. He argued that during collaborative learning tasks, students can learn both with and from their peers at the same time. Bruffee has continued to publish several influential papers on this topic. Several influential publications on L1 writing have been produced by scholars such as Beard and Rymer (1990); Bosley, Morgan and Allen (1990); Duffy (2014); Ede and Lunsford (1990); Forman (1991, 2004); Higgins, et al. (1992); Keys (1994); Topping, et al. (2000). Their work has been cited in numerous studies on collaborative writing in L2, demonstrating its significance in the field (Kuiken & Vedder 2002; Storch 2005).

The body of research on collaborative writing in both L1 and L2 has collectively challenged the traditional view, as espoused by Ede and Lunsford (1990), that writing is solely an individual act. However, the distinction between the study of collaborative writing in L1 and L2 may be attributed to the use of the process to learn the language. It can be inferred that when writing in their first language, writers are fluent speakers of that language (Bruffee, 1995) or that the focus of the writing activity is not primarily on teaching the student how to use the grammatical structures and vocabulary of the target language. However, studies on writing in a second language have primarily focused on the impact of collaborative writing on language use. The difference between independent writing and collaborative writing is significant with regard to the level of complexity, accuracy, and fluency of the writing (Dobao, 2012; McDonough, et al., 2018; Storch 2005; Storch & Wigglesworth 2007; Villarreal & Gil-Sarratea, 2019; Wigglesworth & Storch 2009).

In sum, Collaborative writing presents a potentially superior learning method compared to traditional single-teacher instruction by fostering a collaborative learning environment where multiple students engage together. During collaborative tasks, students have the opportunity to learn both with and from their peers simultaneously. The difference in studying collaborative writing between L1 and L2 may be linked to its role in language acquisition.

2. The Nature of Collaborative Writing

Collaborative writing originates from the principles of collaborative learning, influenced by Vygotsky's ideas. Vygotsky proposed that human development and learning occur within a social context (Cameron, 2001 as cited in Sehari, 2021). Essentially, individuals acquire knowledge from those in their proximity. Collaborative writing involves grouping students to collectively generate a text, aiming for mutual learning among peers within these groups.

According to Storch (2005), collaborative writing is defined by the shared responsibility for producing a single text, with students working together through each stage of the writing process. At its core, this approach emphasizes joint effort from planning to final draft. However, interpretations of collaborative writing can differ among individuals, leading to a range of organizational structures and collaborative dynamics. These differences are reflected in the various forms of interaction and contribution observed during the writing process.

Numerous instructors have tasked their classes with engaging in collaborative writing, spanning from the brainstorming phase to the editing stages. Certain instructors directed groups to discuss key points, after which each member drafted distinct sections of the essays. Subsequently, the group convened to compile the collective essays. Additionally, certain instructors had their students present their essays to the class following the drafting process, whereas others conducted peer review sessions.

Similarly, Fung (2006) outlines two categories of collaborative writing. The first type, interactive writing, involves students planning together but not necessarily writing collectively throughout the entire writing process. Conversely, the second type, group writing, entails continuous collaboration among group members throughout all writing stages. While perceptions of collaborative writing definitions and organizational

patterns vary, Fung (2006) posits that group writing more closely aligns with the definition of collaborative writing compared to interactive writing.

Furthermore, Fung (2006) outlines four fundamental concepts within collaborative writing: sharing responsibility, mutual interactions, sharing resources, and decision-making. Sharing responsibility entails group members combining their efforts to create a single text. Mutual interaction denotes active engagement and participation among members. Sharing resources involves members contributing their ideas, perspectives, and expertise across all facets of the writing process. On the other hand, shared decision-making signifies that all group members possess the authority to propose and collectively make decisions.

Overall, collaborative writing typically involves group-based writing where all members contribute throughout every stage of the writing process. It encompasses four primary elements: sharing responsibility, mutual interactions, sharing resources, and decision-making.

3. Group Formation in Collaborative Writing

As previously stated, collaborative writing involves group-based composition, typically requiring two or more students in a group. Generally, smaller groups tend to encourage increased participation from each member. However, larger groups facilitate extensive discussion among members. Hence, considering the group size is crucial for the effective functioning of collaborative writing.

Richards and Renandya (2002) suggested that researchers commonly advocate for groups of four in collaborative learning. One benefit of this arrangement is the multitude of ideas generated by each student within the foursome. However, Fung (2006) highlighted that in groups larger than three students, there is a potential for certain members to feel excluded or to neglect their responsibilities. Hence, Fung (2006) proposed that having three students in a group can be more effective. In addition to generating numerous ideas similar to a group of four, having an odd number aids in decision-making within the group. Moreover, with an odd number, there's a mediator available in case of conflicts.

In contrast to Fung (2006), Ferris (2003) asserted that groups of four are suitable for writing sessions but cautions against groups larger than four. Additionally,

he advocates for the stability of the writing group throughout the duration of the course. Richards and Renandya (2002) suggested that educators should maintain groups for a duration of four to eight weeks. This period offers students the opportunity to build familiarity, establish a group identity, foster bonds, and develop problem-solving skills together.

Additionally, when arranging student groups, educators might use student-selected groups. This type of grouping is often preferred by students as they can collaborate with someone they feel comfortable working with. Fung (2006) also advocated for the use of student-selected groups due to the safe and conducive environment they provide. This setup encourages members to openly voice their ideas and opinions, actively engage in the process, and share resources effectively. Conversely, Richards and Renandya (2002) proposed that teacher-selected groups are more effective. This approach enables teachers to create heterogeneous groups comprising varied language proficiencies, genders, and levels of diligence. Consequently, students with higher proficiency levels can assist those with lower proficiency levels. In conclusion, the formation of groups holds significance. Teachers must carefully consider both the size and method of group formation to achieve the intended objectives of collaborative work.

In this current study, students were grouped heterogeneously according to their proficiency levels: advanced, intermediate, and novice learners. Each group comprised four members, encompassing individuals from advanced, intermediate, and novice proficiency levels, collaborating to collectively compose argumentative paragraph writing for each assignment. The students were given the flexibility to independently select their group members, enhancing the learning environment during the implementation of online collaborative writing methods.

Grouping students into sets of four for collaborative writing provides various benefits. Firstly, it encourages diverse input and multiple perspectives, as each member can offer distinct ideas. Secondly, with four members, the workload is distributed effectively, promoting shared responsibilities and reducing individual pressures. Moreover, a group of four enhances interaction and engagement among members, leading to smoother discussions and decision-making processes. Lastly,

it ensures balanced participation, allowing everyone an opportunity to actively contribute to the collaborative writing task.

4. How collaborative writing can facilitate learning

Collaborative and independent writing present distinct differences that offer students unique learning opportunities. According to Storch (2013), writing collaboratively externalizes and makes explicit the thought processes involved in producing a co-authored text, such as linguistic choices and decisions about organization and cohesion. This facilitates open discussion and analysis of different ideas about how writing should be completed. Conversely, independent writing is generally an internal, introspective process that provides different learning opportunities. Table 3 below summarizes the differences between these two writing processes.

Table 3 The processes that occur during both collaborative and independent writing.

Collaborative writing	Independent writing
Writing processes	
Both writers make proposals about the content of the co-authored text. They review these until they agree upon the final content.	The individual writer thinks about what should be included in the text and draws upon his/her knowledge to complete it.
Deliberation about language use and written discourse	
External (interpersonal) deliberation e.g. language related episodes with peers.	Internal (intrapersonal) deliberation e.g. inner speech
Provision of new knowledge about language use and written discourse	
Peer language input Peer proposals about the co-authored text	None
Feedback provided while writing	
Continuous real-time feedback	None
Opportunities for language modification are provided by:	
Language related episodes Peer feedback Noticing	Inner speech

Collaborative writing involves the exchange of ideas and feedback between co-authors, leading to externalization and explicit discussion of the thought processes that go into producing a text, as opposed to the internal, introspective process of independent writing (Storch, 2013). During collaborative writing, both writers contribute to the content of the text and engage in reviewing and discussing each other's suggestions. This enables learners to openly analyze and discuss different ideas about writing, including linguistic choices and organization of ideas. This collaborative process allows for critique, questioning, explanation, and discussion, facilitating learning (Storch, 2019).

Collaborative writing allows learners to externalize their thought processes, which can result in unique learning opportunities. As Storch (2013) notes, learners take turns making suggestions about the co-authored text, which are then reviewed and discussed. This allows learners to share their understanding of how language should be used in writing and how to organize ideas into a cohesive text. The externalized deliberation provides opportunities for review, critique, questioning, explanation, and discussion (Storch, 2019). Conversely, independent writing allows learners to explore their innermost thoughts and deliberations about language use and written discourse, which is known as inner speech according to De Guerrero (2018). However, the deliberation that occurs between peers is distinct from the introspective deliberation that occurs internally. Storch (2013) asserts that in independent writing, learners are constrained by their own linguistic resources and prior knowledge, and their contemplation is limited to what they already know. This introspective process may not provide sufficient opportunities for learners to question and re-evaluate their existing knowledge, which stands in stark contrast to collaborative writing.

Collaborative writing provides learners with the chance to reflect on and reassess their existing knowledge by engaging in peer-to-peer discussions on language use and written discourse. Through language-related episodes, feedback from peers on incorrect language use, and observing how peers use language, learners can critically analyze their language use and gain a better understanding of how language works in writing. This active engagement with peers helps learners expand their linguistic resources and develop a deeper understanding of writing.

To summarize, the comparison between collaborative and independent writing reveals distinct processes. In collaborative writing, writers collaboratively suggest and improve content, discuss language use externally, get immediate peer input and feedback, and have many chances to modify language. On the other hand, independent writing includes individual reflection on content, internal deliberation, relies on inner speech, receives limited feedback, and has fewer opportunities for modification.

5. Interactive processes of learners in collaborative writing

Collaborative writing and independent writing differ in many ways, but one of the most important is how writing is produced. According to Storch (2013), collaborative writing projects involved exchanging ideas and providing suggestions for improving the text. This process encourages students to think more critically about their own ideas and to consider other perspectives. Students also engage in discussions about the appropriate language to be used in expressing these ideas, their organization, and different ways to articulate them. Gutiérrez (2008) argues that collaborative writing involves both implicit and explicit metalinguistic activities, where learners engage in activities that focus on language use. Explicit metalinguistic activities involve overt discussion of language use, while implicit metalinguistic activities are activities in which attention to language can be inferred from the learners' actions. For instance, students may discuss how language can be used to express a particular idea or may suggest different ways to convey the intended meaning. Learners consider the language used by their peers before responding with an alternative, even though they have not explicitly discussed it.

Collaborative writing allows learners to expand their skill sets by providing them with opportunities to participate in various roles and tasks that they may not have encountered otherwise. Storch (2013) suggested that collaborative writing can enhance learners' writing abilities as they engage in co-authoring, offering feedback, and serving as critical peers and sounding boards. Through these various roles, students can gain diverse opportunities to learn about language use and written discourse. They may have to explain concepts, offer constructive feedback, seek opinions, or disagree with peers. Storch (2013) highlighted that several functions are typically

absent from teacher-fronted classes and independent writing. Collaborative writing enables learners to engage in these functions while writing and to learn from the deliberation that occurs with their peers.

The discussed pedagogical and theoretical perspectives strongly endorse the implementation of collaborative activities in language learning environments. This strategy allows learners to interact with each other, thus enriching their educational experience through social interaction and context. This part aims to provide a concise overview of how collaborative writing tasks offer a platform for practicing crucial skills. Kaweera (2013) and Kaweera, et al. (2019) examined students' perceptions of talents utilized in writing assignments, encompassing writing, thinking, engagement, and communication, along with their satisfaction with these activities. To address this gap, the researcher investigates multiple perspectives on various aspects of collaborative writing activities aimed at enhancing language learners' skills in collaboration, communication, critical thinking, and creativity.

The positive impact of collaborative writing on the development of collaboration skills has been widely acknowledged, backed by a wealth of research evidence. According to Wang and Vásquez (2012), online collaborative writing specifically promotes teamwork and collaboration skills among students. By collaboratively creating, revising, and editing written content, students engage in a shared endeavor that enhances their abilities in language learning while working towards a common goal. Additionally, collaborative writing activities enable students to acquire important teamwork skills, such as task assignments and effective coordination (Griffin, et al., 2012). Collaborative writing nurtures students' negotiation skills through discussions and consensus-building on content, structure, and language use (Li & Zhu, 2017). It also fosters cooperation and compromise among peers, improving their effectiveness in team settings (Kessler, et al., 2012).

Collaborative writing is also found to be beneficial in enhancing communication skills. Collaborative writing activities offer students opportunities to express themselves, participate in discussions, and provide feedback to their peers, thus promoting effective communication in the target language (Storch, 2005). Additionally, Lamy and Zourou (2013) highlight that online collaborative writing in social

networking environments enhances learners' communicative competence by facilitating interaction and meaningful exchange of ideas.

Collaborative writing has been shown to have a positive impact on language learners, not only improving their writing skills but also enhancing their critical thinking skills. Online collaborative writing specifically promotes a culture of critical thinking among students as they analyze, evaluate, and synthesize ideas, arguments, and evidence. Through this process, students acquire the necessary skills to create coherent and well-supported written work. They actively engage in critically evaluating their own contributions as well as those of their peers, resolving disagreements, and employing innovative approaches to express their ideas (Li & Zhu, 2017). Additionally, collaborative writing enables students to critically assess the validity and reliability of diverse viewpoints, further enhancing their critical thinking skills (Buckingham, 2019).

Extensive research supports the positive influence of collaborative writing on creativity skills. Students improve their creative thinking strategies when facing challenges during the writing process and group dynamics (Hobbs, 2017; Warschauer, 2010;). They enhance their creative skills by generating solutions during conflicts in writing and group interactions (Griffin, et al., 2012). Effective creativity skills in online collaborative writing necessitate strong communication, teamwork, flexibility, and adaptability to overcome challenges and generate high-quality collaborative written content.

In summary, considering both theoretical and pedagogical aspects, collaborative writing activities significantly enhance language learners' skills in writing, collaboration, communication, critical thinking, and creativity. To successfully integrate this valuable approach into the writing class and maximize its benefits, this study focuses on students' perspectives on these essential skills when participating in collaborative writing activities.

6. Related Research on Collaborative Writing

Several scholars have explored the impact of collaborative writing on English as a Foreign Language (EFL) students, with some conducting content analyses of its effect on their writing skills and perception. Other researchers have investigated the use of online learning tools in collaborative writing and the strategies employed during collaborative writing activities.

Anggraini, Rozimela, and Anwar (2020) conducted a mixed-method study to investigate the impact of collaborative writing strategy on EFL learners' writing skills and their perception of the strategy. The study involved 80 students from a public senior high school in West Sumatra, Indonesia, who were randomly assigned to experimental and control groups. The experimental group received instruction on collaborative writing, while the control group received traditional teaching. To assess writing skills and student perceptions, data were collected through writing tests and interviews. The study findings indicate that the collaborative writing strategy helped students generate ideas and activate background knowledge and that students responded positively to the approach.

From the investigation by Anggraini, Rozimela, and Anwar (2020), The researcher intended to utilize a mixed methods approach for this study. The study concentrated on third-year English major students enrolled in the Academic Writing (146311) course within the School of Liberal Arts at the University of Phayao during the 2024 academic year. Moreover, students engaged in a collaborative writing activity model to compose argumentative writings. This approach incorporates scoring criteria designed to assess each written piece. By comparing scores across various writings, students can pinpoint weaknesses in their writing, enabling them to make essential improvements for greater effectiveness in future writing tasks. Additionally, pre-tests and post-tests were conducted to measure and compare the developmental progress in the students' ability to write argumentative writings.

Rahayu (2021) conducted research on Indonesian EFL learners to investigate the impact of collaborative writing and blog-based online learning on writing skills and motivation. The study utilized a quasi-experimental design and involved 61 senior high school students who were divided into experimental and control groups.

The treatment included seven sessions, including pre- and post-tests, and the results indicated that the combination of collaborative writing and blog-based online learning was effective in improving writing skills, regardless of the students' motivation levels. This study implies that teachers need not worry about differences in motivation levels among students as long as they are motivated to use the language.

From Rahayu's work on collaborative writing and blog-based online learning for writing skills (2021), the researcher intends to adapt and employ a similar approach in this study. The study primarily focused on implementing online collaborative writing activities as the key methodology aimed at significantly enhancing argumentative writing skills.

Kitjaroonchai and Suppasetseree (2021) conducted a case study to investigate the collaborative writing and small group interaction patterns of six ASEAN EFL university students using Google Docs. The study included two writing tasks, a descriptive essay and an argumentative essay, and collected data through pre- and post-test writing, pre-and post-task questionnaires, students' essays, reflections, observations, and semi-structured interviews. The researchers used DocuViz to visualize the students' collaborative writing contributions and styles. The results indicated that Group A had a cooperative revision style, while Group B adopted a main writer style. Nevertheless, both groups used similar writing change functions and language functions, such as suggesting, agreeing, and stating, during the revision process.

To tackle the deficiency pinpointed by Kitjaroonchai and Suppasetseree (2021), the researcher employed online collaborative learning, engaging small groups consisting of four university students for argumentative writing through Microsoft Teams. In this study, students were organized into heterogeneous groups based on their proficiency levels: advanced, intermediate, and novice. Each group, consisting of four members, included individuals from all proficiency levels, working together to create four argumentative writings collectively. The students were empowered with the freedom to autonomously choose their group members, which enriched the learning atmosphere while implementing online collaborative writing techniques.

Students are grouped into fours for collaborative writing due to the benefits highlighted by several researchers (Ferris, 2003; Fung, 2006; Richards & Renandya, 2002). This approach encourages diverse input and multiple perspectives, leveraging each member's unique ideas. With four members, tasks are distributed efficiently, fostering shared responsibilities and alleviating individual pressures. Additionally, a group of four promotes increased interaction and engagement, facilitating smoother discussions and decision-making (Khodabakhshzadeh & Samadi, 2017). Ultimately, this structure ensures balanced participation, granting everyone the chance to actively contribute to the collaborative writing process.

Utilizing the online platform Microsoft Teams for collaboration allows real-time engagement among participants, fostering interaction regardless of their physical locations. The platform provides various tools conducive to effectively accomplishing argumentative writing tasks. Within this framework, students collaborate within groups to fulfill online argumentative writing assignments via Microsoft Teams, following the collaborative writing activities model for successful outcomes.

Nguyen and Phuong (2021) researched the effects of collaborative writing on the paragraph writing skills of EFL students in Vietnam, as well as their attitudes towards using this approach to learn English writing. Their mixed-methods study involved 80 tenth-grade EFL students in a high school environment and lasted for 15 weeks. The research tools used included writing tests, questionnaires, and semi-structured interviews. The results indicated that collaborative writing had a positive impact on the students' paragraph writing skills and they had a highly positive attitude towards using this approach to learn English writing. The study suggests that collaborative writing can be an effective teaching tool for writing in high schools in the Mekong Delta region of Vietnam.

To bridge the gap of Nguyen and Phuong (2021), this study delved into exploring the effects of online collaborative learning for argumentative writing through Microsoft Teams of EFL students in Thailand. The researcher aims to employ an experimental approach, involving a study with 32 university students spanning six weeks. The research incorporates various tools such as lesson plans, pre-tests, post-tests, online argumentative writing tasks, group assessment checklists, a Microsoft Teams

instructional guide, video recordings, semi-structured interviews, and questionnaires as research instruments.

Abbas and Herdi (2018) conducted classroom action research to address the challenges encountered by students when writing argumentative essays using a collaborative writing strategy. The study involved 23 students from the English Education Department at the University of Lancang Kuning Pekanbaru, Indonesia. The researchers used various instruments such as writing tests, field notes, observation checklists, and interviews to collect data. After the intervention, the students' scores significantly improved, with a mean score of 74.3 on the cycle test compared to 54.9 on the mid-term test. Furthermore, the students demonstrated active participation, creativity, and engagement during the learning process. The study suggests that collaborative writing strategies can effectively overcome the difficulties faced by students when writing argumentative essays.

In order to address the shortfall highlighted by Abbas and Herdi (2018), the researcher delved into investigating the effects of online collaborative writing on argumentative writing and exploring the students' perspectives toward online collaborative writing through Microsoft Teams. The goals encompassed studying students' proficiency in argumentative writing and collecting insights into their experiences and perceptions regarding collaborative writing. The overarching objective was to utilize these findings to improve instructional approaches. The study involved 32 third-year English major students from the School of Liberal Arts, University of Phayao, Thailand. The researchers employed various research instruments including lesson plans, pre-tests, post-tests, online argumentative writing tasks, group assessment checklists, a Microsoft Teams instructional guide, video recordings, semi-structured interviews, and questionnaires.

In conclusion, the relevant research on argumentative writing by Abbas and Herdi, 2018; Anggraini, Rozimela, and Anwar, 2020; Kitjaroonchai and Suppasetsee, 2021; Nguyen and Phuong, 2021; Rahayu, 2021 can serve as valuable resources to either adapt research data or address gaps identified in this study as follows;

This study aimed to explore the effects of online collaborative argumentative writing and investigate the perspectives of EFL university students

regarding online collaborative writing through Microsoft Teams. The researchers used lesson plans, pre-test & post-test, online argumentative writing tasks, group assessment checklist, Microsoft Teams instructional guide, video recordings, semi-structured interview, and questionnaire as research instruments. In online collaborative writing sessions, students organize into groups of four, collaborating to fulfill their online argumentative writing tasks using Microsoft Teams. The researcher employed The Test of Written English (TWE) Scoring Guide in 2014 (Educational Testing Service, 2014) as the assessment criteria for evaluating the writing. The pre-test and post-test scores were compared to evaluate individual writing abilities and monitor the writing progress of advanced, intermediate, and novice learners.

Moreover, the scores from the online argumentative writing assignments were utilized to compare the writing achievements across each group's work. For a comprehensive understanding, the researcher conducted semi-structured interviews with randomly chosen students to delve deeper into their experiences with online collaborative writing. Additionally, the study utilized video recordings and a questionnaire to glean insights into students' perspectives regarding practical skills in online collaborative writing activities.

Previous research provides valuable insights into enhancing collaborative argumentative writing. Presently, educators and researchers are increasingly intrigued by enhancing collaborative writing instruction for university students. The advancement of technology has brought about positive effects on writing and language development, as it has facilitated collaboration and offered learners the chance to improve their skills at their own pace. With the advent of technology tools, collaboration among individuals has been made possible on a larger scale than previously feasible. It would be advantageous for EFL instructors in Thai universities to introduce online collaborative writing activities that can lead to more effective instruction and, as a result, improve their students' argumentative writing abilities. These could be exemplified by online collaborative writing with blog-based, Google Docs or Microsoft Teams which can be illustrated in the following sections. The following section will explore the benefits of technologies and their prospective applications in advancing online collaborative writing instruction.

Online Collaborative Writing Activities

Over the past few years, technology has drastically transformed education, particularly in English language teaching. As a result, integrating technology into writing instruction has become crucial in EFL teaching (Barrot, 2021; Cancino & Panes, 2021; Lin, et al., 2022; Loncar, et al., 2021). Technology and the Internet's growing utilization have significantly impacted language education, including EFL instruction (Hung, 2021). The utilization of digital resources and platforms, such as wikis, blogs, podcasts, and Google Docs, has surged in popularity as a method of establishing dynamic and cooperative writing atmospheres for EFL learners (Ebadi & Rahimi, 2017; Fathi, et al., 2021; Hafner & Ho, 2020; Hung, et al., 2022; Reinhardt, 2019; Saricaoglu, 2019; Xu, et al., 2019). These sophisticated tools offer students a captivating environment to enhance their English skills, promoting active learning, collaboration, and the development of essential social competencies (Barrot, 2021; Liu, et al., 2023; Ravid, et al., 2008; Xu, et al., 2019). The concept of employing technology for online collaborative writing instruction is gaining appeal among EFL educators due to its ability to address the constraints of time and space in traditional learning environments (Dobao, 2012; Rahimi & Fathi, 2022; Soltanpour, et al., 2018; Xu, 2021; Yeh, 2021).

Studies have demonstrated that interaction patterns in web-based collaborative writing positively influence the overall quality of the written texts (Elola & Oskoz, 2010). Consequently, there is an increased emphasis on language instructors becoming proficient with new digital tools for academic purposes. This proficiency allows them to create diverse opportunities for language learners to actively practice and improve their L2 writing skills (Zheng & Warschauer, 2017). It is argued that L2 writing instructors should adopt a multimodal approach, utilizing various modes and social digital technologies, to help learners enhance their writing quality.

Nevertheless, the method of teaching writing through online collaborative instruction has become increasingly popular in recent years (Abrams, 2019; Cho, 2017; Elabdali & Arnold, 2020; Storch, 2021; Weisberger, et al., 2021; Yeh, 2021). In comparison to traditional face-to-face collaborative writing instruction, it presents various advantages. Online instruction provides learners the opportunity to communicate and collaborate with peers in real time, regardless of their geographical location,

enhancing the collaborative writing experience by receiving feedback from a broader audience (Hsu, 2020). Online collaborative writing instruction provides learners with the opportunity to access a wide range of online writing resources (Abrams, 2019). Learners gain access to resources such as online dictionaries, grammar checkers, and online writing communities to support their writing development. These resources empower learners to enhance their writing skills and address common writing challenges (Hafner & Ho, 2020; Reinhardt, 2019).

1. Computer-Mediated Collaborative Writing

This section examines the concept of Computer-mediated Collaborative Writing (CMCW) to identify current research trends and paradigms in the field. Several studies (Ardiasih, et al., 2019; Elabdali & Arnold, 2020; Krishnan, et al., 2018; Liu, et al., 2018; Storch, 2021; Weisberger, et al., 2021; Yanguas, 2020; Yim, et al., 2017) suggest that new technologies and web 2.0 developments have made it possible to support both individual and online collaborative writing (OCW) in significant ways. The utilization of web-based tools for OCW has been developed and widely adopted in education, as reported by various studies (Alghasab, et al., 2019; Nykopp, et al., 2019; Vetter, et al., 2019; Williams & Beam, 2019). The emergence of computer-mediated forms of communication has enabled individuals of all ages to freely exchange messages and information across various fields (Teng, 2021; Thiemann, et al., 2019). With the use of Computer-mediated Collaborative (CMC) tools, writers can now easily collaborate, write together, and share their work more efficiently than ever before, which enables writers from diverse backgrounds to obtain feedback and improve their writing skills more effectively (Li & Storch, 2017).

In this study, the online platform Microsoft Teams was employed in conjunction with collaborative writing, which enhanced the effectiveness of writing instruction. Online collaborative writing helps develop learners in several areas: communication skills and teamwork, critical thinking and problem-solving abilities, increased motivation and responsibility in learning, as well as digital literacy. Moreover, it fosters a positive attitude toward collaborative learning.

Microsoft Teams can be used by educators to design virtual classes that facilitate communication and collaboration between teachers and students, to improve

learning outcomes. Microsoft Teams makes it easy for teachers to delegate tasks and check students' work with just a few clicks. The digital revolution in education strives to achieve an environmentally sustainable future by reducing reliance on paper-based resources.

MS Teams encompasses essential functionalities such as Real-time Chat & Video Calls, students can chat and make video calls in real time, allowing for convenient and immediate communication and collaboration. File Sharing, students can easily send and receive files, making project management more efficient. They can also collaborate on Word, PowerPoint, and Excel documents simultaneously in real time, seeing each other's edits and providing comments directly within the files, Whiteboard, Microsoft Teams includes the whiteboard tool, which is a standout feature especially suited for collaborative learning. Students can write, draw, add notes, or post ideas just like on a physical whiteboard. It can be accessed both through Microsoft Teams and the Whiteboard app. This tool is ideal for brainstorming sessions, outlining ideas, planning, and organizing thoughts together, particularly useful in developing writing skills. As a result, learning and group work become more seamless and convenient.

Previous studies have explored the use of computer-mediated communication (CMC) technologies to facilitate online collaboration, focusing on different topics.

Kioumarsji, et al. (2018) conducted research specifically focusing on wikis and online collaborative writing within a wiki-based platform. The goal of this study was to investigate the impact of wikis and wiki-based process writing activities on the L2 writing proficiency of intermediate Iranian EFL learners. The data collection tools consist of sources for L2 writing practice, the language proficiency test and the pre- and posttests of L2 writing ability. The researcher divided 16 students into two groups. One group utilized Wikispaces for collaborative writing and online process writing activities, while the other engaged in traditional collaborative writing without wikis. Both groups followed the process writing approach, but the Wikispaces group exhibited significantly greater improvement in their writing abilities. The results highlighted that utilizing wikis and platforms like Wikispaces in online collaborative writing not

only enhanced writing skills but also fostered motivation, autonomy, and scaffolded learning among learners.

Cho (2017) studied synchronous web-based collaborative writing among second-language writers, specifically focusing on the factors that shape interaction dynamics. Within this context, the study involved three Asian learners of English engaged in collaborative writing using Google Docs with text-chat (Task 1) and voice-chat (Task 2) within a debate club framework. Diverse data sources, including a survey questionnaire and various analyses of debate summaries, screen recordings, and interviews, were employed. By applying Storch's dyadic interaction model, Task 1 highlighted a facilitator/participant pattern, contrasting with a more collaborative approach observed in Task 2. Through activity theory, the research unveiled participants' goals and actions guiding their collaborative writing process. The study identified key factors such as communication modes, task representations, role perceptions, and feedback reception as pivotal influencers on collaboration quality. These findings provide valuable insights into the nuances of collaborative performance and offer guidance for designing effective web-based collaborative writing activities tailored for L2 classrooms.

Moonma (2021) conducted a study comparing collaborative argumentative writing activities in an EFL classroom. The research focused on contrasting face-to-face collaborative writing with online collaborative writing utilizing Google Docs. The objective of this study was to analyze the errors present in online collaborative argumentative writing via Google Docs and compare them with face-to-face collaborative argumentative writing. Additionally, it sought to gauge the satisfaction levels of students regarding both modes of collaboration. A purposive sampling method was employed to select 32 Thai second-year English major students. The study utilized a record form based on error types outlined in Norrish's (1983) work, along with a questionnaire and a semi-structured interview as data collection instruments. The data showed 346 errors in the online mode and 389 errors in the face-to-face mode. Students reported higher satisfaction with Google Docs ($X[\text{bar}] = 3.50$) than face-to-face ($X[\text{bar}] = 3.45$), praising its convenience and usefulness for writing anytime, anywhere. The study

found that students co-produced better texts online, possibly due to the time independence and features of Google Docs that facilitated their writing process.

Ghada and Nuwar (2023) investigate the realm of online writing activities aimed at enhancing argumentative writing. Their research centered on comparing the effectiveness of two peer review methods, namely face-to-face (FTFPR) and online (OLPR), in improving argumentative writing skills among university-level EFL learners. The experimental group (OLPR) consisted of 74 participants, while the control group (FTFPR) had 48 participants. Both groups received training in their respective peer review methods and wrote two argumentative essays. The study utilized several data collection tools, including drafts of essay 1 and essay 2, grading employing an argumentative writing rubric adapted from the 2015 Program for Teaching East Asia at the University of Colorado, a peer review rubric, and a peer editing form created by the researchers. The study utilized these tools to assess the impact of different feedback methods (online vs. face-to-face peer review) on the quality and improvement of argumentative synthesis essays. The results showed that the OLPR group outperformed the FTFPR group in improving argumentative writing for EFL learners. The qualitative analysis revealed that OLPR provided more systematic feedback, focusing on content, organization, language, strengths, and weaknesses. Instructors are encouraged to use OLPR in argumentative writing classes, emphasizing the importance of shifting feedback control from teacher to student.

Cho (2017); Ghada and Nuwar (2023); Kioumars, et al. (2018), and Moonma (2021) investigated online collaborative writing in their respective research studies. The results showed that employing online platforms in online collaborative writing significantly enhances students' writing skills. Part of this improvement stems from the collaborative writing approach, where students plan, brainstorm, analyze, share ideas, and assist each other in writing until an effective piece is created. Additionally, utilizing online tools in teaching aids in furthering students' development and enables them to gather deeper insights. In conclusion, the aforementioned research can be further developed and expanded upon in this study.

This study aimed to examine the effects of online collaborative argumentative writing and to explore the perspectives of EFL university students

regarding online collaborative writing using Microsoft Teams. Twenty third-year English major students at the University of Phayao participated, categorized into advanced, intermediate, and novice learner groups. Split into 5 groups, they collaborated on four argumentative essays, choosing their members for an enriched learning environment. Various tools such as pre/post-tests, Microsoft Teams, and The Test of Written English (TWE) Scoring Guide in 2014 (Educational Testing Service, 2014) evaluated writing proficiency. Scores and semi-structured interviews tracked progress and experiences, while video recordings and a questionnaire provided insights into students' practical skills perceptions in online collaborative writing.

CMC tools have become an essential means of connecting people both within and beyond communities. Hyland (2016) argues that the emergence and adoption of CMC technologies have influenced the ways in which people compose texts and create various genres for communicating with their intended audience. With the increasing use of web 2.0 technologies and social software in education, it is not unexpected to observe shifts in writers' writing practices in order to facilitate greater collaboration, which research has shown can lead to increased productivity (Bhowmik, et al., 2018; Caplan & Farling, 2017; Dobao, 2012, 2020; Elola, 2010; Li, 2013; Liu, et al., 2018; McDonough & De Vleeschauwer, 2019; Wigglesworth & Storch, 2009). Active collaboration has been shown to bring cognitive advantages and development (Alghasab, et al., 2019; Hsu, 2020; Thiemann, et al., 2019)

2. Sociocultural Learning Theory in Online Collaborative Learning

As contemporary educational discourse places greater focus on "student-centered education," educators worldwide are increasingly acknowledging that sociocultural pedagogy serves as a key catalyst in helping learners uncover truly meaningful learning experiences. The process of learning and the acquisition of knowledge can manifest through two primary channels: individual knowledge construction and social interaction among learners (Alghasab, et al., 2019; Krahenbuhl, 2016). Vygotsky's sociocultural theory has become a prevalent theoretical framework for the teaching of EFL academic writing (Alghasab, et al., 2019; Chen, 2020; McKinley, 2015), Writing cases for an integrated curriculum (Doubleday, et al., 2015), employing collective scaffolding in wiki-based small group writing (Li, 2013), fostering small group

interaction in wiki-based collaborative writing (Li, 2014; Li & Kim, 2016), encouraging peer interaction and collaborative writing (Bhowmik, et al., 2018). These are some examples of studies in utilized sociocultural theory to promote writing proficiency among L2 learners through collaborative efforts facilitated by computer-supported collaborative learning.

The concept of sociocultural perspective strongly advocates for collaborative learning. In other words, collaborative learning is firmly based on the principles of sociocultural learning theory, which emphasizes that the learning process should be intertwined with meaningful social interactions, where language serves as a means for mutual engagement (Abrams, 2019; Jeong, 2016). In this way, learners leverage opportunities to engage and exchange ideas with others in discussions, contributing to the construction of knowledge. Language, as a result, assumes a crucial role in interactions because it enables learners to strategize, coordinate, solve problems, and collaboratively shape ideas, ultimately facilitating the construction of knowledge (Chen, 2020; Li & Kim, 2016; Li & Zhu, 2017). Proper and significant social interactions result in valuable learning and the collective construction of knowledge. This is because collaborative interactions and shared engagement in activity can activate the Zone of Proximal Development (ZPD) when sufficient guidance and support are offered by more proficient members (Jeong, 2016; Maxson, et al., 2019). Hence, collaborative learning resonates with its potential benefits in various ways. For instance, collaborative writing often leads to more accurate language usage compared to individual writing, and texts co-authored by participants in collaborative writing classes typically exhibit greater linguistic precision than those produced by a single writer (Dobao, 2014; Limbu & Markauskaite, 2015; Talib & Cheung, 2017; Wigglesworth & Storch, 2009; Woodrich & Fan, 2017).

3. Microsoft Teams as an Online Learning Platform for Education Institutions

The use of internet-based computer systems is on the rise, providing individuals with enhanced accessibility. The Internet serves as a public network that enables the exchange of information and facilitates connections between people. Its presence is imperative in facilitating the unrestricted flow of information and fostering

communication. One of the advantages of the internet is that it can be used for distance learning or online learning. This can be a great way to learn new things without having to be in a traditional classroom setting.

Anwar (2020) argues that online learning can be an effective way to learn without meeting in person or another location. With the right tools and resources, learning can happen online. Amidst this ongoing pandemic, online learning has emerged as a widely embraced solution to address educational challenges. Online learning refers to the utilization of electronic services, employing the Internet as a tool for facilitating learning.

As well as, Kusmana (2011) explains that online learning serves as an effective tool in bridging the gaps between educators and learners, especially when it comes to the challenges associated with space and time. It enables educators and learners to engage in the learning process without being bound by the restrictions imposed by physical distance or specific timeframes.

Educational institutions are currently witnessing a prevailing inclination toward the development of a Learning Management System (LMS) that caters to the entire institution's needs. A prospective solution that holds promise is Microsoft Teams (MS Teams), which equips teachers and school leaders with the necessary digital tools and resources for achieving success. MS Teams functions as a centralized platform for seamless communication, content dissemination, and integration of various applications. It streamlines administrative workflows and empowers teachers to establish personalized learning environments to meet the unique requirements of their students. MS Teams provides a suite of tools that can facilitate more thoughtful and effective collaboration among teachers, students, and staff. These tools can help create more personalized learning experiences, connect educators with Professional Learning Communities (PLC), and streamline communication between staff members. MS Teams facilitates not only collaboration and communication within the classroom but also fosters a supportive environment for teacher-to-teacher collaboration. One potential benefit of using technology in the classroom is that it can help save teachers time on administrative tasks. Additionally, by teaching students future-ready skills, technology can help prepare them for success in the real world.

4. The Definition of Microsoft Teams

Amidst the shift to remote learning necessitated by the pandemic, educators must devise diverse strategies aimed at maintaining student engagement, as the online learning model can potentially lack stimulation. Throughout the learning journey, three overarching objectives must always be pursued: fostering emotional, cognitive, and physical development (Hoque, 2016). The online learning experience should be designed to effectively attain these same educational goals as traditional learning approaches.

The emergence of information and communication technology has had a profound impact on education. Technology can play a role in nearly all aspects of education management, including by making use of applications like Microsoft Teams (MS Teams) from Microsoft Office 365. MS Teams is a software application that enables team members to easily collaborate and communicate with each other, regardless of location (Eservice, 2020). Users can modify their notes or other applications by utilizing the conversation or chat function to engage with their peers. Moreover, they can conveniently edit documents in real-time, eliminating the need to open separate applications. The objective behind this emphasis is to encourage the integration of MS Teams applications, ensuring that all learning endeavors are consolidated within a single platform.

5. Microsoft Teams as a means of online teaching facility

The COVID-19 pandemic has brought to the forefront the significance of platforms that enable remote work and distance education solutions. As the market demand for these platforms continues to escalate, the significance of integrated systems like Microsoft Teams (MS Teams), which encompass both a robust learning management system and live lesson applications, becomes increasingly prominent. Among the widely acclaimed productivity platforms today, MS Teams software stands out as a prominent choice. This software presents users with extensive features and tools designed to enhance collaboration and teamwork. MS Teams software enables virtual meetings and collaborations, eliminating the need for physical presence in the office. This aspect proves advantageous in multiple respects, such as minimizing travel time and cost. With its comprehensive work platform, MS Teams encompasses

essential functionalities like meeting scheduling, group conferencing, seamless file sharing, and seamless integration with office tools.

In a significant acquisition, Microsoft acquired the renowned teleconferencing software Skype. Furthermore, through the integration of Skype into the MS Teams platform, which took place in November 2016, Microsoft enhanced Teams with the capability to conduct online meetings. With heightened privacy and security measures, the MS Teams platform now supports seamless integration with external services, not limited to Microsoft offerings. This platform has gained recognition for its advantages to Office 365 subscribers and educational institutions and its widespread popularity among users.

MS Teams is an interactive platform centered on chat-based communication, meticulously crafted to promote seamless collaboration within work groups. This powerful platform encompasses a wide array of features, including team chats, private messaging, voice calls, virtual meetings, file sharing and whiteboard. Recognized for its versatility, MS Teams software proves to be an ideal choice for distance education endeavors. By establishing virtual classrooms and integrating a diverse range of learning management system tools, educators can effortlessly harness the platform's capabilities to facilitate engaging and effective remote learning experiences. MS Teams makes it easy to deliver quality education no matter the location. The latest updates to Microsoft Teams software have made it almost indistinguishable from applications designed specifically for virtual classrooms. The preservation of stringent security measures is of the highest importance for MS Teams software and cannot be compromised (Henderson, et al., 2020; Ilag, 2020; McVey, et al., 2019; Rojabi, 2020; Wea & Kuki, 2021; Winqvist, 2022).

An additional benefit of utilizing MS Teams is its seamless integration with the complete suite of Office 365 applications and cloud services. MS Teams serves as a fundamental component within the Office 365 suite, which encompasses a diverse range of software offerings, including familiar applications such as Microsoft Word and Microsoft Forms. For example, the collaborative nature of MS Teams allows all team members to edit a shared Microsoft Word file simultaneously, offering a significant advantage in fostering effective teamwork and productivity. For instance, in the

context of producing an academic paper, team members can work concurrently on different sections such as the introduction, method, and findings. Through video conferencing, the group can engage in fruitful discussions about the article's conclusion and collectively make necessary edits. These tools prove to be highly effective in supporting distance education lessons and facilitating seamless collaboration among learners.

MS Teams can be used for free, but some features are restricted in the free version. While a free Microsoft Teams account does have some limitations, such as a 45-minute maximum for live meetings and a 100-member maximum for teams, it also provides 2GB of personal storage and 10GB of shared storage. Institutions that necessitate additional functionalities ought to consider procuring a license.

6. The Basic Features of Microsoft Teams

Creating a Team: Microsoft Teams provides a convenient platform for collaborating on projects and getting work done. In a course or study group setting, teams are established and fellow students or colleagues are invited to join as members. MS Teams serves as the platform through which team members engage in communication and collaboration with one another.

Chat: The Microsoft Teams app emphasizes chat functionality. Users can communicate via private or group chat, using GIFs, stickers, emojis, and text. The chat history of public channels in MS Teams is preserved, allowing users to utilize the channel as a reference for meeting durations, track modifications, or facilitate the onboarding process for new team members.

Online meetings and virtual learning: When it comes to teachers collaborating with students, Microsoft Teams emerges as a valuable tool. By establishing groups within the platform, educators can effectively foster class engagement and facilitate seamless knowledge sharing.

Share data and files: While setting up a channel in Microsoft Teams, it is crucial to designate an administrator who will oversee its management. This channel serves as a platform for the entire team to engage in discussions on specific subjects and can subsequently be utilized for file sharing pertaining to those topics.

Whiteboard: Microsoft Whiteboard in Teams enables real-time, seamless collaboration within meetings by providing a shared, interactive space without the need to switch apps. All participants can view and edit the board simultaneously across devices, promoting co-creation of ideas. Users can also select and share existing whiteboards, allowing for pre-meeting preparation and post-meeting access.

Collaboration and sharing learning content: Every group has the potential to function as a centralized hub for storing and organizing all discussions, files, and collaborative materials.

Calendar: An essential functionality offered by MS Teams is its Calendar application, which proves valuable in assisting users with time management and scheduling. Notifications about upcoming meetings and events can be found on the calendar. This is quite useful for scheduling purposes, as it allows you to see the daily, weekly or monthly work plans. In addition, live event planning can be facilitated by utilizing a calendar.

Live events: Microsoft Teams empowers users to scale up their conferences. Through the Microsoft Teams app, users have the capability to host live meetings, large-scale conferences, webinars, company-wide events, and presentations with a staggering attendance capacity of up to 10,000 participants, both internal and external to the organization. Users can seamlessly deliver live events by sharing content from their desktop or webcam.

Full integration with office 365: With Microsoft Teams, maintaining seamless connectivity to the familiar Office 365 suite becomes effortless. This integration ensures easy access to essential applications like Word, Excel, PowerPoint, and OneNote, while providing each user with a substantial 1 TB of cloud storage capacity through Office OneDrive. Moreover, the integration between Microsoft Teams and Office 365 extends to messaging within the Office 365 window itself. This eliminates the need for constant app-switching and allows users to remain within the Microsoft Teams interface. The collaborative editing capabilities enable real-time monitoring of all modifications, facilitating faster and more efficient decision-making processes.

Security and Mobile Applications: MS Teams is compatible with a range of devices, including mobile phones, tablets, and computers (both PC and Mac).

There are also specific applications available for each platform. Specific Microsoft Teams applications have been designed for various operating systems, including Android, iOS, Windows, and MacOS. Particularly, smartphone apps are equipped with instant notification capabilities to ensure continuous and seamless communication among team members. Furthermore, certain features of Microsoft Teams are compatible with specific internet browsers. The full range of features, including live meetings, can be utilized when using the Edge and Chrome browsers.

7. Microsoft Teams Platform

Teams

Microsoft Teams serves as an impactful instrument for fostering and sustaining efficient team dynamics. The initial stage involves creating a team within the platform. In the case of educational institutions that have joined Microsoft Teams, selecting the "classroom" option from the provided choices, as depicted in Figure 4, proves to be the most fitting selection for establishing virtual classrooms.

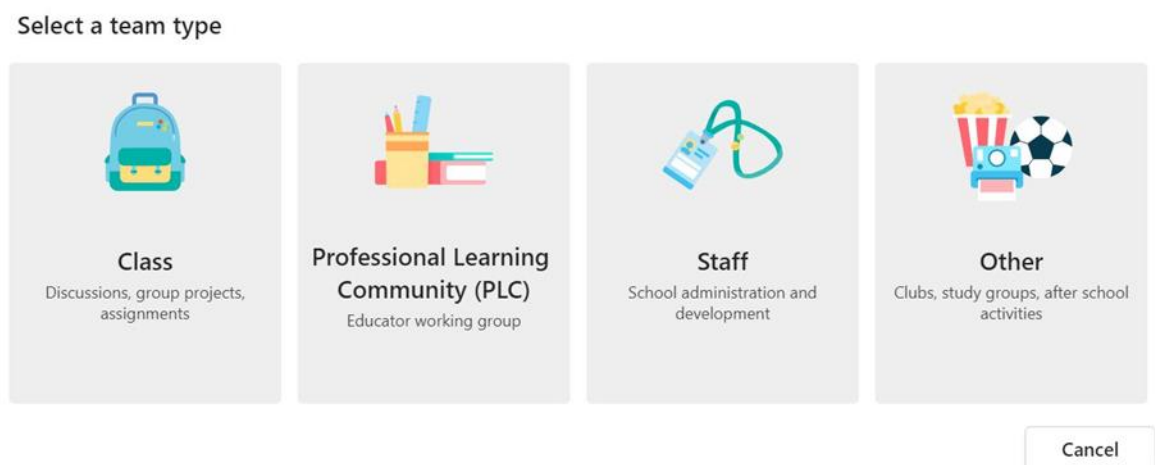


Figure 4 Team Types

In the realm of classes, instructors typically assume ownership and management responsibilities, encompassing tasks such as overseeing classroom administration, regulating chat functionalities, and defining sharing and student permissions. Within this team structure, students are granted restricted permissions. The team's crucial components include files, class notebooks, assignments, exams,

and grades (achievement scores), all of which serve as essential tools within this context. Instructors often utilize the Professional Learning Community (PLC) as collaborative teams to foster collective engagement. Within this team structure, all participants possess equal read and write permissions, promoting a balanced and inclusive environment. The PLC Notepad plays a pivotal role as an indispensable tool for staff teams, comprising administrators and staff members working in unison. The administrator assumes responsibility for team management, including the ability to add or remove members. In addition, the Staff Notebook serves as a crucial resource for teams aiming to coordinate their activities effectively. Another team type involves instructors and students collaborating on diverse tasks, with all team members having identical read-and-write permissions, unless modified by the team owner. While specific applications may be preloaded based on team type, adding additional applications at a later stage is also feasible. Notably, various tools, such as files, chat, meetings, recordings, and sharing, can be utilized across all team types. However, this particular study concentrates exclusively on Class teams.

Once the class is established, the final steps involve configuring the class settings and enrolling students, as depicted in Figure 5. To add students to the class, the Manage Team option is selected, allowing for individual student inclusion under the Members section. In the case of utilizing a corporate account, members associated with the institution can be easily located by typing their names in the search field. Subsequently, they can be added to the team by selecting their names from the presented list.

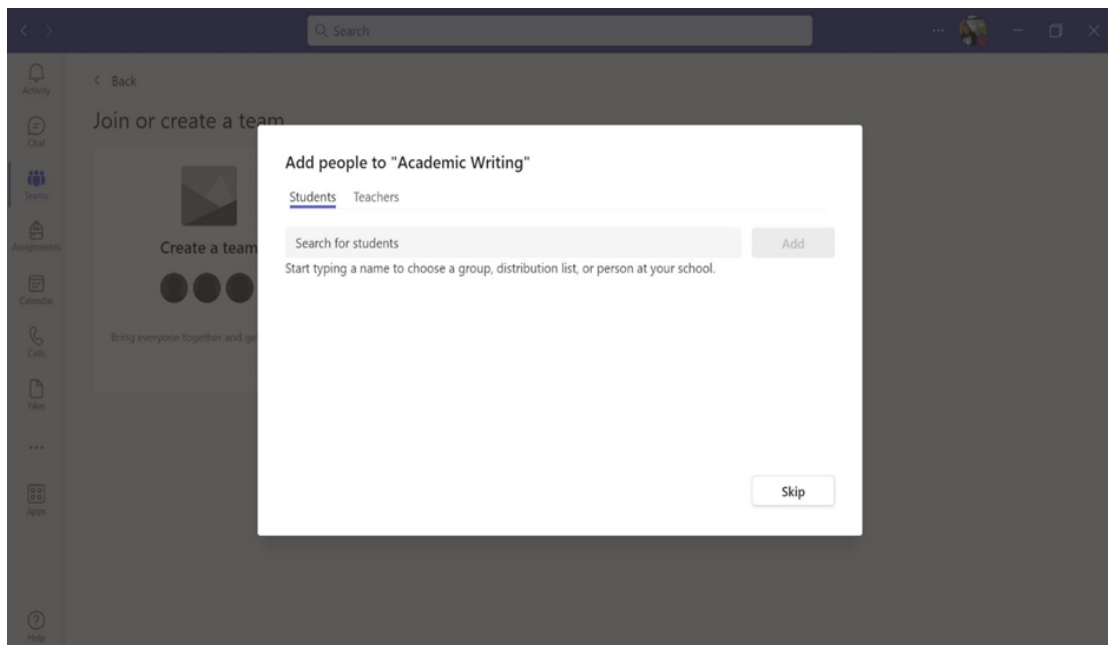


Figure 5 Add the students to the class

To incorporate individuals from external organizations, it is necessary to input their complete email addresses. External members can be added to the team as guest accounts. In the event that the email address does not have an associated Microsoft Account, the user will be prompted to create one initially. Moreover, the Corporate Administrator holds the authority to add guest accounts through the Microsoft Teams admin panel.

An alternative method for adding students to the class involves generating a team code within the Settings section, as illustrated in Figure 6. This code is then shared with the students, enabling them to enroll in the class by inputting the team code. This approach is particularly useful for classes with a substantial number of students. It is important to note that the team code functionality cannot be utilized with guest accounts.

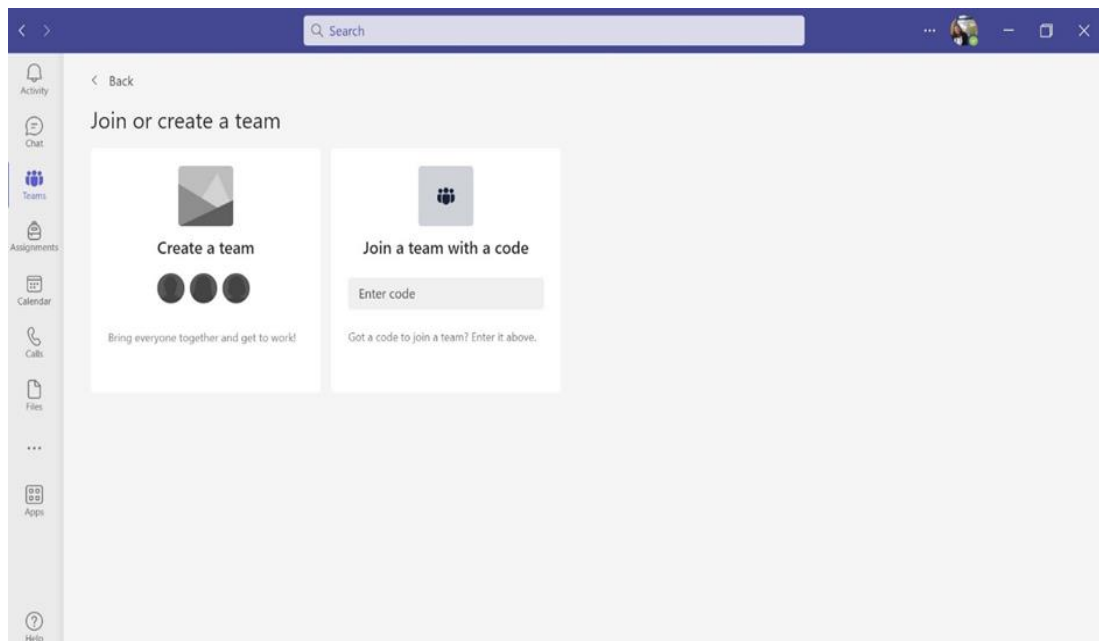


Figure 6 Add the students to the class by a team code

Upon the initial creation of a team, an automatically generated channel called General is established (Figure 7). While this default channel cannot be removed, additional channels can be created to cater to specific team requirements. For instance, each project team can have its dedicated channel, facilitating effective communication among team members. Within these channels, individuals can freely exchange ideas, address concerns, and conduct team meetings, fostering seamless collaboration within the team. The tabs located at the upper section of the screen are unique to each channel, enabling the placement of diverse application tabs within different channels. The collaborative atmosphere within the channels can be likened to the news streaming format seen on platforms like Twitter. This format allows students to share new posts and engage in discussions with their peers. Within these channels, students have the flexibility to share various forms of content, including text, files, videos, images, and audio recordings.

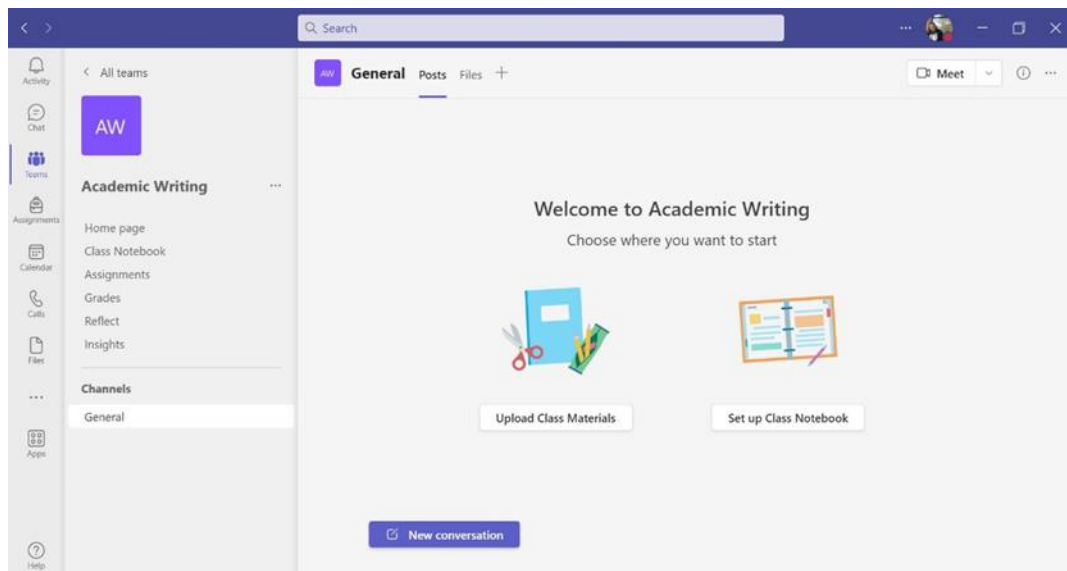


Figure 7 General Channel

Holding a Meeting / Virtual Classroom

One notable advantage of Microsoft Teams is its capacity to facilitate live meetings. These meetings can be seen as a form of content sharing within channels. While it is feasible to arrange meetings separately from the team and channel contexts, live lessons within classroom-based teams are typically conducted through meetings held on online channels. In essence, conducting virtual classrooms or live lessons in the context of classroom-type teams can also be referred to as hosting online meetings. The use of video conferencing systems during meetings allows instructors and students to see and talk to each other in real time. With the opening of cameras and microphones, enhances communication and makes the meeting more efficient. When considering their resemblance to a conventional classroom environment, live meetings can be seen as a form of distance learning system. The significant level of interaction and the ability to communicate verbally among participants have established meetings as a crucial component of distance education systems. As students have become more isolated, the importance of live meetings has increased. This is especially true during the pandemic period, when distance education has become more urgent. During this period, there is a growing need for

online live communication among students. This is especially true for younger students who have less developed self-learning skills.

Although starting meetings instantly using the meeting button on channels is possible, it may be more favorable to plan the meetings on the calendar instead. This allows for greater organization and forethought. This will ensure that students have the meeting time added to their calendars in advance, and that the time is clear to all involved. A fresh meeting can be scheduled using the calendar feature or the Schedule Meeting button (Figure 8).

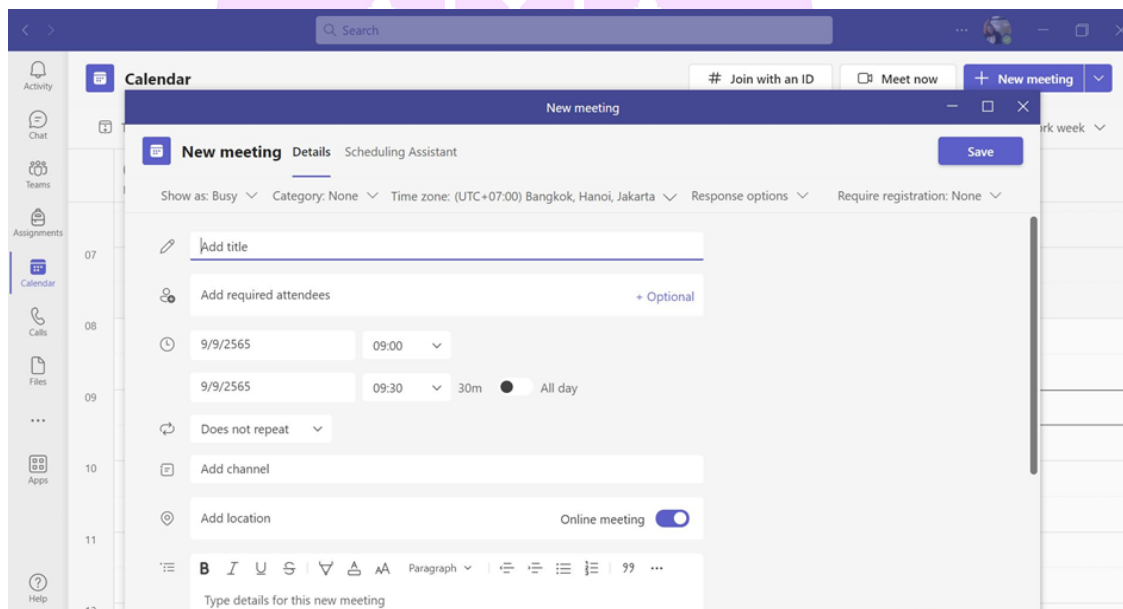


Figure 8 Planning a Meeting

When scheduling a meeting for a specific channel, the corresponding channel will be marked as "selected" on the meeting planning page. This ensures that students with access to that channel are notified about the meeting.

It is crucial to determine the presenter for the meeting. By default, all participants in the meeting are granted presenter status, but this can be modified by your corporate administrator. In classroom settings, it is not suitable for everyone to have presenter privileges. Hence, the instructor should choose the "only me" option from the "who can present" box when setting up a meeting. This allows the instructor

to join the meeting and share their camera, presentation, or computer screen. For example, the instructor can initiate a lesson by sharing a presentation, while students can participate by activating their cameras and microphones. Students can utilize the Raise Hand button if they wish to speak. The instructor has the option to mute all student microphones and disable their cameras if desired. In situations where a substantial number of participants have their cameras enabled, the gallery-view format can display footage of up to 49 participants in a 7x7 grid. Additionally, communication during the meeting can be facilitated through text-based typing. For instance, students have the option to ask questions during the lesson without causing interruptions, and the instructor can address them at their convenience. Moreover, the instructor possesses the capability to select any student from the participant list to serve as a presenter. This empowers the instructor to assist the students in delivering a presentation to their peers. Additionally, subject to the license agreement, the meeting can be video-recorded and subsequently transferred to Microsoft Stream. The video recording can only be accessed by individuals who are part of the channel in which the meeting was created. Permissions can be adjusted to enable the entire educational institution to view the video if desired.

There are multiple methods available for conducting meetings within the channel, one of which is the ability to initiate them instantly within the chat environment. When arranging a meeting, it is crucial to determine the necessary attendees. Scheduling the meeting through the calendar feature can aid in ensuring that all relevant individuals are able to participate. Moreover, participants have the option to join the meeting by sharing the meeting link. To generate a meeting link in figure 9, an individual needs to be selected to join the meeting, and the meeting must be created by utilizing the "Send" button. Once the meeting is established, the meeting link can be obtained from the Edit Meeting feature within the calendar. To join the meeting, simply click on Join Meeting and then select the "Copy Attendance Information" option located at the top of the Participants list. This will provide you with the meeting link. Subsequently, the meeting link can be shared by copying and pasting it into any desired platform or environment.

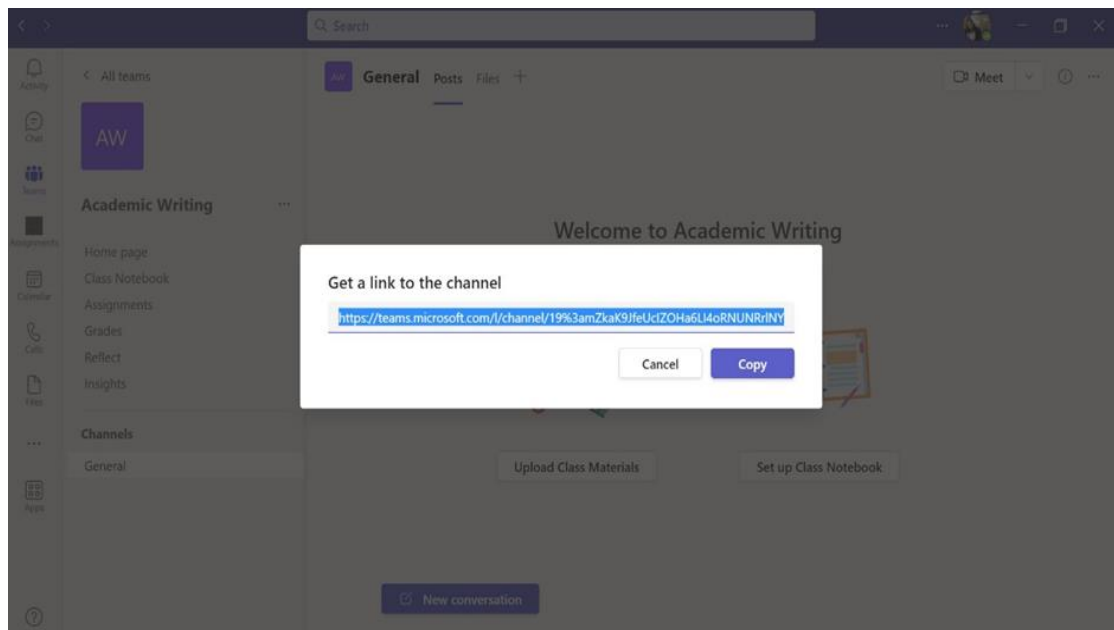


Figure 9 Create a meeting link

Microsoft Teams also offers a Live Event feature, which allows up to 10,000 people to participate in an event that is planned on the calendar. This is a great way to connect with a large number of people at once and make sure that everyone is on the same page. Live events can be a good way to introduce new concepts or to have a discussion with a large group of people. They have a different structure than regular meetings, with three different types of users: the organizer, the presenter, and the participants. The host of a live event holds the responsibility of overseeing the event and providing presenters with the platform to deliver their presentations or speeches. This individual plays a vital role in ensuring the seamless execution of the event. In webinars, participants have a more passive role compared to meetings, as they do not have the ability to activate their microphones or cameras. Nevertheless, they can actively engage by posing questions in written format, and administrators and presenters have the option to respond to these inquiries either in written form or verbally.

Whiteboard

Microsoft Whiteboard is an interactive digital canvas integrated into Teams, enabling participants to collaborate in real time by drawing, writing, and sharing ideas.

It supports effective, creative meetings through shared visual tools like notes, shapes, and templates.

Transform your presentation or meeting into a more engaging and collaborative experience by using Microsoft Whiteboard. During a Teams meeting, user can share a whiteboard by clicking the “Share” button in the meeting menu and selecting “MS Whiteboard”. You’ll then have the option to either present the whiteboard, where only you can make edits, or collaborate on it, allowing everyone in the meeting to contribute.

Once the whiteboard is open, you can begin with a blank canvas or choose from a variety of templates to suit your needs. If you'd like to work on more than one board, simply visit the Home gallery and select “New Whiteboard” to start another. When you're finished, click “Stop Sharing” to close the whiteboard and return to the main meeting screen. Figure 10 below illustrates how to create a whiteboard.

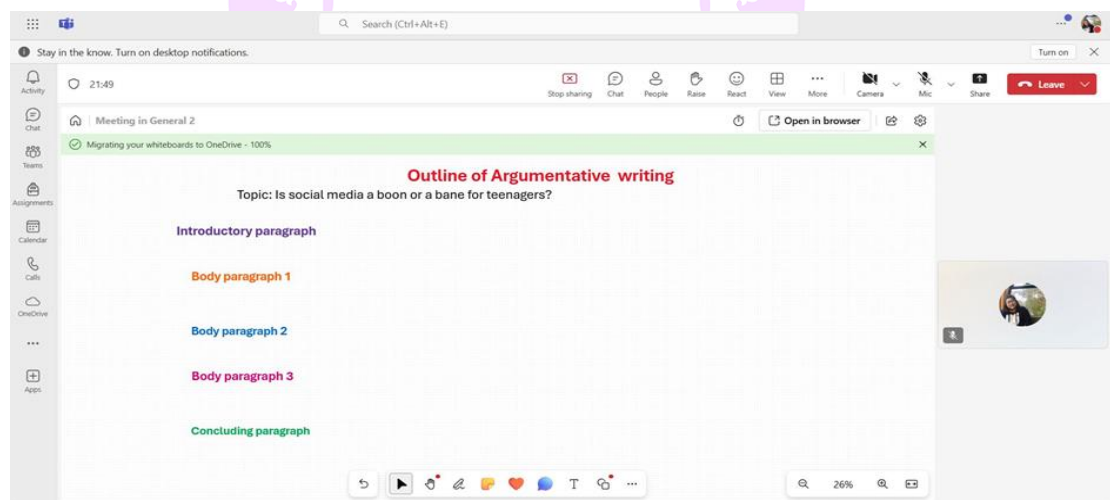


Figure 10 Create a whiteboard

Files

Users have the capability to upload unique files to Microsoft Teams. These files are associated with specific channels, and each channel has its own designated file section. The General channel contains a folder called "Class Materials" which is only accessible to instructors in figure 11. This is the ideal place to share fixed course-related files. Furthermore, the files and folders generated are designed for collaborative use and can be edited by students as required. For instance, students can collaborate on a Word file by simultaneously working on it together. This allows different students to contribute to different sections of the document. It's important to note that only authorized students have access to files in private channels. These files are stored in the SharePoint application, which can be accessed by opening SharePoint and selecting the "Files" option from the top menu. This system empowers users to perform various operations on files and folders with precision. For example, adjusting the folder permissions allows for specific students to have exclusive access to it. Apart from utilizing SharePoint for uploading assignment files, students should also leverage it to download files in batches. This practice aids in maintaining organization and facilitates easy file access whenever necessary. Files shared within chats are stored in the Microsoft Teams Chat Files folder on the OneDrive of the individual who shares them. These files can only be accessed by the participants involved in the specific chat.

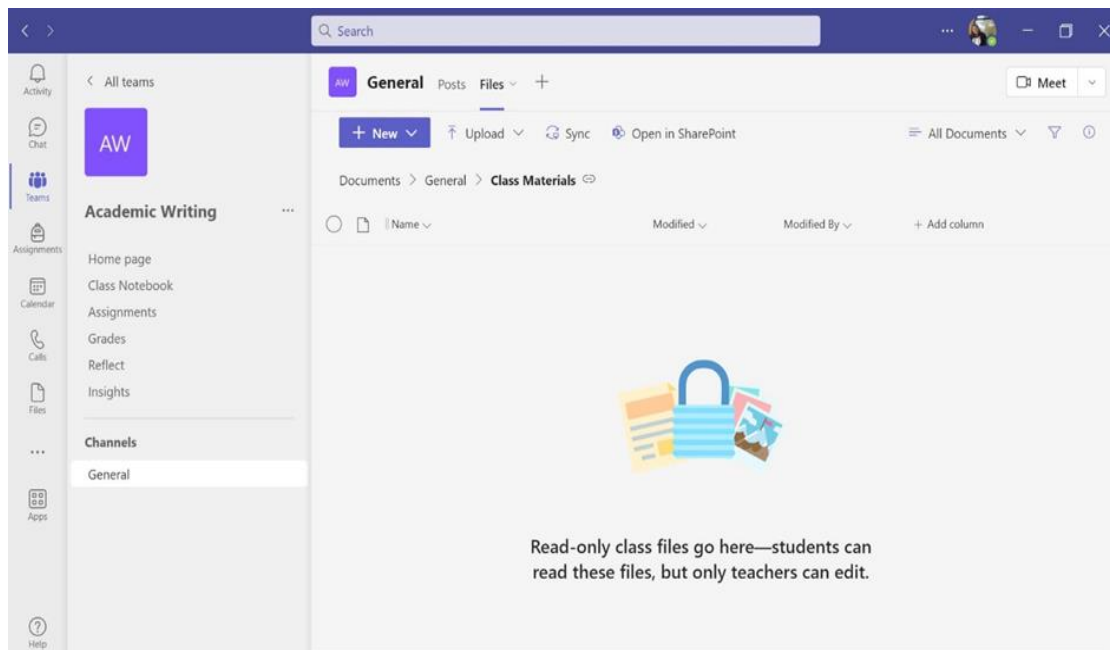


Figure 11 The General channel contains a folder called "Class Materials"

Assignment or Homework

One way to promote teamwork in the classroom is to assign assignments or homework that must be completed by a certain deadline. This way, students will have to work together in order to get the assignment done on time. Figure 12 below illustrates the interface for adding assignments or homework. Within this interface, you have the option to upload instructions for the homework under the "Add Sources" section. Furthermore, you can select the students who will be assigned the homework from the available options. As a default setting, the homework is automatically assigned to all students who are part of the team. It would be more considerate to set the due date for homework with a default allowance for late submission, while also giving students the ability to adjust the deadline by clicking a button. Microsoft Teams provides the functionality to evaluate and grade assignments. In the grading process, instructors can input the maximum achievable score for the homework in the designated score field. Additionally, if preferred, a scoring rubric can be employed to assess the assignment. The student's overall score is calculated based on their performance in meeting the predetermined criteria outlined in the

grading key. Each criterion is assigned a descriptive label, such as Excellent, Good, Not Bad, or Bad. The student's total score is derived by summing up their individual scores for each criterion.

Assignments

New assignment Discard Save Assign

Title (required)
Enter title

[Add tag](#)

Instructions
Enter instructions

[Attach](#) [+ New](#) [Apps](#)

Points
No points

[Add rubric](#)

Assign to
Academic Writing 📅 All students 👤

Don't assign to students added to this class in the future. [Edit](#)

Date due
Sun, Feb 12, 2023 📅

Time due
11:59 PM 🕒

Assignment will post immediately with late turn-ins allowed. [Edit](#)

Settings

☒ Add assignment to calendars None ▼

☒ Post assignment notifications to this channel: General Edit

☒ Receive notifications for late turn ins. No

Figure 12 Adding assignments or homework

Testing

In order to effectively administer exams to teams through Microsoft Teams, it is imperative to take the time to create a new test utilizing Microsoft Forms. By carefully selecting and preparing various types of questions, such as multiple choice and open-ended questions, beforehand, the process can be streamlined and tailored to best meet the needs of the students. By meticulously choosing the appropriate options and scoring for the prepared questions, it becomes possible to accurately

calculate the test score. To ensure fairness and eliminate response patterns, the questions and options can be randomized, further enhancing the integrity of the exam. In certain cases, students may encounter a situation where option "D" for Question 1 may be presented as option "A" for Question 4. This occurrence can vary among different students. The exams can be scheduled for specific start and end dates so that they are not available outside of that timeframe. The exam cannot be taken after the end date, and if the exam was taken previously, the results will not be recorded.

Based on the aforementioned details, it appears that the software provided by Microsoft Teams is highly advantageous for educational institutions, particularly universities that encounter challenges regarding their infrastructure. Microsoft Teams incorporates functionalities commonly found in Learning Management Systems, including the ability to share resources, collect homework assignments, and administer exams. By utilizing Microsoft Teams, educational institutions can eliminate the need for a separate installation and administration of a learning management system. This comprehensive platform can be considered an all-in-one solution, encompassing both a learning management system and a virtual classroom application.

8. Advantages of Microsoft Teams for Online Learning

Numerous advantages can be observed when utilizing Microsoft Teams in the context of online learning and distance learning, as outlined below.

8.1 Each student is provided with an email account to facilitate access to educational resources and communicate with their classmates and teacher.

8.2 Students can maximize their learning experiences without incurring extra expenses by utilizing the online versions of Office 365 applications, which seamlessly integrate with Microsoft Teams.

8.3 The features in Microsoft Teams will help facilitate communication and connection between teachers and students in a class setting.

8.4 As an account owner, you are allotted 1 TB (1,000 GB) of cloud storage quota to use with the OneDrive app.

8.5 The digital notebook serves as a valuable learning tool for students who already have an account and participate in the class.

8.6 Virtual classrooms offer an innovative way for students to learn from a distance. By accessing lectures and other course materials online, students can receive a quality education no matter where they are.

8.7 The virtual classroom provides students with opportunities to interact with both teachers and classmates.

Considering the advantages of Microsoft Teams mentioned earlier, it can be concluded that the platform provides numerous advantages for both students and teachers. It is worth highlighting those students who are unable to adhere to the designated learning schedule can still access class recordings. This feature proves to be highly beneficial for students who require additional time to catch up on missed content or revise for examinations.

9. Related Research on Microsoft Teams

Several researchers have examined Microsoft Teams (MS Teams), with some conducting content analyses of the integrated MS Teams in teaching and learning in online classes and student's perceptions.

Purba (2021) conducted a research study that assessed the effectiveness of Microsoft Teams 365 as an online learning platform and examined the perspectives of students enrolled in the Chemistry Education program at the Indonesian Christian University in Jakarta. The study encompassed the entire student population of the program and employed a questionnaire to gather data on students' perceptions, focusing on dimensions such as understanding the course material, the platform's appearance, and its accessibility. The findings revealed that over half of the students held a positive view of Microsoft Teams 365 in terms of comprehending the course material, the platform's appearance, and its accessibility. However, when it came to the indicator of quota-saving, 42% of the students expressed skepticism about the effectiveness of Microsoft Teams 365.

In summary, the advantage highlighted by Purba's (2021) research is the positive reception among more than half of the students regarding several crucial aspects of Microsoft Teams 365. The platform was positively perceived in terms

of aiding students' understanding of course material, its visual appearance, and overall accessibility. This indicates that Microsoft Teams 365 effectively supported students in comprehending the subject matter and provided an accessible and visually appealing interface, contributing positively to their learning experience.

Aladwani and Alfadley (2022) conducted a study to explore the perspectives of Kuwaiti EFL learners on online learning through MS Teams during the COVID-19 pandemic. The research aimed to investigate the impact of online learning via the Microsoft TEAMS platform on learning, interaction, and assessment for EFL students in Kuwait. A descriptive quantitative research design was employed, and a total of 440 EFL students enrolled in the English program at the College of Basic Education in Kuwait participated in the study by completing a 30-item questionnaire. The findings revealed that EFL students perceived online learning through Microsoft TEAMS to have a high impact on the learning of English skills, a moderate impact on student interaction, and a moderate impact on achievement assessment. Furthermore, statistically significant correlations were observed between interaction and assessment, interaction and learning, and assessment and learning. The study's implications offer valuable insights for pedagogy and assessment in EFL contexts during the pandemic.

The potential gap in Aladwani and Alfadley (2022) study might be the exclusive reliance on a quantitative research design without incorporating qualitative methods. While the study effectively gathered perceptions through a questionnaire from 440 EFL students, qualitative approaches like interviews or focus groups could provide deeper insights into the nuances of students' experiences with online learning through MS Teams. These methods could uncover underlying reasons behind the observed moderate impact on student interaction and assessment, offering a more comprehensive understanding beyond numerical ratings. Additionally, exploring qualitative data might reveal specific challenges or facilitators of learning, interaction, and assessment in the MS Teams platform that quantitative measures might not fully capture. Integrating both quantitative and qualitative methodologies could enrich the study's findings and provide a more holistic perspective on the impact of online learning for EFL students.

Albaaly (2022) conducted a study to evaluate the effectiveness of Microsoft Teams in enhancing student teachers' performance in an EFL Teaching Methods I course at Suez Canal University in Egypt. The research employed a quasi-experimental design, with one group of students receiving instruction through the Microsoft Teams platform and the other group taught using traditional face-to-face methods. A pretest-posttest achievement exam and a student perception questionnaire were administered to a total of 32 third-year students, evenly divided into experimental and control groups. The findings indicated that the utilization of the Microsoft Teams platform resulted in improved student achievement in the EFL Teaching Methods I course, with the experimental group surpassing the control group. Additionally, the participants expressed positive views regarding the interactive features of the platform, such as chat rooms, content sharing, webinars, file sharing, calls, email communication, class notebooks, calendars, assignments, and emojis. The study suggests that instructors who possess knowledge and proficiency in leveraging the platform's functionalities can significantly impact student learning, as evidenced by their academic performance and perceptions.

In sum, Albaaly's (2022) study on the efficacy of Microsoft Teams in enhancing student teachers' performance in an EFL Teaching Methods I course at Suez Canal University in Egypt presents a promising insight into technology integration in education. However, several gaps or areas for further exploration could enhance the depth and breadth of the research. The study highlights the importance of instructors' proficiency in leveraging the platform's features. However, it would be beneficial to delve deeper into the specific pedagogical strategies employed by instructors to effectively utilize the platform for improved student outcomes. Moreover, the assessment primarily relied on a pretest-posttest achievement exam and a student perception questionnaire. A more comprehensive assessment encompassing diverse evaluation methods such as qualitative interviews, observation of teaching sessions, and analysis of student engagement metrics within the platform could provide a multifaceted understanding of the platform's impact. By attending to these gaps, the study's outcomes could be fortified, leading to a deeper grasp of how the platform

affects student performance and offering valuable guidance for educators aiming to incorporate similar technology into their teaching methods.

From the research of Purba (2021), Aladwani and Alfadley (2022), and Albaaly (2022), several aspects can be applied and adapted in this study. The utilization of the Microsoft Teams online platform in teaching can be employed as a tool to enhance students' learning development. EFL students perceived online learning through Microsoft TEAMS as highly impactful on their English language skills. Additionally, it is beneficial for instructors as it serves as a collaborative tool integrated with teaching techniques, ultimately contributing to improved student achievement in EFL courses. Furthermore, Microsoft Teams offers diverse and convenient functionalities for teaching and learning, including chat rooms, content sharing, webinars, file sharing, calls, email communication, class notebooks, calendars, assignments, and emojis.

In the research conducted by Purba (2021); Aladwani and Alfadley (2022); and Albaaly (2022), the tools utilized included a questionnaire and a pretest-posttest achievement exam to assess the effectiveness of Microsoft Teams and explore students' perspectives. However, this resulted in research outcomes that lacked comprehensiveness. To gather both quantitative and qualitative data, the researchers employed various tools in their study. These included lesson plans, pre-tests and post-tests, online argumentative writing tasks, a group assessment checklist, a Microsoft Teams instructional guide, video recordings, semi-structured interviews, and questionnaires as research instruments. Combining quantitative and qualitative methodologies could enhance the study's results and offer a more comprehensive view of how online learning with Microsoft Teams affects EFL students.

Gaps in Research Literature

The adoption of online collaborative writing tools has gained significant popularity in recent times, especially within educational environments. While there has been much research into the effects of such tools on writing skills in general, there is still a lack of understanding when it comes to their impact on argumentative writing specifically among EFL Thai students.

Considering the existing research gaps, it is important to carry out more research in this area. This research aims to explore the impacts of online collaborative writing on the development of argumentative writing skills in the area of Thai EFL students and explore the students' perspectives toward online collaborative writing. However, there are still some limitations in the existing research on collaborative writing. Therefore, this research aims to address certain gaps in the existing literature as follows:

Firstly, there is value in the traditional approach to teaching writing skills, in which students complete assignments individually and receive feedback from their teacher. This approach has been effective in teaching the fundamentals of writing, but it may not provide students with opportunities to develop collaborative skills or receive feedback from peers. Online learning has emerged as an alternative to the traditional approach. It can provide students with greater flexibility and access to resources, but it may also pose challenges in terms of maintaining student engagement and facilitating effective collaboration. This study attempts to address the potential benefits and limitations of a specific tool or approach, namely online collaborative writing (Alghasab, et al., 2019; Nykopp, et al., 2019; Vetter, et al., 2019; Williams & Beam, 2019). This research can provide insights into how such tools can support or hinder the development of argumentative writing skills, particularly for EFL Thai students.

Secondly, when considering the range of writing genres, argumentative writing emerges as a critical genre that students must proficiently grasp to excel in their university-level studies. (Aini, 2021; Tasya, 2022). It is an essential skill for academic and professional contexts, and it requires critical thinking, persuasive language, and the ability to support a position with evidence. However, there is a scarcity of research that has specifically targeted the development of argumentative writing skills among students. Moreover, there is a scarcity of research examining the development of collaborative writing skills specifically within the realm of argumentative writing.

This study intends to elevate the argumentative writing skills of third-year university students by engaging them in collaborative efforts within groups to fulfill online argumentative writing tasks. Employing Reid's (1988) argumentative pattern through Microsoft Teams, the study aims for successful outcomes by following the

steps of an online collaborative writing activities model adapted from Moonma (2022). This model encompasses eight steps-overview, study, pre-writing, drafting, revising, rewriting, proofreading, and publishing were integrated into the ultimate goal of boosting students' proficiency in argumentative writing.

Thirdly, this research contributed to research diversity by exploring how collaborative writing functions on online platforms. It was necessary to investigate the potential benefits of online platform tools for facilitating collaborative writing. Previous research has explored the impacts of various tools, including Line application, WeChat, Zoom program, Google Docs, and Google Classroom, on student writing processes and development (Kawinkoonlasate, 2020). However, there have been few studies on Microsoft Teams in EFL Thai context settings. The exploration of Microsoft Teams' collaborative writing with a wider range of participants, personal viewpoints, language backgrounds, and academic writing would give real insights into the implementation of this tool into writing classes (Henderson, et al., 2020; Rojabi, 2020; Wea & Kuki, 2021; Winqvist, 2022). Despite recent publications on Microsoft Teams collaborative writing in certain EFL Thai contexts, there is still a scarcity of research conducted in Thailand. Therefore, this study aims to investigate the effect of online collaborative writing on argumentative writing among EFL Thai students on Microsoft Teams.

Finally, the majority of research studies only examine the effects of online collaborative writing on the development of English writing skills (Dang, et al., 2020; Kitvilairat & Modehiran, 2018; Lingaiah & Dhanapal, 2020) without delving into the students' perspectives toward online collaborative writing. The study of students' perspectives toward online collaborative writing in this research aims to investigate the practical skills of EFL Thai students as they engage in online argumentative writing. It also seeks to gain insights into their perspectives regarding online collaborative writing. The researcher investigates multiple perspectives on various aspects of collaborative writing activities aimed at enhancing language learners' skills in collaboration, communication, critical thinking, and creativity. Acquiring valuable insights into the perspectives of EFL Thai students about online collaborative writing can empower teachers with a profound grasp of how to help students amplify and

tailor this method to meet their unique learning needs. Exploring EFL Thai students' perspectives on collaborative writing in argumentative contexts can significantly add to the understanding of how this approach serves as a supportive tool in language learning.

Therefore, the primary objective of this study is to fill the existing knowledge gaps related to the effect of online collaborative writing on the development of argumentative writing skills within the EFL Thai context. The hope is that the study's findings will provide new insights and recommendations to support the development of argumentative writing skills and online collaborative writing activities for university students in Thailand. The researcher has developed an online writing activities model, which could serve as a useful teaching tool and an alternative writing model for English writing teachers.

In conclusion, this chapter has presented a comprehensive overview of the theoretical frameworks proposed in previous studies. It has discussed the main principles of second language writing in the context of EFL and Thai education, including argumentative writing and the significance of collaborative learning. Additionally, it has examined how collaborative writing can be a potent tool for language learning and teaching. Furthermore, this chapter has examined the incorporation of Microsoft Teams as an e-learning platform in educational settings, as well as the relevant existing research on this topic.

Chapter 3 will outline the research methodology employed in this study, encompassing the chosen research design, research instruments, data collection methods, and data analysis procedures.

CHAPTER III

RESEARCH METHODOLOGY

In this chapter, there was a detailed description of the research overview and the methodology that was employed in the present study. The methods that were used to investigate the research questions were divided into five primary sections: 1) research design, 2) population and sample, 3) instruments and procedure, 4) data collection, and 5) data analysis. This study answered the research questions as follows:

1. What are the effects of online collaborative writing activity on EFL students' argumentative writing ability?
2. What are the students' perspectives toward online collaborative writing activity via MS Teams?

Research design

The research design of this study characterized a single-group pre-test and post-test design for collecting both quantitative and qualitative data. A two-phase research strategy was pursued. In the first phase, the main emphasis was on examining the theories and research relevant to the collaborative learning approach. Additionally, this phase involved creating online collaborative argumentative writing activities and designing the necessary research instruments for implementation. In the second phase of the study, a pretest-posttest experimental research study was conducted, focusing on implementing online collaborative argumentative writing. Microsoft Teams was utilized as the platform for this implementation and assessment. The participants targeted for this phase were undergraduate students. The students were tasked with composing four argumentative paragraph writing assignments. These argumentative structures were derived from Reid (1988), and the assessment criteria for scoring were taken from the TOEFL Writing Scoring Guide in 2014 (Educational Testing Service, 2014).

The independent variable in this study was identified as the implementation of online collaborative learning through Microsoft Teams. The dependent variables included the mean scores from both the pre-test and post-test of students' writing,

as well as scores from four assignments. Additionally, the investigation of students' perspectives on online collaborative writing was included.

The study focused on two aspects. Firstly, in terms of quantitative data, the writing proficiency of third-year students assessed by analyzing both the pre-test and post-test of students' writing and their argumentative paragraph writing. These writings were produced under the guidance of the collaborative learning approach, aiming to evaluate the impact of online collaborative learning on argumentative writing. Secondly, qualitative data were collected to investigate the practical skills of EFL Thai students during their engagement in online argumentative writing activity and to gain insights into their perspectives on 21st-century skills regarding online collaborative writing activity. This was accomplished through the utilization of semi-structured interviews and questionnaires, allowing for in-depth analysis, observation, and video recording of the students' experiences.

Participants of the Study

In this study, the participants consisted of 20 third-year English major students (12 females, 8 males) from the School of Liberal Arts who were enrolled in Academic Writing (146311) during the 2024 academic year at the University of Phayao. A purposive sampling method was used to select the participants for this study, ensuring the representation of diverse cases. The selected participants were divided into three groups based on their proficiency levels: advanced, intermediate, and novice learners, ensuring that each group was heterogeneous. Their grade average determined the categorization in the previous English writing course during the 2022-2023 academic year. These courses included the English Sentences course and the Paragraph Writing course.

Table 4 The number of participants in different proficiency levels

English Proficiency Levels	Novice	Intermediate	Advanced	Total
	0-59	60-74	75-100	
Numbers of Students	9	6	5	20
Percentage	45	30	25	100

In terms of grouping, 20 students were divided into 5 groups to collaboratively compose an argumentative paragraph for each assignment. The teacher divided the students into groups: advanced, intermediate, and novice learners, based on their grade average in the previous English writing course. The teacher designated the sets as follows: number 1 for the Advanced group, number 2 for the Intermediate group, and number 3 for the Novice group. Meanwhile, the teacher set number 4 for a mixed group consisting of advanced, intermediate, and novice students. The teacher did not tell the students which number represented which group, and the students chose their groups themselves with the condition that each group must have members from all four numbers. In mixed-ability groups, students collaborated effectively, developing essential teamwork skills such as idea-sharing, problem-solving, and appreciating diverse perspectives. Advanced students supported struggling peers, while novice students learned from their more skilled classmates. Allowing students to choose their groups fostered a sense of responsibility and ensured balanced representation across proficiency levels. This approach reduced stigmatization of lower-performing students and promoted inclusivity, boosting self-esteem. Overall, mixed-ability grouping created a collaborative learning environment where each student could thrive and contribute to the group's success.

Concerning the student's prior experiences, they had not previously engaged in co-writing, although they had participated in other forms of collaborative learning activities such as group presentations. Additionally, the majority of these students had spent over ten years studying English in schools before enrolling at a university level.

The selection of third-year English major students for this study was driven by the specific academic requirements of the English Department at the University of Phayao. These students were mandated to take Academic Writing (146311) as a compulsory subject worth 3 credits. Within this course, students encountered a variety of English writing tasks, including the demanding and intricate skill of argumentative writing. Some students lacked prior experience in this particular style of writing, which encompassed the structuring of ideas and the writing process as a whole. Additionally, the upcoming semester demanded a deeper exploration of complex English writing skills. Consequently, the researcher aimed to enhance their argumentative writing abilities through the implementation of online collaborative writing activities.

This mixed-method study, incorporating both quantitative and qualitative approaches, focused on two key aspects. First, the quantitative data analyzed the writing quality of third-year English major students. Their argumentative writing, created using an online collaborative writing approach, was evaluated to determine the impact of proficiency levels with advanced, intermediate, and novice students on both group and individual writing performance.

Secondly, the study explored students' perspectives on the 4C of 21st-century skills (critical thinking, communication, collaboration, and creativity) and their attitudes toward online collaborative writing via MS Teams. Data were collected through questionnaires, observation, video recording, and semi-structured interview.

Research Procedures

The research procedures of this study were outlined in two stages: the first stage focused on the collaborative learning approach for argumentative writing and the development of research instruments. The second stage involved the implementation of the collaborative learning approach using Microsoft Teams for undergraduate students.

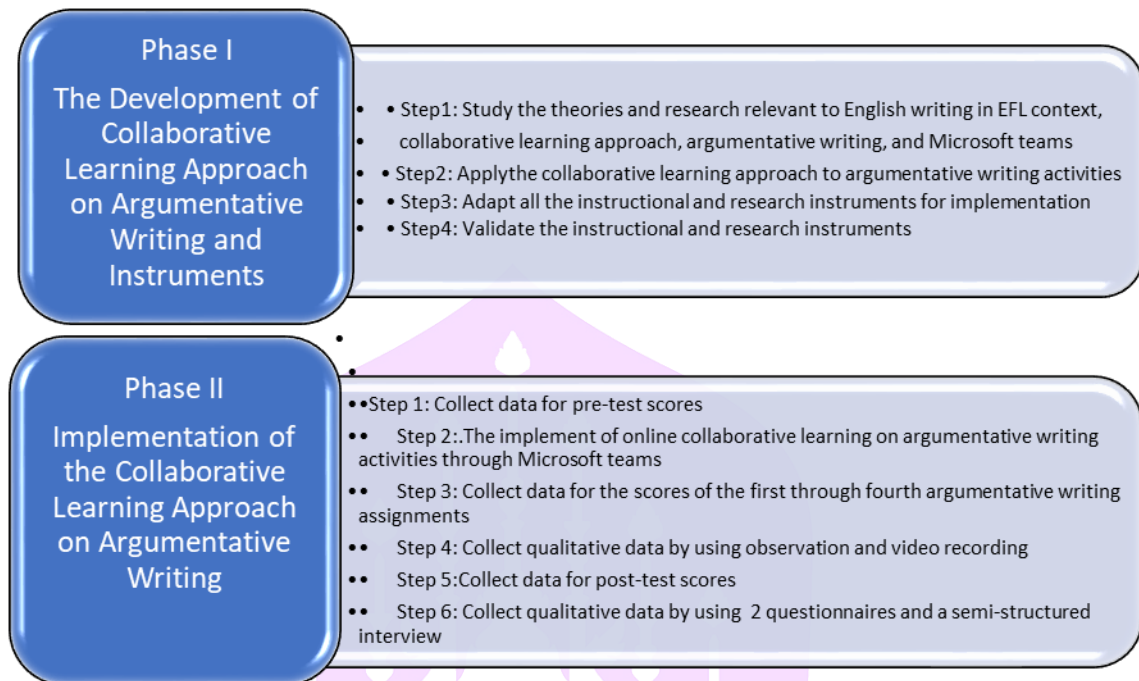


Figure 13 Research procedures

This study aimed to investigate the effects of online collaborative writing on argumentative writing, while also exploring the students' perspectives regarding these activities and their contribution to the development of 21st-century practical skills among students. For the study, 20 students were organized into five groups, each participated in four online collaborative writing assignments aimed at composing argumentative paragraph writings. The following section offered a concise overview of the instruments utilized in this study, categorized into two groups: experimental instruments and data collection instruments. Furthermore, the procedures employed in the study were elucidated.

Research Instruments

The research instruments were categorized into two groups: experimental instruments and data collection instruments.

Experimental Instrument

Online Collaborative Writing Activity Model

In this study, the online collaborative writing activity model consisted of six lesson plans focused on online collaborative argumentative paragraph writing. Each lesson spanned four hours a week, totaling 240 minutes. The lesson plans were carefully reviewed, verified, and refined by advisors and experts to ensure their quality and appropriateness. Subsequently, the lesson plans were modified and implemented with third-year students who were enrolled in the Academic Writing (146311) course.

Before commencing online collaborative writing activities, the researcher provided a tutorial on Microsoft Teams and its functionalities using an instructional guide derived from Microsoft Teams (2018). Students were required to acquaint themselves with the step-by-step instructions tailored for devices like computers, laptops, and tablets, ensuring meticulous adherence to the guidelines.

The collaborative writing activities, derived from Moonma's model (2022), comprised eight steps: overview, study, pre-writing, drafting, revising, rewriting, proofreading, and publishing, to enhance students' argumentative writing skills. A research tool was utilized by students throughout the writing process to assess the accuracy of grammar, vocabulary, and punctuation in their first and second drafts. The model for the online collaborative writing activity was presented in Figure 14 below.

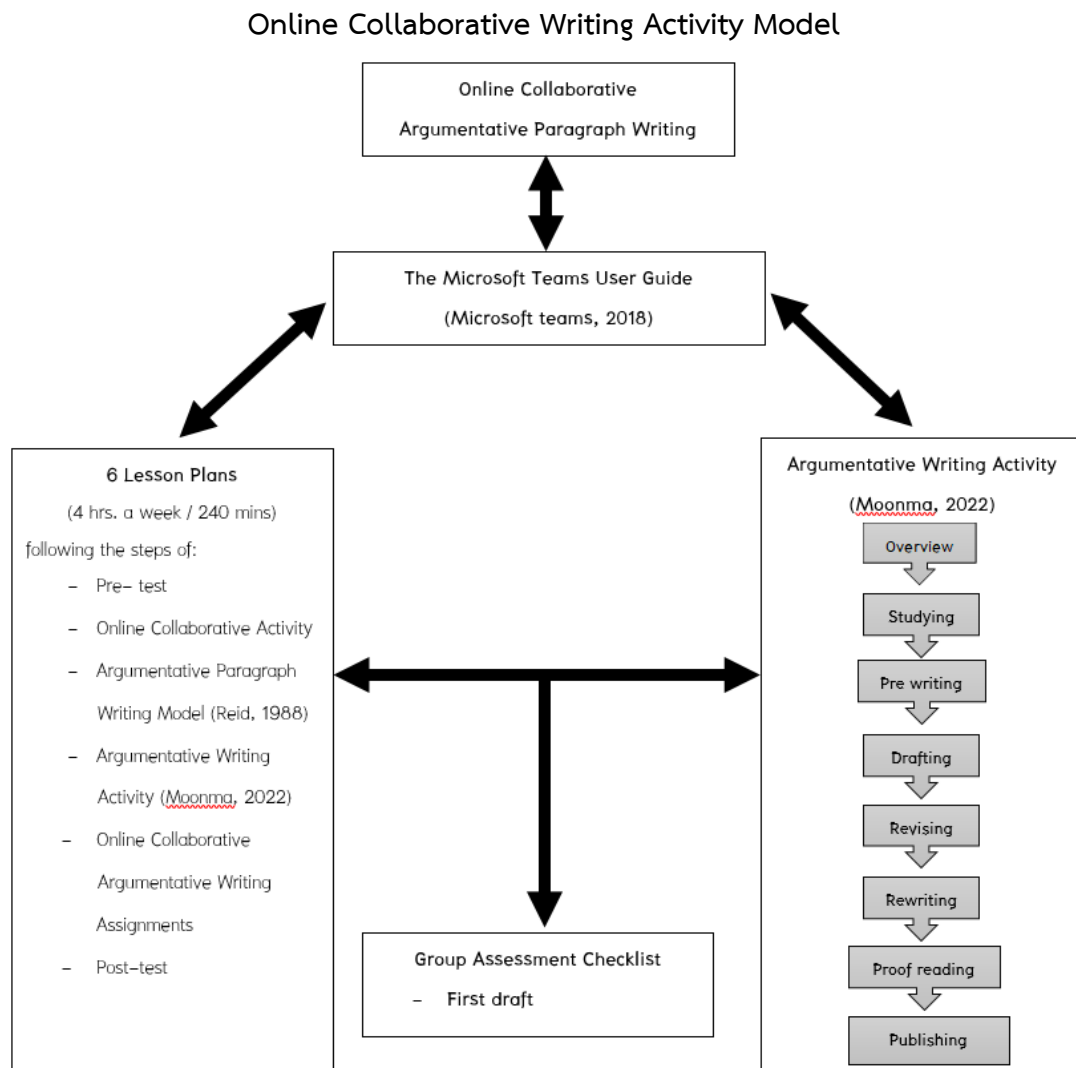


Figure 14 Online Collaborative Writing Activity Model

Collaborative writing activities, adapted from Moonma's model in 2022, which includes eight steps, were incorporated to elevate students' proficiency in argumentative writing. In this study, the researcher employed Microsoft Teams as an online platform tool at every stage of online collaborative writing activity. The researcher as the teacher provided continuous instruction throughout the course, monitoring students' progress and development during the activities, supplying materials, writing checklists, and offering suggestions and assistance as needed. In online collaborative writing activities, students formed groups of four, where they collaborated

within their groups to complete online argumentative writing assignments through Microsoft Teams, aiming for successful outcomes following the steps of the Collaborative Writing Activities model presented in Figure 15 as follows:



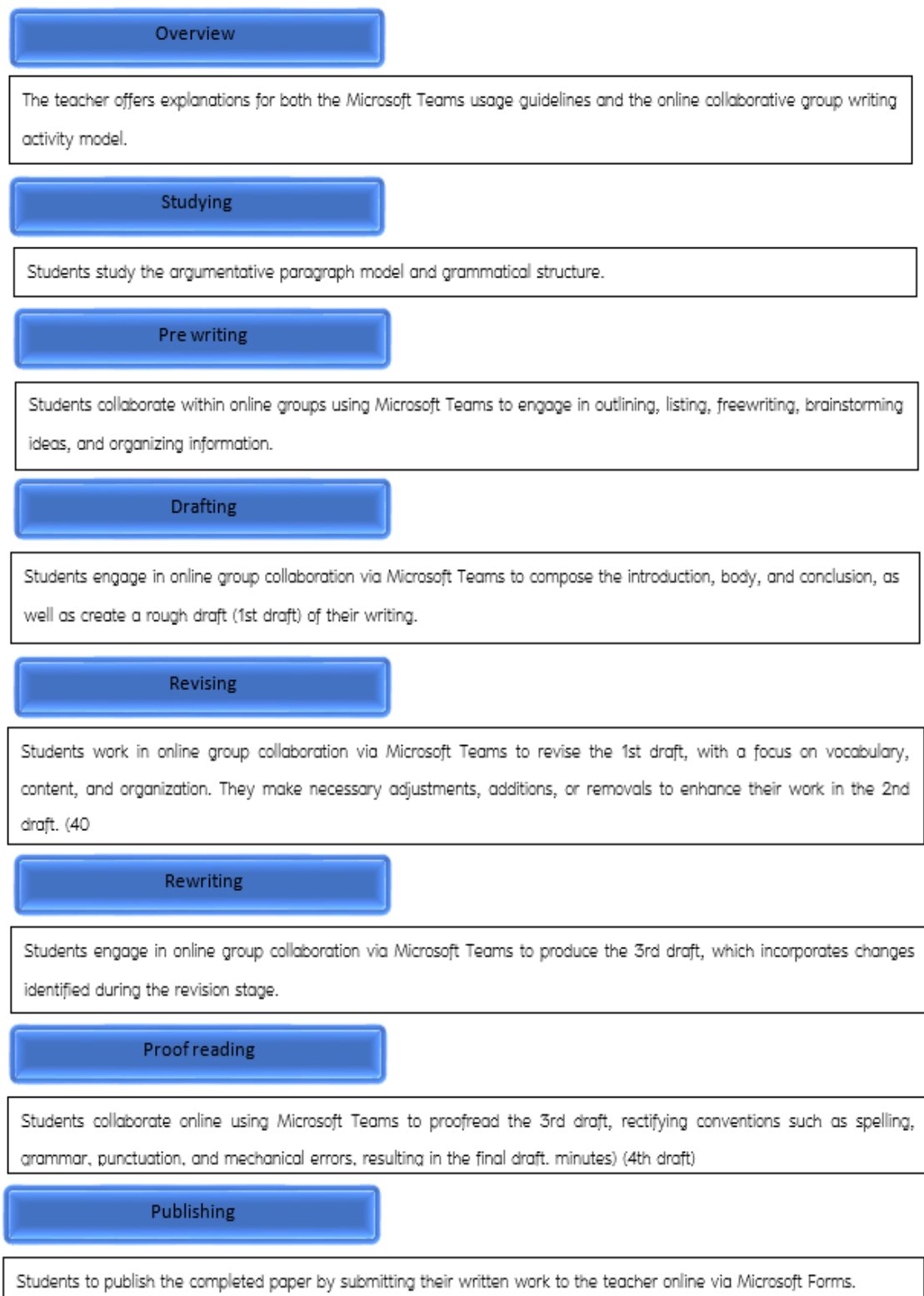


Figure 15 Writing Activity Model adapted from Moonma (2022)

Overview step: The teacher offered explanations for both the Microsoft Teams usage guidelines and the online collaborative group writing activity model. In the study, 20 students were distributed into 5 groups. The teacher categorized students into three groups based on their grade average in the previous English writing course: advanced, intermediate, and novice learners. This enabled them to collectively participate in the online composition of argumentative paragraph writing for four assignments, with each assignment revolving around distinct topics. The choice of topics for creating argumentative paragraphs adapted from the IELTS writing test. In each group, students participated in discussions to assign tasks and responsibilities, fostering effective collaboration and the accomplishment of successful, comprehensive written work aligned with their goals.

1. Studying step: The teacher presented a sample text as a reference and instructed students on the grammatical structure of argumentative writing, including how to present arguments for or against a contentious topic of their choice. The teacher began by introducing an exemplar of argumentative paragraph writing and encouraged students to consider the writing style and the language commonly employed in this genre. They discussed the purpose of argumentation and the intended audience for the model writing. Subsequently, the students received a presentation on various argumentative patterns.

2. Pre-writing step: The teacher assigned a new argumentative writing topic to the students each week. Students collaborated within online groups using Microsoft Teams and engaged in the process of structuring their own writings by generating ideas and creating an outline for a suitable argumentative topic. They discussed potential topics and utilized various methods such as outlining, listing, and freewriting to conduct research on their chosen argumentative topic. Afterward, they organized and compiled all the gathered information.

3. Drafting step: Students engaged in online group collaboration via Microsoft Teams to write their initial draft, paying attention to the paragraph writing and following the outline structure. Subsequently, students employed the Group Assessment Checklist, which encompassed criteria related to argument structure, evidence, clarity, grammar, and other aspects. This tool aided in upholding the writing's overall quality.

It provided students with clear expectations regarding content, argument development, and writing style. Group members were able to utilize it to offer structured feedback to one another and steer revisions aimed at enhancing their argumentative writing. The teacher provided support and addressed any inquiries or concerns the students had during the writing process. Furthermore, the teacher emphasized that students were prohibited from using any form of AI to assist students in their writing tasks. The teacher used an AI content detector or AI text classifier, considering it an online tool used to differentiate between text written by AI and text written by humans. It assisted in detecting content generated by AI. Moreover, it checked for writing duplication (A plagiarism checker) by comparing document content with various sources such as commercial online databases, document repositories, academic journals, and content published on the internet. Additionally, it indicated repeated sources with color-coded bars and displayed the percentage level of similarity.

4. Revising step: Students worked in online group collaboration via Microsoft Teams and engaged in the revision process, with a specific focus on enhancing vocabulary, refining content, and improving the organization of their writing. They carefully reviewed their first draft and made necessary changes based on the identified areas for improvement, resulting in the creation of a second draft.

5. Rewriting step: After finalizing the revision stage of their drafts, students proceeded to the rewriting phase using online group collaboration via Microsoft Teams, where they incorporated the changes they have made.

6. Proofreading step: After finalizing the third draft of their paper, students submitted it to the teacher. Subsequently, they received instruction on the revision stage, learning how to revise their drafts. During this stage, students carefully analyzed their final draft, identified any spelling, grammar, punctuation, or mechanical errors, and made appropriate changes to create the fourth draft.

7. Publishing step: The students composed a fully developed argumentative paragraph writing and submitted their written work to the teacher online through Microsoft Forms.

The Online Collaborative Writing Activity Model was submitted to professionals at the English Department, School of Liberal Arts, University of Phayao, for evaluation, proofreading, and editing.

Lesson Plans

The development of the lesson plan was a result of careful consideration and thought, with a focus on the principles of argumentative paragraph writing. The plan comprised six separate lessons, each designed to enhance the student's writing skills through an online collaborative writing activity. Each lesson spanned four hours per week, totaling 240 minutes. The lesson plan design incorporated the following steps:

1. The researcher adopted argumentative paragraph writing model from Reid (1988) and examined argumentative paragraph writing texts and collaborative writing activities to identify appropriate topics, activities, assignments, and online collaborative tools.

2. The lesson plans were submitted to the thesis advisors and experts at the English Language Department, School of Liberal Arts, University of Phayao, for review, verification, and editing of topics, and instructional procedures. The professionals assessed the questionnaire using the Satisfaction Survey of Lesson Plans. Before implementation, a trial run of the lesson plans was conducted with another class.

Table 5 below presented the summary of lesson plans for online argumentative paragraph writing, utilizing the Writing Activity Model adapted from Moonma (2022).

Table 5 Summary of Lesson Plans for Online Argumentative Paragraph Writing

Lesson Plan	Time (minutes)	Learning Objective	Activities	Instructional Materials
1	240	-Discuss about students' prior knowledge of argumentative writing. -Complete a pre-test on argumentative writing.	– Students revise different types of academic writing and effective paragraph construction. – Students take a pre-test on argumentative writing. – Students study the structure of argumentative writing. – Students explore the elements of an argumentative writing. – Students do the exercise.	– Course materials – PPT slides
2	240	Analyze and Identify the main elements of argumentative writing and compose an argumentative paragraph.	– Students study the writing model and work together to analyze the different components of argumentative writing. – Students attempt to comprehend the guidelines for collaborative writing. – Students are placed into groups of four, based on their abilities, with advanced, intermediate, and novice learners all represented. – Students study a tutorial on MS Teams and its functionalities using an instructional guide derived from Microsoft Teams (2018).	– Course materials – PPT slides

Table 5 (Cont.)

Lesson Plan	Time (minutes)	Learning Objective	Activities	Instructional Materials
3	240	<ul style="list-style-type: none"> – Discuss online collaborative writing via Microsoft Teams. – Compose an argumentative paragraph (Task 1 + 2) 	<ul style="list-style-type: none"> – Students collaborate online in groups via Microsoft Teams using the Writing Activity Model for Assignment Writing Task 1. – Students collaborate online in groups via Microsoft Teams using the Writing Activity Model for Assignment Writing Task 2. 	<ul style="list-style-type: none"> – Course materials – PPT slides
4	240	<ul style="list-style-type: none"> – Discuss online collaborative writing via Microsoft Teams. – Compose an argumentative paragraph (Task 3 + 4) 	<ul style="list-style-type: none"> – Students collaborate online in groups via Microsoft Teams using the Writing Activity Model for Assignment Writing Task 3. – Students collaborate online in groups via Microsoft Teams using the Writing Activity Model for Assignment Writing Task 4. 	<ul style="list-style-type: none"> – Course materials – PPT slides
5	240	<ul style="list-style-type: none"> – Complete a post-test on argumentative writing. – Respond to semi-structured interview questions. 	<ul style="list-style-type: none"> – Students take a post-test by themselves on argumentative writing. – Students discuss about their experiences or challenges in their online collaborative writing activity. – Students answer to the interview questions. 	<ul style="list-style-type: none"> – Course materials – PPT slides
6	240	<ul style="list-style-type: none"> – Complete two questionnaires. 	<ul style="list-style-type: none"> – Students complete the two questionnaires. 	<ul style="list-style-type: none"> – Course materials – PPT slides

The validation of lesson plan

To assess the appropriateness and completeness of argumentative paragraph writing in online collaborative writing lesson plans, three experts validated the plan. The evaluation was conducted using a Likert scale checklist.

Three experts validated the online collaborative writing lesson plans to assess their congruence, appropriateness, and completeness for argumentative paragraph writing. The evaluation was done using a satisfaction survey.

The evaluation covered six areas: lesson plan, objectives, key concepts, instructional procedures, teaching aids, and evaluation/assessment. Experts provided comments and suggestions to improve the lesson plan's appropriateness and completeness. The satisfaction survey's Likert scale showed a mean of 4.91 and a standard deviation of 0.15, indicating a high level of expert agreement on the lesson plan's relevance and appropriateness.

Data Collecting Instruments

The data collection period was in the second research phase, where this study focused on two main areas: students' argumentative writing quality and students' perspectives on 4C of 21st-century skills toward online collaborative writing activity. This study utilized a range of data collection tools encompassing both quantitative and qualitative methods, including pre-test and post-test, four argumentative writing tasks, a semi-structured interview, observation, video recording, and two questionnaires. The process of data collection showed in Figure 16 as follows:

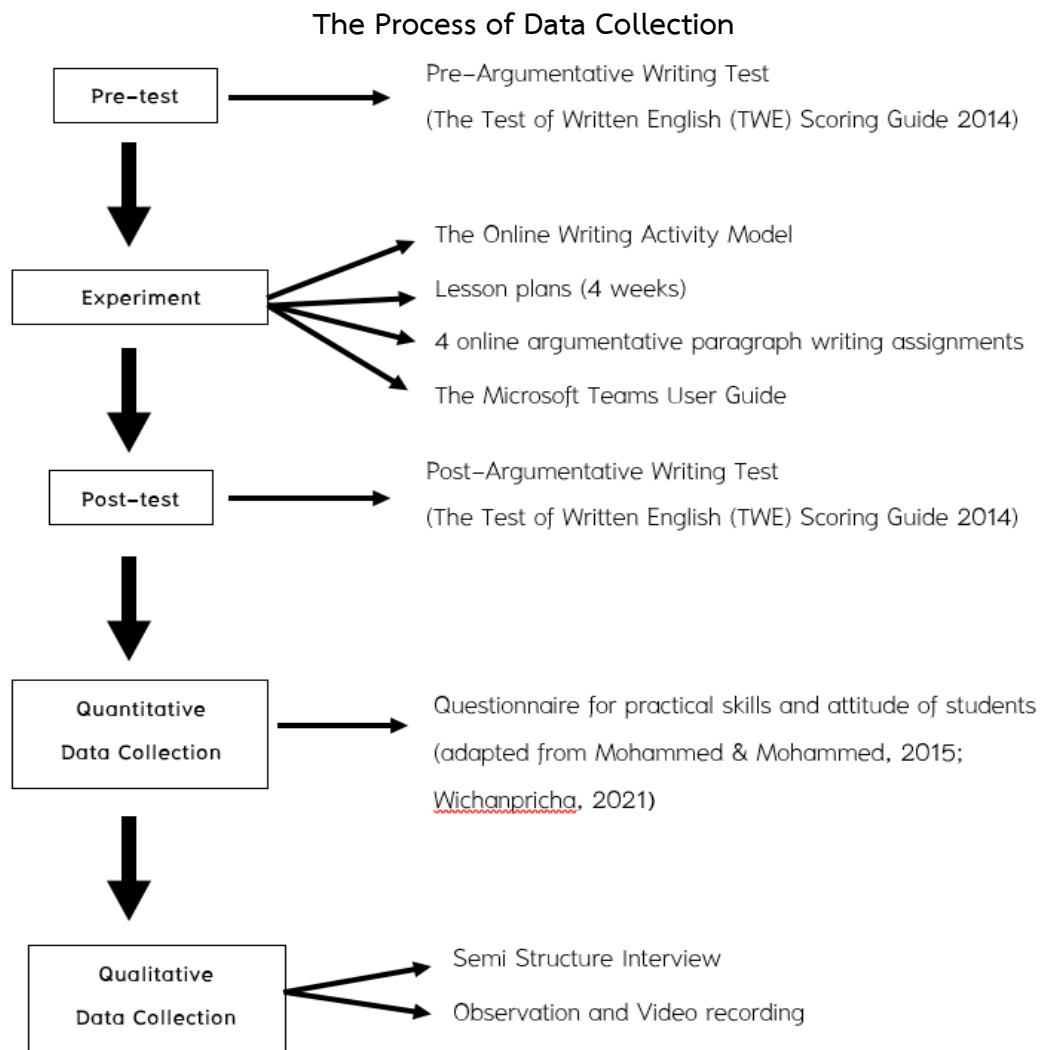


Figure 16 The Process of Data Collection

Quantitative data collections

Pre-test

The process commenced with the administration of the pre-test during the initial session. The purpose of this test was to evaluate the student's proficiency in writing English argumentative paragraphs. It lasted one-hour duration to compose a minimum 200-word argumentative paragraph.

Post-test

The test was designed to assess the student's proficiency in writing argumentative paragraphs after completing the online collaborative writing tasks. It lasted one-hour duration to compose English argumentative paragraphs of at least 200 words.

The Pre-test and Post-test writing assessments covered distinct subjects while maintaining an equal level of difficulty rated by the three English language instruction experts who evaluated the suitability and relevance of the test items. The topics selected for both the pre-test and post-test were derived from IELTS examination prompts. Furthermore, the tests underwent expert review before being given to the students.

Writing Task

Students were given the chance to compose argumentative paragraph writings on four different topics during the implementation in order to assess the students' argumentative writing skills and practical skills that arose during online collaborative writing. The chosen topics for these writing assignments were drawn from IELTS examination prompts, covering areas such as education, family, social matters, and media. The scoring criteria in Table 4 were adapted from the Test of Written English (TWE, 2014). In 1986, the Educational Testing Service (ETS) implemented TWE as an essential component of the Test of English as a Foreign Language (TOEFL). This holistic scoring rubric was a widely recognized scale used for the TOEFL Writing Test, previously known as the Test of Written English (TWE). The TOEFL was a standardized examination widely employed by educational institutions in English-speaking nations to evaluate the English language proficiency of non-native speakers seeking admission (Peirce, 1992). This study's assessment aimed to evaluate the quality of content, organization, and language use. To achieve this, a scale was chosen that provides descriptors for five levels of writing assessments, encompassing syntactic and rhetorical aspects of writing quality. This scoring guide employed a 5-point holistic scale, with each descriptor further elaborated through four or five rubrics. Scores for TWE writings ranged from 0 to 5, with the possibility of half-point increments. Every writing attempt received a minimum score of 1, as a score of 0 was reserved for students who submitted responses

that were irrelevant, incomprehensible, or in a foreign language. A score of 1 signifies limited competency, whereas a score of 5 reflects mastery. For additional details on the TOEFL Writing Scoring Guide (Educational Testing Service, 2014) reference was made to Appendix B.

The scoring criteria encompassed essential factors, with each criterion having its own specific definitions as outlined below:

1. Content refers to the substance or ideas that the writer presents in their composition. It encompasses the main concepts or arguments systematically and coherently elaborated to ensure comprehension.

2. Organization can be defined as the process of rearranging and reordering one's own ideas to make them uniformly and logically connected. In order to do this effectively, ideas and transitions must be used appropriately and connected in a way that allows the progression of ideas to flow smoothly and logically.

3. Language use refers to the way in which language is employed, encompassing aspects such as sentence structure, appropriate selection of words and idioms, and the presence of minor lexical and grammatical errors that do not hinder comprehension or alter the intended meaning.

Table 6 below illustrated the scoring criteria used for grading the students' argumentative writing:

Table 6 TOEFL Writing Scoring Guide (Educational Testing Service, 2014)

Score	Task description
5	<p>Effectively demonstrates proficiency in both rhetorical and syntactic aspects.</p> <p>At this level:</p> <ul style="list-style-type: none"> • effectively addresses the writing task • is well-organized and well developed • uses clearly appropriate details to support a thesis or illustrate ideas • displays consistent facility in the use of language • demonstrates the syntactic variety and appropriate word choice

Table 6 (Cont.)

Score	Task description
4	<p>Demonstrates proficiency in writing at both the rhetorical and syntactic levels.</p> <p>At this level:</p> <ul style="list-style-type: none"> • may address some parts of the task more effectively than others • is generally well organized and developed • uses details to support a thesis or illustrate an idea • displays facility in the use of the language • demonstrates some syntactic variety and range of vocabulary
3	<p>Demonstrates a fundamental level of proficiency in writing at both the rhetorical and syntactic levels.</p> <p>At this level:</p> <ul style="list-style-type: none"> • addresses the writing topic adequately but may slight parts of the task • is adequately organized and developed • uses some details to support a thesis or illustrate an idea • demonstrates adequate but possibly inconsistent facility with syntax and usage • may contain some errors that occasionally obscure meaning
2	<p>Indicates improvement in writing competence, but it still contains flaws in either the rhetorical or syntactic aspects or in both.</p> <p>At this level: may reveal one or more of the following weaknesses:</p> <ul style="list-style-type: none"> • inadequate organization or development • inappropriate or insufficient details to support or illustrate generalizations • a noticeably inappropriate choice of words or word forms • an accumulation of errors in sentence structure and/or usage

Table 6 (Cont.)

Score	Task description
1	<p>Suggests incompetence in writing.</p> <p>At this level: seriously flawed by one or more of the following weaknesses:</p> <ul style="list-style-type: none"> • serious disorganization or underdevelopment • little or no detail, or irrelevant specifics • serious and frequent errors in sentence structure or usage • serious problems with focus
0	<p>Demonstrates incompetence in writing.</p> <p>At this level, the writing will be rated 0 if it:</p> <ul style="list-style-type: none"> • contains no response • merely copies the topic • is off-topic, is written in a foreign language or consists only of keystroke characters

According to Table 6, The full score for this writing assignment is 30 points, with scores coming from two examiners. These scores are then combined, and the maximum score remains 30 points. Furthermore, the overall score can also be categorized into 5 levels as follows,

Scores ranging from 25 to 30 points fall within the “Advanced” level.

Scores ranging from 19 to 24 points fall within the “High-Intermediate” level.

Scores ranging from 13 to 18 points fall within the “Low-Intermediate” level.

Scores ranging from 7 to 12 points fall within the “Basic” level.

Scores ranging from 0 to 6 points fall within the “Below Basic” level.

Moreover, the overall scores for each student, which encompassed the outcomes of argumentative writing assignments, both the pre-test and post-test, were assessed to ascertain their level of argumentative writing proficiency.

Content Validity and Expert Review

The pre-test, post-test, and writing tasks underwent validation to ensure content validity before implementation. Three English language instruction experts evaluated the suitability and relevance of the test items using the Item-Objective Congruency Index (IOC), achieving an IOC score of 1.00 for each assessment. These validation procedures ensured that the tests met educational objectives and academic standards.

Questionnaire

Two questionnaires were conducted to collect data on the students' perspectives toward online collaborative writing activity, specifically addressing Research Question 2. There were two parts of the questionnaire.

In the first part, a questionnaire was developed to explore the students' perspectives toward online collaborative writing activity. The questionnaire was adapted from Mohammed and Mohammed (2015).

It consisted of 20 items designed on the Likert scale, used to assess the students' perspectives on the 4C of 21st-century skills toward online collaborative writing activity. The questionnaire was composed of four sets. Each set inquired about their perspectives on the 4C of 21st-century skills through an online collaborative writing activity, including creativity skills, collaboration skills, communication skills, and critical thinking skills. The students were asked to judge 20 items and selected the choice that suited them best. The questionnaire had five response options ranging from 'Strongly agree = 5', 'Agree = 4', 'Neutral = 3', 'Disagree = 2', to 'Strongly Disagree = 1'.

In the second part, the questionnaire was developed to explore the students' attitudes toward the online collaborative writing activity using Microsoft Teams. The questionnaire was adapted from Wichanpricha (2021).

It consisted of 10 items designed on the Likert scale, used to assess the students' attitudes toward online collaborative writing activity through Microsoft Teams. The students were asked to judge 10 items and selected the choice that suited them best. The questionnaire had five response opinions ranging from "Strongly agree = 5", "Agree = 4", "Neutral = 3", "Disagree = 2", and "Strongly Disagree = 1".

For additional details on the specific questions used in the questionnaires, refer to Appendix C: The Students' Perspectives on the 4C of 21st-Century Skills toward Online Collaborative Writing Activity via MS Teams Questionnaire and Appendix D: The Students' Attitudes toward the Online Collaborative Writing Activity Using Microsoft Teams Questionnaire.

Content Validity and IOC Scores

To ensure the instrument's validity and reliability, the two questionnaires were submitted to three experts in English language teaching, for their evaluation and endorsement of content validity. The three professionals evaluated the questionnaires using the Index of Item Objective Congruence (IOC), where a score of 1.0 indicated that the questions met the necessary criteria and were appropriate for the study. The questionnaires underwent testing during a pilot study to ascertain the reliability of the instrument. Following the establishment of statistically reliable results, the questionnaires were administered to the target group to assess their perspectives on online collaborative writing activities.

Qualitative data collections

Semi-Structured Interview

A semi-structured interview was conducted to collect data on the effects of online collaborative writing on argumentative writing, specifically addressing Research Question 1. The purpose of using semi-structured interviews was to gather richer, exploratory data on participants' attitudes and perceptions toward online collaborative writing activities.

A total of nine students, three from each proficiency level (advanced, intermediate, and novice), were randomly selected to participate in individual interview sessions. Before conducting the interviews, the researcher explained the need for informed written consent and ensured participants understood the main objective of the interview before asking them to sign. Participants were informed that their voices would be recorded for research purposes only, their identities would remain confidential, and pseudonyms would be used in the research findings and discussion. Each interview lasted about 15 minutes and was recorded using a digital voice recorder.

and a mobile voice memo application. The interviews were conducted in Thai, and the researcher will record the student's responses to the interview questions. After the interviews, the researcher translated the data into English and transcribed the recorded interviews for further analysis.

Validation and IOC Scores

The interview questions were evaluated for content validity by three English language teaching experts to ensure their relevance and appropriateness before use. The validation process employed the Item Objective Congruency (IOC) index to assess the questions, with a score of 1.0 indicating that the questions met the required criterion and were deemed suitable for the study.

Ethical Approval

This study received approval from the Human Ethics Committee for Ethical Considerations in Human Subjects Research at the University of Phayao and was granted an authorization certificate, numbered 2.2/148/67. After committee approval, participants were informed about the research aims and procedures and were provided with consent forms to confirm their voluntary participation. The documents containing participant information did not include any identifying details, and their participation remained confidential. The recordings retained with the participants' consent during the interviews were used only for data analysis and were not disclosed to other parties. During data analysis, the interviews were transcribed, and each participant was assigned a number to maintain anonymity, without using their names in the documents. The data were stored securely on a password-protected laptop, and the surveys were kept in a safe location. The data were retained for three years, after which the hard copies were shredded, and the electronic files were deleted.

Observation and Video-Recordings

Data collection began after receiving ethics approval from the University of Phayao. To address the research question regarding students' perspectives on online collaborative writing, observation, and video recordings were utilized as valuable tools. According to Abrams (2019), Collaborative learning is based on the sociocultural learning theory, which suggested that the learning process should be intertwined

with meaningful social interactions in which language served as a conduit for mutual engagement. Learners took advantage of opportunities to engage and exchange ideas with others during discussions to build knowledge. In this context, language played a crucial role in facilitating interactions as it enabled learners to strategize, coordinate, solve problems, and collaboratively develop ideas, ultimately contributing to knowledge construction during their interactions (Chen, 2020; Li and Kim, 2016; Li and Zhu, 2017) in order to complete the task. Meaningful and relevant social interactions resulted in meaningful learning and the collective construction of knowledge.

Observation

In this study, observation was employed to gather contextual insights and develop detailed descriptions of settings and activities. Observing in natural settings provided a deeper understanding of participants' behaviors and group interactions. This method was essential in qualitative research, particularly when firsthand observation was needed, fresh perspectives were required, or when participants were unable to discuss the topic, as it allowed for capturing both nonverbal cues and verbal responses, enriching the analysis (Merriam, 2009, as cited in Yawiloeng, 2013; Rossman & Rallis, 2017 as cited in Chairinkam, 2024). In this study, observation was used to monitor EFL learners' behaviors during online writing activities.

Video-Recordings

Audio and video recordings are essential for conducting participant observation and interviews effectively. Participants were required to sign a consent form before participating to ensure they were aware that their behaviors and spoken language would be recorded. In this study, spoken language included both peer interactions and self-talk in Thai. The recorded spoken language was used to analyze participants' discussions during online writing activities and to understand how these conversations supported their perspectives on the 4C of 21st-century skills.

Inter-Rater and Intra-Rater Reliability

In order to gain data on argumentative writing quality, two raters were assigned to rate the students' writing quality. Rater 1 was a Thai English teacher in the English Department at University of Phayao. Rater 2 was a native speaker who has experience

teaching English to Thai EFL students. To establish inter-rater reliability, the scores assigned by the two raters for the writing quality were carefully analyzed.

Data Collection

This study focused on two aspects: student's writing argumentative writing quality scores and their perspectives toward online collaborative writing activities. The data collection was implemented in the following manner:

1. In August–September 2024, a pilot study was conducted, involving the students writing an argumentative paragraph to assess their progress following the commencement of the experimental study. The objective of the pilot study was to evaluate the research procedures, instruments, and data collection tools, ensuring their effectiveness before conducting a larger-scale study. Pilot studies were valuable for identifying any potential issues or shortcomings with the research instruments.

2. In September–October 2024, the instructional period for online collaborative writing activities spanned six weeks, consisting of six lesson plans. During this time, students were tasked with composing four argumentative paragraph writings. The primary objective of this study was to investigate the impact of online collaborative writing on argumentative writing skills. Data collection involved assessing the students' written work, which was then evaluated by two raters using the TOEFL Writing Scoring Guide (Educational Testing Service, 2014). The holistic scoring rubric was employed to evaluate the proficiency of argumentative paragraph writing. The main objective of this assessment was to appraise the content, organization, and language use displayed in the students' work. The criteria for the assignment were explicitly communicated to the students at the outset of the writing process, serving as a guiding framework to be adhered to throughout the duration of the course.

3. In October–November 2024, the quantitative and qualitative data were collected from video recordings and questionnaires. These instruments were employed to analyze students' perspectives on practical skills that occurred during online collaborative writing activities. Furthermore, the students underwent a semi-structured interview to analyze the quality of their argumentative writing through online collaborative writing activities.

The data obtained from pre-test, post-test and four argumentative writing tasks carried out during the study were analyzed using statistical methods. Subsequently, the students' perspectives on online collaborative writing activities were interpreted and identified.

Table 7 presented a summary of research instruments and methods for each research question.

Table 7 Summary of Research Instruments Used in the Study

Research Questions	Quantitative Instruments Used	Qualitative Instruments Used
RQ1. What are the effects of online collaborative writing on EFL students' argumentative writing ability?	<ul style="list-style-type: none"> ■ Pre-test and Post-test ■ 4 argumentative paragraph writing assignments 	<ul style="list-style-type: none"> ■ Lesson Plans ■ Semi-structured interview
RQ2. What are the students' perspectives on the 4C's of 21 st -century skills toward online collaborative writing via MS Teams?	<ul style="list-style-type: none"> ■ Questionnaires 	<ul style="list-style-type: none"> ■ Peer scaffolding behaviors from observation and video recording

This study was conducted six weeks during the 2024 academic year in the Academic Writing (146311) course at the University of Phayao. The course was chosen for data collection because it aimed to develop students' argumentative writing skills. A key purpose of this study was to gain insight into students' writing improvement following online collaborative argumentative writing activities. It was essential to use activities in the writing class that would positively impact students' learning without any negative effects. Table 8 summarized the planned data collection schedule.

Table 8 Planned Schedule for Data Collection

Quantitative Instruments	Qualitative Instruments	Year	Month	Week	Time span
■ Pre-test		2024	September	1	60 mins
■ online argumentative paragraph writing 1	■ Video recording	2024	September	3	120 mins
■ online argumentative paragraph writing 2	■ Video recording	2024	October	3	120 mins
■ online argumentative paragraph writing 3	■ Video recording	2024	October	4	120 mins
■ online argumentative paragraph writing 4	■ Video recording	2024	October	4	120 mins
■ Post-test		2024	October	5	60 mins
	■ A semi- structured interview	2024	October	5	15 mins/ person
■ Questionnaire 1		2024	November	6	30 mins
■ Questionnaires 2		2024	November	6	30 mins

Data Analysis

Online Collaborative Writing Activity was employed to assess its impact on EFL students' argumentative writing skills and their perspectives on the 4C of 21st-century skills in the context of online collaborative writing using MS Teams. This section explained the quantitative and qualitative methods used to comprehensively assess these impacts. Semi-structured interviews encouraged students to reflect deeply on

the activity, and the following section detailed the quantitative methods applied to understand the classroom outcomes.

Quantitative Data Analysis

The quantitative data analysis section provided an examination of several key datasets. Section one analyzed pre-and post-test scores, offering insights into the improvement of students' argumentative writing skills throughout the study. Section two analyzed scores from four online argumentative writing assignments, exploring how advanced, intermediate, and novice learners collaborated in composing argumentative paragraphs for each task. Finally, section three analyzed questionnaire data, focusing on students' perspectives and attitudes toward the online collaborative writing activity using Microsoft Teams. Together, these analyses aimed to offer a comprehensive view of the activity's impact on students' argumentative writing skills and their perspectives on the 4C of 21st-century skills.

Learners' Pre-test and Post-test Scores

This quantitative analysis answered Research Question 1. What are the effects of online collaborative writing on EFL students' argumentative writing ability?

The learners' pre-test and post-test scores were evaluated by two experts in English language studies using the TOEFL Writing Scoring Guide (Educational Testing Service, 2014) (see Appendix C). The scoring guide used a 5-point holistic scale, with scores ranging from 0 to 5, including half-point increments. A minimum score of 1 was given, with 0 reserved for irrelevant, incomprehensible, or foreign-language responses. A score of 1 indicates limited competency, while a score of 5 represented mastery. The total score for this writing assignment was 30 points, with scores provided by two examiners. The scores were combined, and the maximum possible score remained 30 points. The scores were then compared using the "Converting Rubric Scores to Scaled Scores for the Writing Section of the TOEFL Test" as shown in table 9 below.

**Table 9 Converting Rubric Scores to Scaled Scores for the Writing Section
of the TOEFL Test**

Writing Rubric Mean	Scaled Score
5.00	30
4.75	29
4.50	28
4.25	27
4.00	25
3.75	24
3.50	22
3.25	21
3.00	20
2.75	18
2.50	17
2.25	15
2.00	14
1.75	12
1.50	11
1.25	10
1.00	8
	7
	5
	4
	0

Furthermore, the overall score can also be categorized into 5 levels as follows,

Scores ranging from 25 to 30 points fall within the “Advanced” level.

Scores ranging from 19 to 24 points fall within the “High-Intermediate” level.

Scores ranging from 13 to 18 points fall within the “Low-Intermediate” level.

Scores ranging from 7 to 12 points fall within the “Basic” level.

Scores ranging from 0 to 6 points fall within the “Below Basic” level.

The overall scores for each student, including both the pre-test and post-test results, were evaluated to determine their level of argumentative writing proficiency.

Two raters were employed to improve the percentage agreement and interrater reliability. The inter-rater correlation coefficients for the learners' pre- and post-test scores were assessed. The average scores from the two raters for the pre- and post-tests were used in statistical analysis with a paired-sample t-test to compare learners' mean scores and assess the differences in their writing performance after completing four argumentative paragraph writing assignments.

Learners' Writing Assignment Scores

This investigation addressed Research Question 1. The four argumentative paragraph writings, created by students working in groups on Microsoft Teams, enabled the researcher to conduct quantitative data analysis. Students were given the opportunity to write argumentative paragraphs on four different topics to assess their argumentative writing in online collaborative writing. The topics, selected from IELTS examination prompts, covered areas such as education, family, social issues, and media.

Two experts in English language studies evaluated the learners' writing assignment scores using the TOEFL Writing Scoring Guide (Educational Testing Service, 2014) (see Appendix B). The writing scoring guide was used, with the same scoring method and score comparison applied as for the pre-post test writing.

Two raters were used to enhance percentage agreement and interrater reliability. The inter-rater correlation coefficients for the writing assignment scores were assessed. A paired-sample t-test was used to analyze average scores from both raters, comparing mean scores to evaluate changes in students' writing development from the 1st to the 4th writing assignments.

Analysis of Questionnaire Data

There were two questionnaires used in the study. The first questionnaire, found in Appendix E, was developed to explore students' perspectives toward online collaborative writing. Adapted from Mohammed and Mohammed (2015), it consisted of 20 Likert-scale items, divided into four sets, each addressing one of the 4C: creativity, collaboration, communication, and critical thinking skills.

The second questionnaire, found in Appendix F, aimed to explore students' attitudes toward online collaborative writing activity using Microsoft Teams. Adapted from Wichanpricha (2021), it contained 10 Likert-scale items, where students selected the option that best reflected their views.

The Likert-scale format, with a range from 1 (Strongly Disagree) to 5 (Strongly Agree), was employed to assess students' agreement with each statement, providing a comprehensive understanding of their perceptions and attitudes.

Interpretation of Likert-Scale Questionnaire Results

The analysis of the two questionnaires, which assessed students' perspectives on the 4C of 21st-century skills and their attitudes toward online collaborative writing, indicated that this teaching method was effective.

Rating Scale and Interpretation

The Likert Scale used in the survey, which assessed students' perspectives on the 4C of 21st-century skills and their attitudes toward online collaborative writing, enabled students to rate their agreement with each statement on a scale from 1 to 5, where:

- 1 represents Strongly Disagree
- 2 represents Disagree
- 3 represents Neutral
- 4 represents Agree
- 5 represents Strongly Agree

In this study, the researcher employed the mean score interpretation procedure developed by Chaiwiwatrakul (2015) to accurately measure students' perspectives and attitudes, offering a detailed understanding of their opinions as follows in Table 10:

Interpretation of Mean Scores for Learners' Perception (Chaiwiwatrakul, 2015)

Table 10 Interpretation of Mean Scores for Learners' Perception

Means	Interpretation
4.50–5.00	Learners reported having a "Strongly Agree" level of perception on the statement given.
3.50–4.49	Learners reported having a "Agree" level of perception on the statement given.
2.50–3.49	Learners reported having a "Neutral" level of perception on the statement given.
1.50–2.49	Learners reported having a "Disagree" level of perception on the statement given.
1.00–1.49	Learners reported having a "Strongly Disagree" level of perception on the statement given.

Descriptive Statistics

The analysis began by calculating descriptive statistics for the questionnaire responses, including mean scores for each statement, which offered an overview of students' perspectives on the 4C of 21st-century skills and their attitudes toward online collaborative writing. Standard deviation was also calculated to assess response variability, providing insights into the level of consensus among students.

Qualitative Data Analysis

Qualitative data were non-numerical information gathered to gain deeper insights into the topic being studied. In this study, the qualitative data included semi-structured interviews, observations, and video recordings. Collecting data from these various sources helped deepen the researcher's understanding of the phenomena under study, validate findings, and enhance confidence in drawing reliable conclusions.

Semi-Structured Interviews

To collect data on the effects of online collaborative writing on argumentative writing for Research Question 1, a semi-structured interview was conducted. Nine students, three from each proficiency level (advanced, intermediate, and novice)

were randomly chosen for individual interviews. The interview transcripts were subsequently analyzed qualitatively through content analysis.

Peer scaffolding behaviors

The study aimed to investigate students' perspectives during group work on an argumentative writing task by gathering data through observation, video recordings, and peer scaffolding behaviors adapted from Li and Kim (2016). The analysis of the data concentrated on these scaffolding behaviors, which were characterized by dialogues in which learners discussed, questioned, or corrected their language use to collaboratively address grammatical and lexical challenges (Li & Kim, 2016).

The study analyzed peer scaffolding behaviors during EFL writing activities using the functions of language adapted from Li and Kim (2016). The functions included acknowledging, agreeing, disagreeing, elaborating, eliciting, greeting, justifying, questioning, requesting, stating, and suggesting. These functions were classified according to the 4C's framework of 21st-century skills: creativity, collaboration, communication, and critical thinking. Table 11 categorized peer scaffolding behaviors based on these student perspectives.

The peer scaffolding behaviors adapted from Li and Kim (2016) are classified to the 4C's perspectives of students.

Table 11 The peer scaffolding behaviors adapted from Li and Kim (2016) are classified to the 4C's perspectives of students.

Peer Scaffolding Behaviors	Definition	4 C's Classification
Acknowledging (Ac.)	Recognizing or commending others' ideas, comments, support, and capabilities	Collaboration
Agreeing (Ag.)	Expressing agreement with others' perspectives	Collaboration
Disagreeing (Di)	Expressing disagreement with others' perspectives	Critical Thinking

Table 11 (Cont.)

Peer Scaffolding Behaviors	Definition	4 C's Classification
Elaborating (El.)	Expanding and elaborating on one's own or others' ideas related to writing	Creativity
Eliciting (Eli.)	Inviting or eliciting opinions and comments from group members	Communication
Greeting (Gr.)	Greeting group members	Communication
Justifying (Ju.)	Defending one's own ideas or comments with supporting reasons	Critical Thinking
Questioning (Qu.)	Asking questions about unclear topics	Critical Thinking
Requesting (Re.)	Making direct requirements or requests	Communication
Stating (St.)	Stating one's ideas and the concepts previously discussed by the group; sharing written content or information	Communication
Suggesting (Su.)	Offering suggestions or recommendations about writing contents, structure, format etc	Creativity

The video recordings were transcribed to analyze peer scaffolding behaviors and the development of 4C practical skills in EFL learners during online writing activities. The transcriptions were then reviewed and verified by two Thai teacher experts.

Transcription and Initial Reading

The process began with verbatim transcription of interview and video recording, capturing details for accuracy. This careful transcription set a strong basis for in-depth analysis. Each transcript was then read repeatedly to fully understand the content, which helped the researcher become deeply familiar with the data and identify initial insights and patterns. An example of the transcription and initial reading can be found in Appendix E.

Conclusion

In Chapter 3, the research outlined a comprehensive approach to examining the impact of online collaborative writing activities on EFL students' argumentative writing skills and their perspectives on the 4C of 21st-century skills (critical thinking, communication, collaboration, and creativity). The chapter explained the study's mixed-methods design, which included pre-and post-tests, four argumentative writing assignments, semi-structured interviews, questionnaires, and observations with video recordings. The approach included research design, participants of the study, research procedure, research instruments, validation, ethical approval, inter-rater, and intra-rater reliability, as well as data collection and data analysis, including techniques for interpreting the results. Quantitative data were analyzed statistically to assess students' skills and perceptions, while qualitative data underwent content analysis to gain deeper insights into the development of students' argumentative writing and their perspectives on the effectiveness of the 4C. Following the methodological foundation set in Chapter 3, the next chapter presented the results of the study including the quality of students' argumentative writing, and students' perspectives on the 4C practical skills, addressing the research objectives outlined at the beginning of this investigation.

CHAPTER IV

RESULTS

This study investigated the effects of online collaborative writing on EFL students' argumentative writing abilities. Moreover, this study aimed to explore the students' perspectives on the 4C of 21st-century skills toward online collaborative writing via MS Teams. This chapter presented the findings from the two research questions, organized into two main sections. First, section 1 explored the use of online collaborative writing activity by twenty EFL learners in an EFL writing classroom, while section 2 examined Thai EFL students' perspectives on the 4C of 21st-century skills with these activities. The findings from these analyses were presented in relation to the following research questions. Research Question 1 is "What are the effects of online collaborative writing on EFL students' argumentative writing ability?" Research Question 2 is "What are the students' perspectives on the 4C of 21st-century skills toward online collaborative writing via MS Teams?"

To address the research questions, this chapter provided an overview of both quantitative and qualitative data.

Answer to Research Question 1:

What are the effects of online collaborative writing on EFL students' argumentative writing ability?

For the first research question, the statistical findings are as follows:

The comparison of pre-test and post-test results demonstrated a significant overall improvement in students' argumentative writing skills.

To obtain the results of EFL students' argumentative writing proficiency before and after implementing the writing instruction in the online collaborative writing activities, the participants were assigned to do a pre-test with a total of thirty scores on their English argumentative paragraph writing proficiency before the implementation. They were also assigned to do a post-test with thirty scores after the implementation.

The findings were presented in the mean score, standard deviation, and paired samples t-test in this part. Table 12 presented the results of the analysis.

Table 12 Analysis of Paired Samples Test for the mean score of the students' argumentative writing quality comparing pre- and post-tests

Test	n	Mean	S.D.	Mean	t-test	df	Sig	Lower	Upper
Difference									
Pre-test	20	4.85	0.812	4.8500	26.688	19	0.000*	4.4696	5.2304
Post-test	20	7.40	1.046	7.4000	31.629	19	0.000*	6.9103	7.8897

Note: *Significance level of 0.05 ($P < .05$)

Table 12 presented the results of the Paired Samples Test, analyzing the argumentative writing performance of 20 Thai undergraduate students before and after participating in online collaborative writing activities. The data emphasized the significant improvements in students' argumentative writing skills and was presented in a straightforward and concise statistical format. The initial pre-test results ($n = 20$) reveal an average argumentative writing proficiency score of 4.85, with a t-value of 26.688 and a highly significant p-value (0.000*), indicating a robust baseline proficiency level. The confidence interval, ranging from 4.4696 to 5.2304, provides a reliable estimate of the student's initial argumentative writing abilities. After implementing online collaborative writing activities, the post-test results demonstrated a substantial improvement in students' proficiency, with an average score of 7.40. This post-intervention enhancement was supported by a t-value of 31.629 and a highly significant p-value (0.000*). The confidence interval, ranging from 6.9103 to 7.8897, further substantiated the reliability of these findings. The marked increase in scores, coupled with the statistical significance, strongly indicated that the online collaborative writing activities effectively enhanced students' argumentative writing skills.

In summary, Table 12 clearly illustrated the substantial impact of online collaborative writing activities on improving argumentative writing proficiency, as demonstrated by the significant differences between pre-and post-test scores. These findings emphasized the effectiveness of the instructional method and

underscored the students' ability to achieve meaningful improvements in their argumentative writing skills.

The improvement of argumentative writing skills through online collaborative writing activities for advanced learners

The study assessed EFL students' argumentative writing proficiency, particularly among advanced learners, before and after implementing online collaborative writing activities. Participants completed the pre-test and post-test, scoring a total of 30 points on their English argumentative paragraph writing. The results were analyzed using mean scores, standard deviation, and paired samples t-test, with findings presented in Table 13.

Table 13 Analysis of Paired Samples Test for the mean score of the advanced students' argumentative writing quality comparing pre- and post-tests

Test	n	Mean	S.D.	Mean	t-test	df	Sig	Lower	Upper
Difference									
Pre-test	5	20.00	0.125	20.000	36.470	4	0.000*	24.7597	28.8403
Post-test	5	26.80	1.643	26.8000	63.687	4	0.000*	22.3799	24.4201

Note: *Significance level of 0.05 ($P < .05$)

Table 13 presented the results of the Paired Samples Test, which evaluated the argumentative writing performance of five advanced students before and after engaging in online collaborative writing activities. The pre-test results ($n = 5$) showed an average score of 20.00, with a t-value of 36.470 and a highly significant p-value (0.000*), indicating a strong baseline proficiency. After participating in the online collaborative writing activities, the post-test results revealed a significant improvement, with an average score of 26.80. This increase was supported by a t-value of 63.687 and a highly significant p-value (0.000*), demonstrating that the online collaborative writing activities were effective in enhancing the argumentative writing skills of advanced students.

The improvement of argumentative writing skills through online collaborative writing activities for intermediate learners

The study evaluated the argumentative writing proficiency of EFL students, focusing on intermediate learners before and after implementing online collaborative writing activities. Participants completed pre- and post-tests, with a total score of 30 points for their English argumentative paragraph writing. The results were analyzed using mean scores, standard deviation, and paired samples t-test, as presented in Table 14.

Table 14 Analysis of Paired Samples Test for the mean score of the intermediate students' argumentative writing quality comparing pre- and post-tests

Test	n	Mean	S.D.	Mean Difference	t-test	df	Sig	Lower	Upper
Pre-test	6	16.00	0.632	16.000	25.298	5	0.000*	14.3742	17.6258
Post-test	6	23.66	1.173	20.649	20.163	5	0.000*	20.6493	26.6840

Note: *Significance level of 0.05 ($P < .05$)

Table 14 presented the results of the Paired Samples Test, which evaluated the argumentative writing performance of six intermediate students before and after engaging in online collaborative writing activities. The pre-test results ($n = 6$) show an average score of 16.00, with a t-value of 25.298 and a highly significant p-value (0.000*), indicating a strong baseline proficiency. After participating in the online collaborative writing activities, the post-test results showed a significant improvement with an average score of 23.66. This improvement was confirmed by a t-value of 20.163 and a highly significant p-value of 0.000, indicating the statistical significance of the post-test results. The significant increase in the mean score from the pre-test to the post-test emphasized the effectiveness of the online collaborative approach in enhancing students' argumentative writing proficiency.

The improvement of argumentative writing skills through online collaborative writing activities for novice learners

The study evaluated the argumentative writing proficiency of EFL students, focusing on novice learners before and after implementing online collaborative writing activities. Participants completed pre-and post-tests, scoring 30 points for their English argumentative paragraph writing. The results were analyzed using mean scores, standard deviation, and paired samples t-test, as presented in Table 15.

Table 15 Analysis of Paired Samples Test for the mean score of the novice students' argumentative writing quality comparing pre- and post-tests

Test	n	Mean	S.D.	Mean Difference	t-test	df	Sig	Lower	Upper
Pre-test	9	15.00	1.5	15.000	30.00	8	0.000*	13.8470	16.1530
Post-test	9	21.33	1.0	21.333	64.00	8	0.000*	20.5647	22.1020

Note: *Significance level of 0.05 ($P < .05$)

Table 15 presents the Paired Samples Test results, assessing the argumentative writing performance of nine novice students before and after online collaborative writing activities. The pre-test average score was 15.00, supported by a t-value of 30.00 and a highly significant p-value (0.000), indicating a solid baseline proficiency. Post-test results revealed a significant improvement, with an average score of 21.33, confirmed by a t-value of 64.00 and a p-value of 0.000. The substantial increase in scores underscored the effectiveness of the online collaborative approach in improving students' argumentative writing proficiency.

The improvement of argumentative writing skills through online collaborative writing activities for students at all proficiency levels

The study assessed EFL students' argumentative writing proficiency across all proficiency levels before and after implementing online collaborative writing activities. Participants completed pre-and post-tests, and each was scored out of 30 points. The analysis presented in Table 16 used mean scores, standard deviation, and a paired samples t-test to evaluate the results.

Table 16 Analysis of the Paired Samples Test for the mean scores of students' argumentative writing proficiency, comparing pre-test and post-test results across all proficiency levels

Students' Level of English Proficiency	Pre-test				Post-test			
	Mean	S.D.	t-test	Sig	Mean	S.D.	t-test	Sig
Advanced (n = 5)	20.00	0.125	36.470	0.000*	26.80	1.643	63.687	0.000*
Intermediate (n = 6)	16.00	0.632	25.298	0.000*	23.66	1.173	20.163	0.000*
Novice (n = 9)	15.00	1.500	30.00	0.000*	21.33	1.000	64.00	0.000*

Note: *Significance level of 0.05 ($P < .05$)

Table 16 compares pre-test and post-test scores for students' argumentative writing proficiency across three English proficiency levels: Advanced, Intermediate, and Novice. Initially, the advanced group had the highest mean score (20.00), followed by the intermediate group (16.00), and the novice group (15.00), reflecting the expected proficiency differences. After participating in online collaborative writing activities, the advanced group achieved the highest post-test mean score (26.80), followed by the intermediate group (23.66), and the novice group (21.33).

The standard deviations (S.D.) for each group indicated variability in performance. The advanced group had the slightest pre-test standard deviation (0.125), suggesting consistent performance, but it increased slightly in the post-test (1.643). The intermediate group showed moderate variability at both stages, with slightly increased variability post-test (1.173 vs. 0.632). The novice group had the highest pre-test standard deviation (1.500), which decreased in the post-test (1.000), suggesting improved consistency following the intervention. Figure 17 illustrated the improvement in pre-test and post-test scores across three levels of English proficiency.

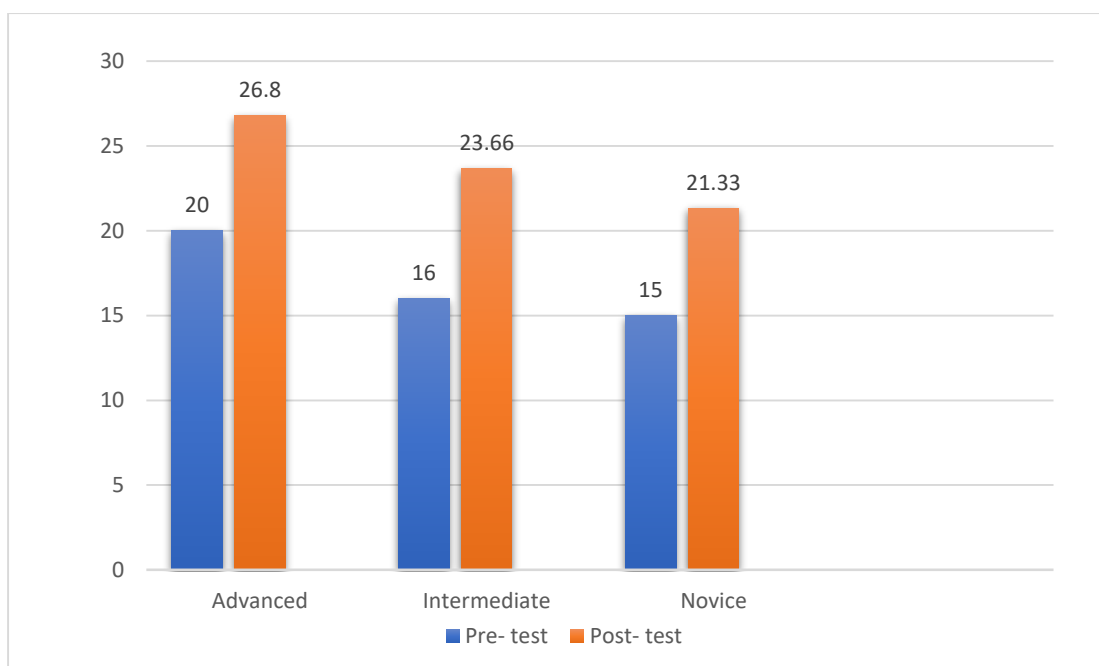


Figure 17 The improvement in pre-test and post-test scores across three levels of English proficiency.

In conclusion, students across all proficiency levels (advanced, intermediate, and novice) demonstrated statistically significant improvements in their argumentative writing proficiency after engaging in online collaborative writing activities. Although advanced learners achieved the highest post-test scores, both the intermediate and novice groups showed substantial relative gains, particularly given their initial lower proficiency levels. These results supported the effectiveness of online collaborative writing in enhancing argumentative writing skills for students at various levels of English proficiency.

The four argumentative paragraph writing assignments focused on group work during online collaborative writing activities

In this study, 20 students were divided into 5 groups to collaboratively write an argumentative paragraph for each assignment. The groups were formed based on students' previous English writing course grades, which categorized them as advanced, intermediate, and novice learners. Students were also given the opportunity to choose their own groups, with the condition that each group included members from all

proficiency levels. For the study, students worked in mixed-ability groups to write argumentative paragraphs on four different topics related to IELTS examination prompts, covering subjects such as education, family, social issues, and media. The scoring criteria, adapted from the Test of Written English (TWE), were used to assess students' argumentative writing skills. Two experts in English language studies evaluated the learners' writing assignments using the TOEFL Writing Scoring Guide (Educational Testing Service, 2014). Two raters were employed to assess the assignments to enhance interrater reliability. A paired-sample t-test was used to analyze the average scores from both raters, comparing the mean scores to assess changes in students' writing development between the first and fourth assignments. The following section presents a comparison of the writing assignment scores from Assignments 1 to 4 across the five student groups, organized sequentially.

**Table 17 Comparison of Four Argumentative Paragraph Writing Assignments:
Significant Improvement in Group One's Argumentative Writing Skills**

Students' assignments	Mean	S.D.
Writing Assignments 1	3.00	0.201
Writing Assignments 2	4.00	0.113
Writing Assignments 3	3.50	0.426
Writing Assignments 4	4.50	0.222
Total	3.75	0.044

Analyzing the four writing assignments for students in Group One revealed a pattern in both mean scores and the consistency of performance across assignments. The first assignment recorded the lowest mean score (3.00) with a relatively low standard deviation (0.201), indicating some consistency in student performance. In Assignment 2, the mean score increased to 4.00, accompanied by a low standard deviation (0.113), suggesting a high level of consistency in student performance. However, in Assignment 3, the mean score slightly decreased to 3.50, and the standard deviation rose to 0.426, indicating more significant variability in student performance.

Assignment 4 showed the highest mean score (4.50), reflecting an overall improvement in students' work, while the standard deviation (0.222) was slightly higher, indicating moderate consistency.

**Table 18 Comparison of Four Argumentative Paragraph Writing Assignments:
Significant Improvement in Group Two's Argumentative Writing Skills**

Students' assignments	Mean	S.D.
Writing Assignments 1	3.00	0.201
Writing Assignments 2	4.00	0.113
Writing Assignments 3	4.00	0.113
Writing Assignments 4	4.50	0.222
Total	3.87	0.357

The analysis showed a clear improvement in students' writing performance in Group Two across assignments. The mean score started at 3.00 in Assignment 1, with low variation (S.D. = 0.201), indicating consistent but lower performance. Assignment 2's mean score rose to 4.00, with an even lower standard deviation (S.D. = 0.113), reflecting more consistent and uniform performance. Assignment 3 maintained the same mean score of 4.00, with continued consistency. Finally, in Assignment 4, the mean score increased to 4.50, showing the highest performance, with a slightly higher S.D. of 0.222, suggesting a little more variation in scores but still relatively consistent results.

The overall mean score across all four assignments is 3.87, with a standard deviation (S.D.) of 0.357, indicating a general improvement in student performance. The data showed a clear upward trend in argumentative writing skills, with students progressively enhancing their abilities from Assignment 1 to Assignment 4.

**Table 19 Comparison of Four Argumentative Paragraph Writing Assignments:
Significant Improvement in Group Three's Argumentative Writing Skills**

Students' assignments	Mean	S.D.
Writing Assignments 1	3.50	0.426
Writing Assignments 2	3.50	0.426
Writing Assignments 3	4.50	0.222
Writing Assignments 4	4.50	0.222
Total	4.00	0.113

The analysis of the four assignments revealed that students in Group Three initially had a mean score of 3.50, with a standard deviation of 0.426, reflecting moderate performance and some variability in their results. The score remained unchanged at 3.50 for the second assignment, reflecting consistent performance but no improvement. In the third and fourth assignments, the mean score increased to 4.50, with a reduced standard deviation of 0.222, indicating significant improvement and greater consistency among student scores. The consistent performance in Assignments 3 and 4 suggested that students maintained a high level of writing proficiency with minimal variability.

The overall mean score was 4.00, with a low standard deviation of 0.113, suggesting a general improvement in students' performance throughout the assignments. The most notable progress was observed between the second and third assignments, with a reduction in variation indicating that students' performance became more consistent as the tasks progressed. The data demonstrated a trend of improvement in students' argumentative writing skills, particularly in the final two assignments, where performance remained stable.

**Table 20 Comparison of Four Argumentative Paragraph Writing Assignments:
Significant Improvement in Group Four's Argumentative Writing Skills**

Students' assignments	Mean	S.D.
Writing Assignments 1	4.00	0.113
Writing Assignments 2	3.50	0.426
Writing Assignments 3	4.00	0.113
Writing Assignments 4	5.00	0.111
Total	4.12	0.731

The analysis of the four writing assignments for Group Four showed a trend across assignments. In Assignment 1, students achieved a mean score of 4.00 with a low standard deviation of 0.113, indicating strong performance and minimal variability. Assignment 2 saw a drop in the mean score to 3.50, with a higher standard deviation of 0.426, suggesting more variability in student performance and a slight decline. However, in Assignment 3, there was a recovery with the mean score returning to 4.00 and the standard deviation returning to 0.113, indicating consistent performance. Assignment 4 had the highest mean score of 5.00 with a very low standard deviation of 0.111, demonstrating both the best performance and a high level of consistency.

The total mean score was 4.12, with a relatively high standard deviation of 0.731, suggesting some variability in student performance across the assignments. Despite this fluctuation, there was an improvement, particularly a significant increase in performance in Assignment 4. The data demonstrated a general upward trend in student performance, with the most outstanding improvement occurring between Assignments 3 and 4.

**Table 21 Comparison of Four Argumentative Paragraph Writing Assignments:
Significant Improvement in Group Five's Argumentative Writing Skills**

Students' assignments	Mean	S.D.
Writing Assignments 1	3.50	0.426
Writing Assignments 2	4.00	0.113
Writing Assignments 3	4.50	0.222
Writing Assignments 4	5.00	0.111
Total	4.25	0.921

The analysis of the four writing assignments for Group Five showed a clear trend of improvement across the assignments. In Assignment 1, the mean score is 3.50 with a standard deviation of 0.426, indicating moderate performance with some variability. Assignment 2's mean score increased to 4.00, with a low standard deviation of 0.113, suggesting more consistent performance. Assignment 3 showed further improvement, with a mean score of 4.50 and a slightly higher standard deviation of 0.222, indicating continued progress but with slightly more variability. In Assignment 4, the highest mean score of 5.00 was achieved, accompanied by a very low standard deviation of 0.111, reflecting both excellent performance and high consistency.

The total mean score across the assignments is 4.25, with a standard deviation of 0.921, indicating a general improvement in student performance. The higher standard deviation suggested more variability, especially in the earlier assignments. However, the data showed an upward trend in performance, with the most significant improvement observed between Assignments 3 and 4.

Table 22 The improvement in four argumentative writing assignment scores
focused on group work during online collaborative writing activities

Group	n	Mean	S.D.	Mean	t-test	df	Sig	Lower	Upper
Difference									
Group 1	4	23.75	1.750	23.750	13.571	3	0.001*	18.1807	29.3193
Group 2	4	24.50	1.658	24.500	14.774	3	0.001*	19.2225	29.7775
Group 3	4	25.00	1.732	25.000	14.434	3	0.001*	19.4878	30.5122
Group 4	4	25.50	1.658	25.500	15.377	3	0.001*	20.2225	30.7775
Group 5	4	26.25	1.750	20.680	15.00	3	0.001*	20.6807	31.8193

Note: *Significance level of 0.05 ($P < .05$)

The study examined the four writing assignments completed by EFL students, with a specific focus on Group performance and progression. A steady improvement was observed across groups, with scores increasing from 23.75 in Group 1 to 26.25 in Group 5. Standard deviations remained relatively stable, ranging between 1.658 and 1.750, indicating consistent performance across groups with minor variations. All groups exhibited statistically significant results ($p = 0.001$), confirming that the observed differences in performance were not due to random chance. Figure 18 illustrated the improvement in group performance of students across four argumentative writing assignments during online collaborative writing activities.

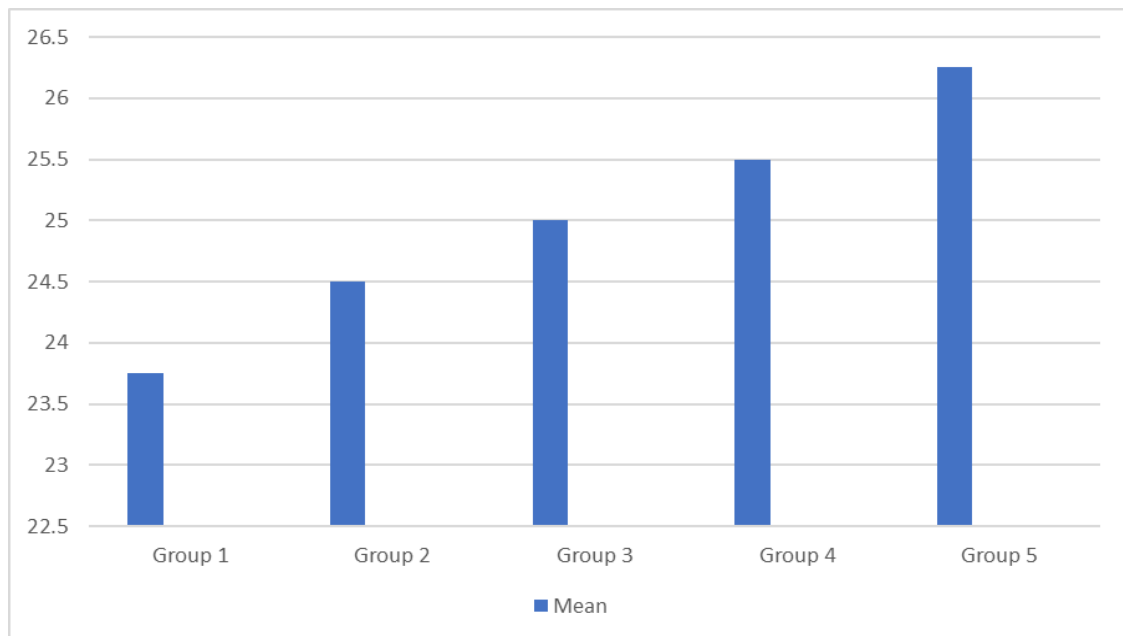


Figure 18 The improvement in group performance of students across four argumentative writing assignments during online collaborative writing activities.

In summary, the data demonstrated a strong rising trend in student performance from Group 1 to Group 5, with the highest mean score achieved by Group 5 (26.25) and the lowest by Group 1 (23.75). While score variability remained moderate across groups, the progression is statistically significant, reflecting consistent and meaningful improvement in students' writing performance. Confidence intervals further validated the differences in performance levels between groups.

Table 23 The improvement in four argumentative writing assignment scores focused on group work during online collaborative writing activities

Writing Assignment	n	Mean	S.D.	Mean Difference	t-test	df	Sig	Lower	Upper
WA 1	5	21.80	0.916	21.800	23.786	4	0.000*	19.2553	24.3447
WA 2	5	23.80	0.734	23.800	32.388	4	0.000*	21.7597	25.8403
WA 3	5	25.60	1.122	25.600	22.806	4	0.000*	22.4834	28.7166
WA 4	5	28.80	0.489	28.800	58.788	4	0.000*	27.4398	30.1602

Note: *Significance level of 0.05 ($P < .05$)

The analysis examines the progression of group performance in students' scores across four argumentative writing assignments conducted during online collaborative writing activities. The first assignment had the lowest mean score, reflecting the baseline performance with minimal variability (S.D. = 0.916). A significant increase of 2.00 points in the mean score was observed in the second assignment, accompanied by greater consistency (lower S.D. = 0.734). The third assignment showed a further mean increase of 1.80 points, though a slightly higher S.D. (1.122) suggested some variability. The fourth assignment achieved the highest mean score, with a notable increase of 3.20 points and the lowest S.D. (0.489), indicating excellent performance with high consistency. All t-test values were statistically significant ($p < 0.05$), confirming meaningful progress across the assignments. Figure 19 illustrated group performance improvement in students' scores across four argumentative writing assignments conducted during online collaborative writing activities.

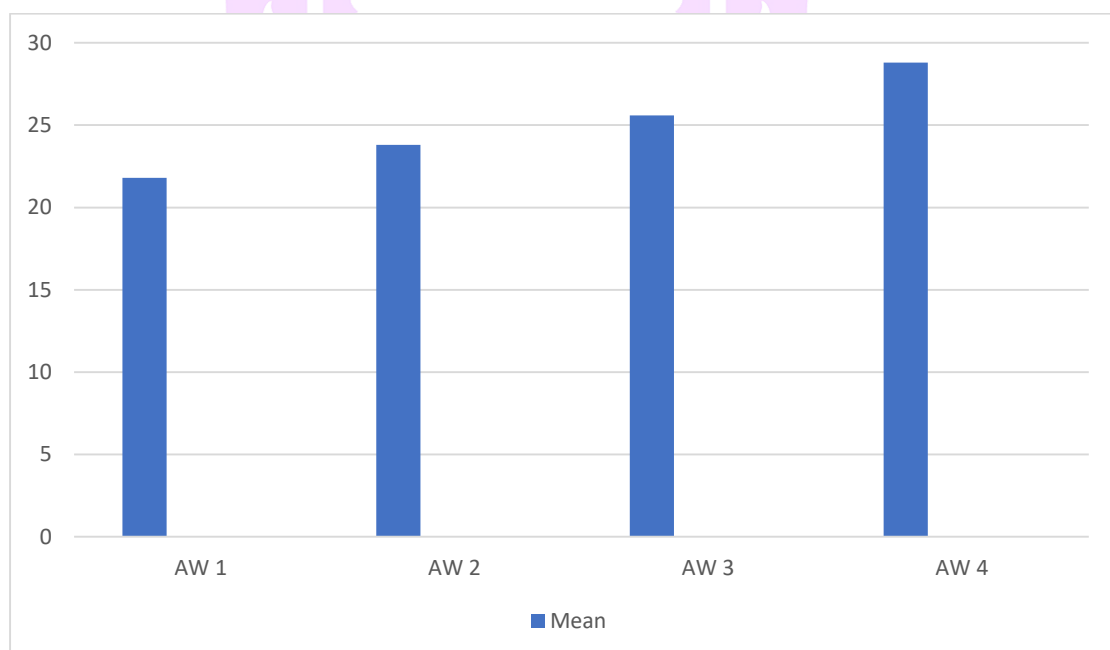


Figure 19 illustrated group performance improvement in students' scores across four argumentative writing assignments conducted during online collaborative writing activities

The mean scores demonstrated a steady upward, beginning at 21.80 in Assignment 1 and culminating at 28.80 in Assignment 4, indicating a total improvement of 7.00 points. While there was a slight increase in variability (S.D.) in Assignment 3, Assignment 4 exhibited the highest consistency with the lowest S.D. of 0.489. The p-values for all assignments were below the significance level ($p < 0.05$), confirming that the improvements were statistically significant. These findings underscored the effectiveness of online collaborative writing activities in progressively enhancing students' argumentative writing skills.

Answer to Research Question 2:

What are the students' perspectives toward online collaborative writing activity via MS Teams?

To address this research question, this study presented both quantitative and qualitative data as follows:

Quantitative data:

1. Peer scaffolding behaviors used by twenty EFL learners during pre-writing activity
2. Peer scaffolding behaviors used by twenty EFL learners during while-writing activity
3. Peer scaffolding behaviors used by twenty EFL learners during post-writing activity
4. The questionnaire on the students' perspectives on the 4C's of 21st-century skills toward online collaborative writing activity
5. The questionnaire on the student's attitudes toward the online collaborative writing activity
6. The EFL students semi-structured Interviews after engaging in the online collaborative writing activity

Qualitative data:

1. EFL advanced, intermediate, and novice learners 4C' skills through peer scaffolding writing during the pre-writing activity

2. EFL advanced, intermediate, and novice learners 4C' skills through peer scaffolding writing during the while - writing activity

3. Peer scaffolding behaviors of the advanced, intermediate, and novice learners during post-writing activity

The results of research question 2: Peer scaffolding behaviors utilized by twenty EFL learners during online collaborative writing activities: pre-writing, while-writing, and post-writing activities.

The tables below presented the quantitative data on the frequency of peer scaffolding behaviors among twenty EFL learners. This group included five advanced, six intermediate, and nine novice learners participating in an EFL writing course at the University of Phayao during every stage of the online collaborative writing activity. Peer scaffolding behaviors in this study referred to any segment of dialogue where twenty EFL learners engaged in discussions about their language production. This encompassed questioning their language use and self-correcting or assisting others in collaboratively resolving grammatical and lexical challenges (Swain & Lapkin, 1998, as cited in Li & Kim, 2016). The language functions derived from Li and Kim (2016) were utilized to examine peer scaffolding behaviors. These functions included acknowledging, agreeing, disagreeing, elaborating, eliciting, greeting, justifying, questioning, requesting, stating, and suggesting. Furthermore, the qualitative data results were presented based on the researcher's observations through video recordings and the written outputs of twenty EFL learners who engaged in different types of peer scaffolding during their writing tasks.

The pre-writing activity outlined in Table 24-26 encompassed the pre-writing and drafting stages. The twenty learners worked collaboratively in online groups using Microsoft Teams to engage in various activities, including outlining, listing, freewriting, brainstorming ideas, and organizing information. These collaborative efforts enabled them to develop the introduction, body, and conclusion, as well as produce a rough (first) draft of their writing.

Table 24 Peer scaffolding behaviors used by five advanced learners (A) during pre-writing activity

Peer scaffolding behaviors	Coding	A1	A2	A3	A4	A5	Total	Rank
Acknowledging	Ac.	2	2	3	3	2	12	8
Agreeing	Ag.	4	2	4	3	3	17	5
Disagreeing	Di.	2	1	3	2	1	9	9
Elaborating	El.	5	4	5	6	5	25	3 rd
Eliciting	Eli.	2	2	3	3	4	14	6
Greeting	Gr.	1	1	1	1	1	5	11
Justifying	Ju.	1	2	1	2	2	8	10
Questioning	Qu.	6	6	8	5	7	32	1 st
Requesting	Re.	2	3	3	2	3	13	7
Stating	St.	5	4	4	5	5	23	4
Suggesting	Su.	4	5	4	6	7	26	2 nd
Total		34	32	39	38	40	183	

The data presented in Table 24 indicated that advanced learners primarily employed 'Questioning' as their peer scaffolding behavior. Notably, Advanced 5 was the learner who utilized peer scaffolding strategies the most, with a total of 40 instances, while Advanced 2 was the least active in this regard, using these strategies only 32 times. Among the peer scaffolding behaviors, 'Questioning' was the most frequently used, with 32 instances, followed by 'Suggesting' at 26 and 'Elaborating' at 25. Conversely, 'Greeting' was used the least during this stage.

Table 25 Peer scaffolding behaviors used by six Intermediate learners (I) during EFL pre-writing activity

Peer scaffolding behaviors	Coding	I1	I2	I3	I4	I5	I6	Total	Rank
Acknowledging	Ac.	1	2	1	2	3	2	11	7
Agreeing	Ag.	1	2	3	2	3	2	13	5
Disagreeing	Di	1	1	1	1	2	2	8	10
Elaborating	El.	2	2	3	2	3	3	15	4
Eliciting	Eli.	2	3	3	4	3	3	18	3 rd
Greeting	Gr.	1	1	1	1	1	1	6	11
Justifying	Ju.	1	2	2	2	2	1	10	8
Questioning	Qu.	4	4	5	4	6	5	28	1 st
Requesting	Re.	1	2	1	2	1	2	9	9
Stating	St.	3	6	3	4	7	5	28	1 st
Suggesting	Su.	2	2	1	2	3	2	12	6
Total		19	26	24	26	34	28	157	

Table 25 showed that most Intermediate learners utilized 'Questioning' and 'Stating' as their primary peer scaffolding behaviors. Among these learners, Intermediate 5 demonstrated the highest usage of peer scaffolding strategies, with 34 instances, while Intermediate 1 recorded the lowest, with only 19 instances. The most frequently observed peer scaffolding behaviors among Intermediate EFL learners were 'Questioning' (28 instances) and 'Stating' (28 instances), followed by 'Eliciting' (18 instances). Conversely, 'Greeting' emerged as the least utilized behavior among intermediate and advanced learners.

Table 26 Peer scaffolding behaviors used by nine novice learners (N) during EFL pre-writing activity

Peer scaffolding behaviors	Coding	N1	N2	N3	N4	N5	N6	N7	N8	N9	Total	Rank
Acknowledging	Ac.	2	1	-	1	-	1	-	1	-	6	7
Agreeing	Ag.	2	2	2	2	3	2	3	2	2	20	1 st
Disagreeing	Di	-	-	-	1	-	1	-	-	-	2	11
Elaborating	El.	1	1	2	1	1	2	1	2	1	12	5
Eliciting	Eli.	1	2	1	1	2	3	2	1	3	16	3 rd
Greeting	Gr.	1	1	1	1	1	1	1	1	1	9	6
Justifying	Ju.	1	-	1	-	-	-	-	-	1	3	10
Questioning	Qu.	3	2	2	2	1	1	2	3	1	17	2 nd
Requesting	Re.	1	1	1	-	-	-	1	-	1	5	8
Stating	St.	2	1	1	2	1	1	2	3	2	15	4
Suggesting	Su.	-	1	-	1	-	-	-	1	1	4	9
Total		14	12	11	12	9	12	12	14	13	109	

The data in Table 26 revealed that novice learners predominantly relied on 'Agreeing' as their primary peer scaffolding behavior. Notably, novice learners 1 and 8 demonstrated the highest frequency of peer scaffolding strategies, each employing them 14 times, whereas novice learner 5 exhibited the lowest frequency, with only 9 instances. Among all scaffolding behaviors observed, 'Agreeing' emerged as the most frequently used, appearing 20 times, followed by 'Questioning' with 17 instances and 'Eliciting' with 16. Nonetheless, 'Disagreeing' was the least utilized behavior during this stage.

The while-writing activity described in Tables 27-29 covered the revising stage. Twenty learners collaborated online through Microsoft Teams to revise their first drafts, focusing on vocabulary, content, and organization. They made necessary adjustments, additions, or deletions to improve their work in the second draft.

Table 27 Peer scaffolding behaviors used by five advanced learners (A) during EFL while writing activity

Peer scaffolding behaviors	Coding	A1	A2	A3	A4	A5	Total	Rank
Acknowledging	Ac.	-	2	-	1	-	3	8
Agreeing	Ag.	2	1	2	2	1	8	4
Disagreeing	Di.	1	1	-	-	1	3	8
Elaborating	El.	2	4	3	2	2	13	2 nd
Eliciting	Eli.	2	1	1	2	-	6	5
Greeting	Gr.	-	-	-	-	-	0	11
Justifying	Ju.	2	1	-	1	-	4	7
Questioning	Qu.	1	1	-	2	1	5	6
Requesting	Re.	-	-	1	-	1	2	10
Stating	St.	2	2	3	2	3	12	3 rd
Suggesting	Su.	4	4	3	2	2	15	1 st
Total		16	17	13	14	11	71	

Table 27 revealed that most advanced learners employed 'Suggesting' as their primary peer scaffolding behavior. Among these learners, Advanced 2 exhibited the highest frequency of peer scaffolding strategies, with 17 instances, while Advanced 5 recorded the lowest, with only 11 instances. The most frequently observed peer scaffolding behaviors among advanced EFL learners were 'Suggesting' (15 instances), followed by 'Elaborating' (13 instances) and 'Stating' (12 instances), respectively. In contrast, 'Greeting' was identified as the least utilized behavior.

Table 28 Peer scaffolding behaviors used by six Intermediate learners (I) during EFL while writing activity

Peer scaffolding behaviors	Coding	Int.1	Int.2	Int.3	Int.4	Int.5	Int.6	Total	Rank
Acknowledging	Ac.	-	1	-	1	1	1	4	6
Agreeing	Ag.	2	3	1	2	2	1	11	2nd
Disagreeing	Di	-	1	-	-	-	-	1	10
Elaborating	El.	1	2	1	1	1	1	7	4
Eliciting	Eli.	-	3	1	1	-	1	6	5
Greeting	Gr.	-	-	-	-	-	-	0	11
Justifying	Ju.	-	1	-	1	-	-	2	9
Questioning	Qu.	1	1	2	1	2	2	9	3rd
Requesting	Re.	1	-	1	-	1	-	3	7
Stating	St.	2	2	1	2	3	2	12	1st
Suggesting	Su.	-	1	1	1	-	-	3	7
Total		7	15	8	10	10	8	58	

According to Table 28, six Intermediate EFL learners employed various peer scaffolding behaviors during the while-writing activity. Intermediate 2 demonstrated the highest frequency of peer scaffolding strategies, with 15 instances, while Intermediate 1 recorded the lowest frequency, with only 7 instances. The most commonly observed peer scaffolding behaviors among the Intermediate EFL learners were 'Stating' (12 instances), followed by 'Agreeing' (11 instances) and 'Questioning' (9 instances). Conversely, 'Greeting' was identified as the least utilized behavior among intermediate and advanced learners.

Table 29 Peer scaffolding behaviors used by nine novice learners (N) during EFL while writing activity

Peer scaffolding behaviors	Coding	N1	N2	N3	N4	N5	N6	N7	N8	N9	Total	Rank
Acknowledging	Ac.	1	-	1	-	-	2	-	1	-	5	5
Agreeing	Ag.	1	1	1	-	1	1	-	1	-	6	4
Disagreeing	Di	-	-	-	-	-	-	-	-	-	0	9
Elaborating	El.	1	-	-	1	1	-	1	-	-	4	6
Eliciting	Eli.	1	-	1	-	2	-	1	1	1	7	3 rd
Greeting	Gr.	-	-	-	-	-	-	-	-	-	0	9
Justifying	Ju.	-	-	-	-	-	-	-	-	-	0	9
Questioning	Qu.	2	1	1	1	2	1	2	1	1	12	1 st
Requesting	Re.	1	-	1	-	-	-	1	-	-	3	7
Stating	St.	1	2	-	2	2	1	1	-	1	10	2 nd
Suggesting	Su.	-	1	-	-	1	-	-	-	-	2	8
Total		8	5	5	4	9	5	6	4	3	49	

As shown in Table 29, nine novice EFL writers demonstrated various peer scaffolding behaviors during the writing activity. To complete their paragraphs, they predominantly employed the strategy of ‘Questioning’ (12 instances), followed by ‘Stating’ (10 instances) and ‘Eliciting’ (7 instances). However, they did not use the peer scaffolding strategies of ‘Disagreeing,’ ‘Greeting,’ or ‘Justifying’ during the writing process. Among these writers, Novice 5 exhibited the highest number of peer scaffolding behaviors, whereas Novice 9 used the fewest strategies.

The post-writing activities outlined in Tables 30-32 focused on the rewriting and proofreading stages. Students collaborated online using Microsoft Teams to create the third draft, incorporating the changes made during the revision phase. After this, they proofread the third draft to correct conventions such as spelling, grammar, punctuation, and mechanical errors, leading to the final draft.

Table 30 Peer scaffolding behaviors used by five advanced learners (A) during EFL post-writing activity

Peer scaffolding behaviors	Coding	A1	A2	A3	A4	A5	Total	Rank
Acknowledging	Ac.	2	1	1	-	-	3	7
Agreeing	Ag.	-	1	2	1	1	4	5
Disagreeing	Di.	-	-	-	-	-	0	10
Elaborating	El.	2	2	1	1	2	8	3rd
Eliciting	Eli.	1	-	-	1	1	3	7
Greeting	Gr.	-	-	-	-	-	0	10
Justifying	Ju.	1	-	1	-	-	2	9
Questioning	Qu.	1	2	1	2	1	7	4
Requesting	Re.	1	1	1	-	1	4	5
Stating	St.	3	4	3	4	3	17	1st
Suggesting	Su.	2	2	3	1	2	10	2nd
Total		13	13	13	10	11	58	

The information presented in Table 30 indicated that advanced EFL learners engaged in peer scaffolding behaviors during the post-writing activity. Among these learners, Advanced 1, 2, and 3 utilized these strategies most frequently, totaling 13 instances, while Advanced 4 was the least involved, using them only 10 times. Of the different peer scaffolding behaviors, 'Stating' was the most commonly observed (17 instances), followed by 'Suggesting' (10 instances) and 'Elaborating' (8 instances). In contrast, 'Disagreeing' and 'Greeting' were not recorded during this phase.

Table 31 Peer scaffolding behaviors used by six Intermediate learners (I) during EFL post-writing activity

Peer scaffolding behaviors	Coding	Int.1	Int.2	Int.3	Int.4	Int.5	Int.6	Total	Rank
Acknowledging	Ac.	1	-	-	1	-	-	2	8
Agreeing	Ag.	-	-	1	1	-	1	3	5
Disagreeing	Di.	-	1	-	-	-	-	1	9
Elaborating	EL.	1	1	1	-	1	-	4	4
Eliciting	Eli.	1	2	1	2	1	1	8	2 nd
Greeting	Gr.	-	-	-	-	-	-	0	10
Justifying	Ju.	-	-	-	-	-	-	0	10
Questioning	Qu.	1	1	2	2	1	1	8	2 nd
Requesting	Re.	1	1	-	-	1	-	3	5
Stating	St.	4	3	2	3	4	3	19	1 st
Suggesting	Su.	1	1	-	-	-	1	3	5
Total		10	10	7	9	8	7	51	

Table 31 showed the peer scaffolding behaviors of six Intermediate learners during the post-writing activity. To complete their paragraphs, these learners primarily used ‘Stating’ (with 19 instances) followed by ‘Questioning’ and ‘Eliciting’ (with 8 instances each). Notably, they did not employ the peer scaffolding strategies of ‘Greeting’ and ‘Justifying’ during the post-writing process. Among the group, Intermediate learners 1 and 2 demonstrated the highest number of peer scaffolding behaviors, while Novice learners 3 and 6 exhibited the fewest strategies.

Table 32 Peer scaffolding behaviors used by nine novice learners (N) during EFL post-writing activity

Peer scaffolding behaviors	Coding	N1	N2	N3	N4	N5	N6	N7	N8	N9	Total	Rank
Acknowledging	Ac.	-	-	-	-	-	-	-	-	-	0	6
Agreeing	Ag.	1	-	-	1	-	-	-	1	-	3	5
Disagreeing	Di.	-	-	-	-	-	-	-	-	-	0	6
Elaborating	El.	-	-	-	-	-	-	-	-	-	0	6
Eliciting	Eli.	-	1	1	-	1	1	-	-	-	4	4
Greeting	Gr.	-	-	-	-	-	-	-	-	-	0	6
Justifying	Ju.	-	-	-	-	-	-	-	-	-	0	6
Questioning	Qu.	1	-	1	1	1	1	1	-	1	7	2 nd
Requesting	Re.	1	1	2	1	1	2	2	1	1	12	1 st
Stating	St.	1	1	1	-	-	1	1	-	-	5	3 rd
Suggesting	Su.	-	-	-	-	-	-	-	-	-	0	6
Total		4	3	5	3	3	5	4	2	2	31	

Table 32 presented novice learners' various peer scaffolding behaviors during the post-writing stage. The novice EFL writers primarily relied on peer scaffolding strategies, with 'Requesting' being the most frequently used (12 instances). Other strategies employed in the post-writing phase included 'Questioning' (7 instances) and 'Stating' (5 instances), which ranked second and third. Notably, the novice writers did not use specific peer scaffolding strategies, such as 'Acknowledging,' 'Disagreeing,' 'Elaborating,' 'Greeting,' 'Justifying,' and 'Suggesting,' during their post-writing activities. Among the novice EFL writers, Novice 3 and Novice 6 exhibited the highest frequency of peer scaffolding strategies (5 instances each), while Novice 8 and Novice 9 showed the least frequent use (2 instances each).

The quantitative insights obtained from the questionnaires

The study utilized two questionnaires. The first was designed to gather students' perspectives on the 4C of 21st-century skills in relation to online collaborative writing. This questionnaire was adapted from Mohammed and Mohammed (2015). It consisted of 20 items designed on a Likert scale to assess students' perspectives on the 4C's of 21st-century skills in relation to online collaborative writing activities. The questionnaire was divided into four sections, each focusing on one of the 4Cs: creativity skills, collaboration skills, communication skills, and critical thinking skills.

Students were asked to evaluate the 20 items and select the response that best reflected their views. The questionnaire provided five response options: 'Strongly Agree' (5), 'Agree' (4), 'Neutral' (3), 'Disagree' (2), and 'Strongly Disagree' (1).

The results of the students' perspectives on the 4C of 21st-century skills in relation to online collaborative writing via MS Teams are presented in Table 33 as follows

Table 33 The Students' Perspectives on the 4C of 21st-Century Skills Toward Online Collaborative Writing via MS Teams: Questionnaire results

No.	Statements	Mean	S.D.	Interpretation
Collaboration Skills				
1	I actively contributed to the group's online collaborative writing efforts.	4.43	1	Agree
2	I actively participated in group discussions and brainstorming sessions.	4.38	0.78	Agree
3	I actively participated in collaborative decision-making processes concerning our online writing assignments.	4.47	0.66	Strongly Agree
4	I contributed to creating a positive and productive group dynamic during our online collaborative writing experience.	4.48	0.59	Strongly Agree
5	Online collaborative writing activities enable me to have more confidence working with other students.	4.52	0.66	Strongly Agree
Total		4.46	0.19	Agree

Table 33 (Cont.)

No.	Statements	Mean	S.D.	Interpretation
Communication Skills				
6	Online collaborative writing activities enhance my communication skills	4.38	0.72	Agree
7	I effectively communicated with my group members during the online collaborative writing process.	4.52	0.85	Strongly Agree
8	I effectively communicated my ideas to my group members during the online collaborative writing process.	4.57	0.95	Strongly Agree
9	I provided constructive feedback on my group members' contributions to enhance the quality of our writing.	4.43	1.22	Agree
10	I effectively resolved conflicts or disagreements within the group using communication skills.	4.48	1.43	Agree
Total		4.47	0.28	Agree
Critical thinking Skills				
11	I encouraged critical thinking and analysis among group members during discussions.	4.62	1.56	Strongly Agree
12	I critically analyzed and evaluated the information and sources used in our online collaborative writing.	4.57	1.81	Strongly Agree
13	I effectively incorporated evidence and logical reasoning to support our arguments and ideas.	4.67	1.98	Strongly Agree
14	I identified and addressed weaknesses or gaps in our writing and suggested improvements.	4.81	2.17	Strongly Agree
15	I used critical thinking skills to enhance the overall quality and effectiveness of our online collaborative writing.	4.71	2.41	Strongly Agree
Total		4.67	0.32	Strongly Agree
Creativity Skills				
16	Online collaborative writing activities enhance my	5	2.53	Strongly Agree
17	I utilized my creative skills to effectively express my ideas to my group members throughout the online collaborative writing process.	4.86	2.78	Strongly Agree
18	I actively sought creative solutions to writing-related problems and obstacles encountered in online collaborative writing	4.95	3	Strongly Agree

Table 33 (Cont.)

No.	Statements	Mean	S.D.	Interpretation
19	I effectively used creativity skills to adjust our writing strategy in response to unexpected issues to ensure the achievement of our goals and the success of online writing assignments.	5	3.18	Strongly Agree
20	I used creativity skills to enhance the overall quality and success of our online collaborative writing assignments.	5.19	3.36	Strongly Agree
Total		5	0.33	Strongly Agree
The overall students' perception level		4.36	1.05	Agree

The data in Table 33 indicates that students generally viewed the 4Cs (Collaboration, Communication, Critical Thinking, and Creativity) positively regarding online collaborative writing through MS Teams, with strong agreement on most aspects of each skill. Students reported actively participating in their group's online writing efforts, contributing meaningfully to the group dynamic. They participated in discussions and decision-making processes, which helped them build confidence in collaborative settings. The overall score for collaboration skills was 4.46, indicating a largely positive perception. Students observed that online collaborative writing positively affected their communication skills. They actively engaged with their peers, providing feedback that enhanced the overall quality of the group's work. The average score for communication skills was 4.47, reflecting a high level of consensus among the students. Students showed strong support for promoting critical thinking within the group. They effectively analyzed and evaluated sources and utilized logical reasoning in their writing.

Additionally, they recognized weaknesses in their work and addressed them through critical thinking, which enhanced the overall quality of their writing. The total mean score for critical thinking was 4.67, indicating a high level of engagement with this skill. Lastly, Students highly valued creativity skills in their writing activities. They believed that the online writing tasks encouraged their creativity by helping them express their ideas, solve problems, and adapt their strategies when needed. Creativity was crucial to enhancing the overall success of their writing assignments. The average score for creativity was 5, indicating a strong belief that creativity was essential to

their collaborative writing experience. Overall, the student's responses indicated that online collaborative writing through MS Teams was a highly effective platform for fostering key 21st-century skills, with creativity and critical thinking being the most strongly supported areas.

The second part developed the questionnaire to explore the students' attitudes toward the online collaborative writing activity using Microsoft Teams. The questionnaire was adapted from Wichanpricha (2021).

It consisted of 10 items designed on the Likert scale to assess the students' attitudes toward online collaborative writing activity through Microsoft Teams. The students were asked to judge 10 items and select the choice that suits them best. The questionnaire had five response opinions ranging from "Strongly agree = 5", "Agree = 4", "Neutral = 3", "Disagree = 2", and "Strongly Disagree = 1".

The results of the student's attitudes toward the online collaborative writing activity using Microsoft Teams presented in Table 34 as follows.

Table 34 The Students' Attitudes Toward the Online Collaborative Writing Activity using Microsoft Teams: Questionnaire results

No.	Statement	Mean	SD.	Interpretation
1.	I improve my writing skills when learning Academic Writing through MS Teams.	4.70	0.47	Strongly Agree
2.	I believe that learning Academic Writing through MS Teams is as effective as learning in the regular classroom.	4.65	0.48	Strongly Agree
3.	I like learning Academic Writing through MS Teams more than the traditional method.	4.85	0.36	Strongly Agree
4.	I enjoy doing online collaborative writing activities through MS Teams.	4.65	0.58	Strongly Agree
5.	I grow more confident in argumentative writing as I learn Academic Writing through MS Teams.	4.80	0.41	Strongly Agree

Table 34 (Cont.)

No.	Statement	Mean	SD.	Interpretation
6.	I can actively participate in online collaborative writing activities through MS Teams when working in a group.	4.85	0.36	Strongly Agree
7.	I can express more opinions in online collaborative writing activities through MS Teams.	4.75	0.44	Strongly Agree
8.	I have the opportunity to practice argumentative writing in online collaborative writing activities and presentation with friends through this platform.	4.8	0.41	Strongly Agree
9.	I can interact with teachers and friends while learning Academic Writing lessons through MS Teams.	4.7	0.47	Strongly Agree
10.	I am proud of myself for contributing to the success of the online collaborative writing activities through MS Teams.	4.85	0.36	Strongly Agree
The learners' overall attitude level		4.76	0.06	Strongly Agree

Table 34 analyzed learners' attitudes toward online collaborative writing activities and revealed strong positive perceptions. The data collected through a 10-item Likert scale questionnaire indicated consistently high mean scores across all statements, demonstrating that learners strongly agreed on the effectiveness and enjoyment of learning academic writing. The overall attitude of learners toward online collaborative writing was highly favorable, with a mean score of 4.76 and low variation, reflected in a standard deviation of 0.06.

Learners felt that MS Teams significantly enhanced their writing skills, with a mean score of 4.70. Additionally, they considered the platform to be as effective, if not more so, than traditional classroom learning, with a mean score of 4.65. A notable preference for MS Teams over traditional methods was evident, as indicated by a high mean score of 4.85. Learners reported high levels of enjoyment (4.65) and increased confidence in their argumentative writing skills (4.80) when using MS Teams. They appreciated the opportunity for active participation (4.85) and valued peer collaboration in writing activities (4.80). The ability to engage with both teachers and classmates (4.70)

enhanced their overall learning experience. Additionally, students took pride in their contributions to the success of collaborative writing activities (4.85). Overall, MS Teams was regarded as an effective and engaging tool for improving academic writing.

The qualitative insights obtained from the semi-structured interview

This section presents the students' perspectives and opinions after the experiment. The interview involved EFL learners across advanced, intermediate, and novice proficiency levels, who collaborated on writing argumentative paragraphs on diverse topics via MS Teams. Nine students with varying English proficiency levels participated in the session: Students 1-3 (S1-S3) represented the advanced level, Students 4-6 (S4-S6) the intermediate level, and Students 7-9 (S7-S9) the novice level. To collect this qualitative data, the following questions were asked:

1. Does Microsoft Teams prove to be an effective tool for facilitating online collaborative writing?
2. Does online collaborative writing activity enhance the quality of group work?
3. Does online collaborative writing activity provide opportunities for writing more effectively?

During the interview session, students responded to the questions in Thai, and their answers were translated into English. Below are the transcripts reflecting the students' perspectives and opinions gathered from the semi-structured interviews.

Interview Question 1

Does Microsoft Teams prove to be an effective tool for facilitating online collaborative writing?

Advanced learners

S1: It is a highly efficient tool for work, helping to save time by allowing quick access to work-related information. You can easily share screens, both yours and your colleagues, and make adding or editing information very convenient.

S2: I think Microsoft Teams is a great tool for online collaboration. It helps save time with features that allow us to edit Word documents together in real-time.

Additionally, the chat feature enables constant communication, making it feel like we are working together in person.

S3: I think Microsoft Teams is a great tool for group work. It's easy to use and makes it convenient for everyone in the group to share their ideas. For me, there might be occasional issues when the internet connection isn't stable, but overall, it has made working much easier. I especially like the screen-sharing feature because it helps make discussions or outlining ideas much clearer and easier to understand.

Intermediate learners

S4: It is an efficient tool for facilitating online collaborative writing due to its user-friendly interface and useful work functions. It is not complicated to use, offering convenience in scheduling meetings or communicating with friends. The screen-sharing feature, as is the ability to share information seamlessly, is highly beneficial.

S5: Since the group members have different class schedules, using Microsoft Teams helps eliminate this issue. I like Microsoft Teams because it provides convenient features. While working, we can see our friends' faces, share information, or send files to view and edit together in real time, which is very convenient. However, there are some issues, such as internet disconnections, which sometimes require us to wait for others before continuing.

S6: Working in a group using Microsoft Teams has many advantages. Sometimes meeting in person for group work requires finding a location and waiting for everyone to arrive, which wastes a lot of time. However, with Microsoft Teams, we can schedule meetings or work sessions quickly, and notifications ensure that no one forgets. It also offers various features that support productivity, such as video calls and screen sharing, allowing us to see the work progress from start to finish without deviating from the planned outline. This helps complete tasks faster.

Novice learners

S7: Microsoft Teams makes work much more convenient. It is a tool for consulting, meetings, and discussing work details. It is easy to search for information, allowing everyone to see the overall progress of the work. It also makes it convenient to contact others or submit assignments to teachers.

S8: Microsoft Teams helps reduce the hassle of working by offering features that are perfect for group work. The Teams Meeting function allows for screen sharing and video calls, making collaboration much more convenient.

S9: Microsoft Teams makes work more convenient. Even when everyone is in different locations, we can work together through Teams Meeting, reducing the hassle from the initial stages to submitting the work. The collaboration process uses screen sharing, allowing us to provide feedback and see who made which edits in the document. This helps everyone track the progress of the work.

From the students' perspectives, Microsoft Teams proved to be an effective tool for facilitating online collaborative writing. It enhanced efficiency and time management by enabling real-time collaboration, reducing the need for meetings, and streamlining document revisions. Features such as simultaneous editing, screen sharing, and seamless communication significantly improved teamwork. The platform's user-friendly interface made scheduling, file sharing, and project management straightforward. Additionally, the chat and video call features supported ongoing discussions, benefiting students by simplifying consultations and tracking progress. Flexible scheduling helped resolve conflicts, while edit tracking ensured transparency and alignment with project goals. Microsoft Teams offered many benefits, but it relied on a stable internet connection, which can sometimes lead to connectivity issues and disrupted workflow. Some users experienced delays in collaboration while waiting for others to reconnect. Additionally, minor technical difficulties occurred, which briefly hindered productivity; however, these issues generally did not significantly affect the platform's overall effectiveness.

Interview Question 2

Does online collaborative writing activity enhance the quality of group work?

Advanced learners

S1: I think online collaborative writing activity greatly enhances group work. Normally, when working on group projects with friends, we often have to coordinate a meeting location, usually a coffee shop. This process can be time-consuming and

costly. However, online collaboration eliminates the need for a physical meeting spot, saving both time and money while enabling us to work together seamlessly from anywhere.

S2: I think online collaborative writing activities assign specific responsibilities to each group member, preventing the workload from being placed on just one person. Everyone contributes their ideas and works together to find conclusions. When problems arise, they collaborate to solve them, resulting in more efficient work and faster completion.

S3: The online collaborative writing activity is a great way to make group work more efficient. The process is clearly outlined, from planning and creating an outline to drafting, revising, and producing the final written piece. Having several friends share their ideas gives me more diverse perspectives than I would have on my own. Additionally, communication is smooth and instant, making collaboration even more effective.

Intermediate learners

S4: I think it's a creative activity that promotes both teamwork and online collaboration. Everyone contributes to every step of the process. I like sharing my ideas and feeling supported by my friends, which motivates me to write even more. However, on the other hand, I feel that pointing out corrections or errors in my friends' writing might not be well-received, especially if there are frequent mistakes. If my friends are asked to make corrections too often, they might feel discouraged.

S5: Online collaborative writing activities significantly enhance teamwork by fostering clear, step-by-step planning that I might struggle to organize as efficiently on my own. Actively participating in every stage of the process keeps me engaged and motivated, as everyone consistently shares their ideas and contributes to the project.

S6: Online collaborative writing activities simplify group work significantly. Team members offer advice, brainstorm ideas, and assist with various tasks, creating a more structured and efficient process. Everyone contributes their perspectives, fostering discussions where some agree and others disagree, ultimately reaching a well-defined conclusion. Tasks are completed swiftly as responsibilities are divided.

When errors occur, the group collaborates to resolve them, making the experience both productive and rewarding.

Novice learners

S7: Online collaborative writing activities greatly enhance the quality of group work compared to working independently. I often feel uncertain and anxious about writing on my own. However, collaborative online writing enables me to share my ideas more freely, as everyone contributes to the process. My friends help refine and expand my thoughts, and whenever I encounter something I don't understand, I can seek their guidance immediately. I truly appreciate the supportive and engaging atmosphere this approach creates.

S8: Online collaborative writing activities create a supportive and encouraging group environment. Although there are moments when I feel embarrassed if my suggestions are not accepted by my friends, I remain motivated because their feedback is often insightful and constructive. I genuinely admire the talent within the group, which inspires me to continuously improve. Even when I make mistakes in my writing, my friends are always there to provide guidance and help me refine my work.

S9: Online collaborative writing activities greatly improve the quality of group work. As someone who struggles with English, I often find tasks challenging. However, this activity provides a sense of comfort and reduces pressure, as my friends are always there to support and encourage me. Although disagreements occasionally arise, they ultimately help improve the quality of our work. I feel motivated and happy when my friends appreciate my ideas, inspiring me to contribute even more to the group. Seeing the final result fills me with pride, not just in myself but also in my friends and our collective effort.

From the students' view, online collaborative writing enhanced group work by fostering teamwork, improving communication, and streamlining the writing process. It saved time and reduced costs by eliminating the need for physical meetings, allowing for seamless remote collaboration. Dividing tasks ensured equal participation and effective problem-solving. A structured workflow that went from planning to finalizing the project enhanced clarity and enriched the writing through diverse perspectives. The interactive environment encouraged engagement, idea sharing, and

mutual support. Immediate feedback helped refine the work, boosted confidence, and improved writing skills, while peer recognition further motivated participation. Despite its advantages, online collaborative writing presented several challenges. Students often hesitated to provide feedback out of fear of discouraging their peers, and some felt embarrassed if their suggestions were rejected. Additionally, differing opinions sometimes led to conflicts, but these disagreements ultimately contributed to improving the final work. Although these challenges impacted group dynamics, collaborative writing was still crucial for enhancing teamwork, productivity, and writing skills.

Interview Question 3

Does online collaborative writing activity provide opportunities for writing more effectively?

Advanced learners

S1: Online collaborative writing activities enhance the quality of writing by allowing us to incorporate the opinions of other group members. These diverse perspectives shed light on aspects we might have overlooked, resulting in more comprehensive and well-rounded writing.

S2: Engaging in online collaborative writing activities enhances the overall quality of the work. When working alone, mistakes are more likely to occur. However, collaborating with friends allows others to identify and correct errors, which not only improves the final output but also boosts my confidence and helps me make fewer mistakes in future writing tasks.

S3: Online collaborative writing activities enhance writing quality by fostering teamwork in brainstorming, drafting, revising, and refining the content. This collaborative process ensures the final output is polished and of exceptional quality.

Intermediate learners

S4: Participating in online collaborative writing activities enhances the quality of writing by fostering a supportive environment where friends provide valuable ideas and suggestions. This collaboration boosts my confidence to express and share my own ideas, while also reducing the stress associated with the writing process.

Additionally, feedback from friends highlights areas for improvement, ultimately refining and elevating the overall quality of the writing.

S5: I think online collaborative writing activities improve the quality of the work because everyone shares and discusses their ideas together. We help each other through every step of the writing process, making revisions and developing the work collectively. The writing might be a bit challenging in the beginning, but as we continue, everyone gets better, and we all develop together.

S6: This activity improves the quality of writing. When ideas are scarce, listening to friends' suggestions can inspire new thoughts and help expand on existing ones, often producing better results than working alone. Friends can also provide valuable input to refine ideas and fill in missing details, leading to more comprehensive and well-rounded work. Repeated revisions address any flaws, ensuring the final piece is polished and of exceptional quality.

Novice learners

S7: I think online collaborative writing activities improve the quality of the work and also help us develop ourselves. Working in a group with friends makes me feel more at ease and reduces the anxiety of working on things I'm not skilled at. Listening to my friends explain or share ideas helps me understand things better, and sometimes I even learn writing techniques I didn't know before. My friends know that I'm not good at some aspects, but instead of pressuring me, they continuously offer guidance, which motivates me to improve myself as well.

S8: This activity improves the quality of writing as everyone in the group collaborates, sharing ideas and refining them to achieve the best outcome. We support one another by revising each other's work, and when my friends provide feedback on my writing, I learn new approaches to thinking and expressing ideas. These insights not only enhance my current skills but also build my confidence for future writing tasks.

S9: Online collaborative writing activities enhance the quality of the work by allowing everyone to contribute to each part of the process. Although I don't consider myself very skilled at writing, seeing my friends put in effort inspires me to participate as well. Contributing to smaller tasks, such as suggesting connecting words, gathering

information, or correcting errors, makes me feel proud to be involved and encourages me to do my best.

The interview responses reveal that online collaborative writing activities improve writing quality by promoting teamwork, diverse perspectives, and a supportive learning environment. Working with peers allowed students to incorporate different viewpoints, resulting in more structured and comprehensive writing. The collaborative brainstorming, drafting, and revising process ensured a polished final product. Peer feedback helped identify and correct mistakes, improving writing skills. Group discussions also boosted confidence, and many students found that working with friends reduced stress, making the writing process more enjoyable and less overwhelming. Despite some challenges, such as difficulties structuring ideas or integrating suggestions, students found online collaborative writing highly effective. Those with less confidence sometimes hesitated to contribute, fearing their input would not be valued. However, the overall experience was positive, as constructive feedback and peer support helped build confidence. Ultimately, these activities were seen as a great way to improve writing quality, foster personal growth, and create a more engaging and interactive learning experience.

In summary, online collaborative writing activities, supported by platforms like Microsoft Teams, presented valuable opportunities to refine writing skills. These activities promoted teamwork, boosted engagement, and provided constructive feedback, resulting in higher-quality outcomes. Despite challenges such as internet instability, varying skill levels, and coordination difficulties, the advantages of improved collaboration, skill-building, and shared learning significantly outweigh these limitations. Ultimately, online collaborative writing fostered a dynamic and enriching learning environment, making it an invaluable tool for academic collaboration.

The results of research question 2: The peer scaffolding behaviors of the advanced, intermediate, and novice learners through 4C skills (critical thinking, communication, collaboration, and creativity) during online collaborative writing activity.

The table below presented the qualitative data of EFL advanced, intermediate, and novice learners 4C skills through peer scaffolding writing during the pre-writing while-writing and post-writing activity. In this study, peer scaffolding behaviors referred

to the interactions in which advanced, intermediate, and novice learners discussed their language production. Language functions identified by Li and Kim (2016) were applied to analyze these behaviors. Additionally, the study thoroughly analyzed students' perspectives on the 4C skills (critical thinking, communication, collaboration, and creativity) in relation to online collaborative writing, utilizing the 4C skills rubric developed by Marwa et al. (2024). Engaging in the writing process allowed students to enhance their critical thinking skills by analyzing and synthesizing information from various sources. They also improved their communication abilities by clearly and effectively articulating their ideas in writing. Collaboration was encouraged through peer reviews and group work, which were often essential components of the writing process. Additionally, students were prompted to be creative as they explore innovative ways to present their findings (Marwa et al., 2024).

The sample dialogues derived from the observation by video recording in Tables 35-37 focused on the pre-writing activity. The peer scaffolding behaviors involved interactions among advanced, intermediate, and novice EFL learners as they discussed their language production during the pre-writing stage of paragraphs in online groups using Microsoft Teams. They participated in various activities such as outlining, listing, freewriting, brainstorming ideas, and organizing information collaboratively. These efforts enabled them to develop of 4C skills among students through online collaborative writing activity.

Table 35 EFL advanced learners 4C skills through peer scaffolding writing during the pre-writing activities

EFL learners	Peer dialogues	Peer scaffolding behaviors	Peer scaffolding definition	4C skills	4C skills rubric
Advanced 1 (A1) Topic: Online Learning	A1: "What are the benefits of face-to-face learning?" "How many points should we include?" (A1-Eli)	Eliciting	Inviting or eliciting opinions and comments from peers	Communication	Clearly and effectively communicates ideas, using suitable formats and styles while engaging peers.

Table 35 (Cont.)

EFL learners	Peer dialogues	Peer scaffolding behaviors	Peer scaffolding definition	4C skills	4C skills rubric
Advanced 1 (A1) Topic: Family	A1: "I think the cause comes from various social media technologies. They didn't exist in the past, so we spent most of our time together. But nowadays, everyone is busy staring at their phones, doing their own thing." (A1-El)	Elaborating	Expanding and elaborating on one's own or others' ideas related to writing for peers.	Creativity	Demonstrates outstanding originality and innovation by generating new ideas or solutions for peers.
Advanced 2 (A2) Topic: Family	A2: "Absolutely, it will add important details to the work." (A2-Ac)	Acknowledging	Recognizing or commending others' ideas, comments, support, and capabilities.	Collaboration	Collaborates effectively with peers, leads or supports team efforts, and constructively resolves conflicts.
Advanced 3 (A3) Topic: Violence on TV and games	A3: "Do you think all kids will be affected the same way by playing violent games?" (A3-Qu)	Questioning	Asking questions about unclear topics.	Critical Thinking	Exhibits outstanding analytical and evaluative abilities, delivering well-supported conclusions and insights.

According to Table 35, the EFL advanced learners revealed collaboration skills during the pre-writing activities through peer scaffolding behaviors, namely eliciting, elaborating, acknowledging, and questioning. For example, Advanced 1 tried to write a paragraph entitled "Will Online Education Replace Traditional Classroom Learning?" and used 'eliciting' (A1-Eli) to communicate with his peers to gain their opinions and

comments. Additionally, he utilized 'elaborating' (A1-El) to creatively expand his ideas for his peers, helping them better understand any unclear concepts. During the pre-writing activity, Advanced 2 acknowledged her peer by using 'acknowledging' (A2-Ac) to collaborate with the peer so that she could recognize her ideas about writing. Lastly, Advanced 3 asked her peers questions about the writing topic through 'questioning' (A3-Qu) to gather their opinions and encourage critical thinking and insightful information.

Table 36 EFL intermediate learners 4C skills through peer scaffolding writing during the pre-writing activities

EFL learners	Peer dialogues	Peer scaffolding behaviors	Peer scaffolding definition	4C skills	4C skills rubric
Intermediate 1 (I1) Topic: Family	I1: "I agree to some extent, but kids still need their parent's guidance and encouragement while growing up." (I1-Ju)	Justifying	Defending one's own ideas or comments to peers by providing supporting reasons.	Critical Thinking	Exhibits outstanding analytical and evaluative abilities, delivering well-supported conclusions and insights.
Intermediate 2 (I2) Topic: Violence on TV and games	I2: "What do you think the social impacts are?" (I2-Eli)	Eliciting	Inviting or eliciting opinions and comments from peers	Communication	Clearly and effectively communicates ideas, using suitable formats and styles while engaging peers.
Intermediate 3 (I3) Topic: Violence on TV and games	I3: "I agree; it is a health issue, too." (I3-Ag)	Agreeing	Expressing agreement with the viewpoints of peers.	Collaboration	Collaborates effectively with peers, leads or supports team efforts, and constructively resolves conflicts.

Table 36 (Cont.)

EFL learners	Peer dialogues	Peer scaffolding behaviors	Peer scaffolding definition	4C skills	4C skills rubric
Intermediate 3 (I3) Topic: Violence on TV and games	I3: "When children get addicted to games, they play all day and avoid doing any activities, which can lead to problems." (I3-El)	Elaborating	Expanding and elaborating on one's own or others' ideas related to writing for peers.	Creativity	Demonstrates outstanding originality and innovation by generating new ideas or solutions for peers.

According to Table 36, the intermediate EFL learners demonstrated essential skills during pre-writing activities through various peer scaffolding behaviors, specifically justifying, eliciting, agreeing, and elaborating. For example, Intermediate 1 aimed to express her ideas in her writing titled "In contemporary society, many parents have limited time to spend with their children. How does this lack of time affect parents and children?" She utilized 'justification' (I1-Ju) and critical thinking to defend her perspective and sought feedback and comments from her peers. During the pre-writing activity, Intermediate 2 engaged her peer by using 'eliciting' (I2-Eli) to communicate so that she could gain more ideas about writing. Meanwhile, Intermediate 3 collaborated with her peers by employing 'agreeing' (I3-Ag) to support their opinions and 'elaborating' (I3-El) to express her thoughts creatively about their writing topic.

Table 37 EFL novice learners 4C skills through peer scaffolding writing during the pre-writing activities

EFL learners	Peer dialogues	Peer scaffolding behaviors	Peer scaffolding definition	4C skills	4C skills rubric
Novice 1 (N1) Topic: Online learning	N1: "I think both traditional and online learning have advantages." (N1-St)	Stating	Stating one's ideas and the concepts previously discussed by the group; sharing written content or information.	Communication	Clearly and effectively communicates ideas, using suitable formats and styles while engaging peers.
Novice 1 (N1) Topic: Violence on TV and games	N1: "I think games can actually be beneficial. They help us think, solve problems, and even improve our language skills." (N1-El)	Elaborating	Expanding and elaborating on one's own or others' ideas related to writing for peers.	Creativity	Demonstrates outstanding originality and innovation by generating new ideas or solutions for peers.
Novice 2 (N2) Topic: Violence on TV and games	N2: "I'm sorry, but I don't agree with your reasoning." (N2-Di) Many children cannot distinguish between violence and reality.	Disagreeing	Expressing disagreement with the perspectives of peers.	Critical Thinking	Exhibits outstanding analytical and evaluative abilities, delivering well-supported conclusions and insights.
Novice 3 (N3) Topic: Family	N3: "You're absolutely right." (N3-Ag)	Agreeing	Expressing agreement with the viewpoints of peers.	Collaboration	Collaborates effectively with peers, leads or supports team efforts, and constructively resolves conflicts.

Table 37 illustrates how novice EFL learners demonstrated 4C skills during pre-writing activities through peer scaffolding behaviors, specifically by stating, elaborating, disagreeing, and agreeing. For example, Novice 1 employed the behavior of 'justification' (N1-Ju) alongside critical thinking to defend his perspective and actively sought feedback and comments from his peers. Additionally, he utilized 'stating' (N1-St) to share his ideas, which allowed him to express his thoughts and opinions to the group. During the pre-writing activity, Novice 2 articulated her ideas for her writing piece titled "Is Violence in TV Shows and Video Games Harmful to Society?". She employed the peer scaffolding behavior of 'disagreeing' (N2-Di) to think critically and express her view that she disagreed with her peers' perspectives. Additionally, she presented her own opinion and reasoning respectfully. Lastly, Novice 3 collaborated with his peers by using 'agreeing' (N3-Ag) to support their opinions.

The sample dialogues presented in Tables 38-40 focused on the while-writing activity during the revising stage. Peer scaffolding behaviors involved interactions among advanced, intermediate, and novice EFL learners as they worked together to revise their first drafts. They concentrated on vocabulary, content, and organization, making necessary adjustments, additions, or deletions to enhance their work in the second draft. These collaborative efforts enhanced students' 4C skills through online writing activities.

Table 38 EFL advanced learners 4C skills through peer scaffolding writing during the while-writing activities

EFL learners	Peer dialogues	Peer scaffolding behaviors	Peer scaffolding definition	4C skills	4C skills rubric
Advanced 1 (A1) Topic: Family	A1: The word "suffer" is used instead of "suffers" because "children" is a plural noun. Therefore, the correct sentence is: "Children suffer from not having enough time with their parents." (A1-El)	Elaborating	Expanding and elaborating on one's own or others' ideas related to writing for peers.	Creativity	Demonstrates outstanding originality and innovation by generating new ideas or solutions for peers.
Advanced 2 (A2) Topic: Family	A2: That's a great thought! It makes the language sound more formal. (A2-Ac)	Acknowledging	Recognizing or commending others' ideas, comments, support, and capabilities.	Collaboration	Collaborates effectively with peers, leads or supports team efforts, and constructively resolves conflicts.
Advanced 2 (A2) Topic: Violence on TV and games	A2: "Because we should start with the group most affected. Children are the most vulnerable to this kind of media." (A2-Ju)	Justifying	Defending one's own ideas or comments to peers by providing supporting reasons.	Critical Thinking	Exhibits outstanding analytical and evaluative abilities, delivering well-supported conclusions and insights.
Advanced 3 (A3) Topic: Violence on TV and games	A3: "Everyone, please help check the grammar. I think there might be some mistakes." (A3-Re)	Requesting	Making direct requirements or requests.	Communication	Clearly and effectively communicates ideas, using suitable formats and styles while engaging peers.

Table 38 indicated that advanced EFL learners displayed essential skills during while-writing activities through various peer scaffolding behaviors, specifically elaborating, acknowledging, justifying, and requesting. For example, Advanced 1 used 'elaborating' (A1-El) to creatively express his thoughts and refine his sentence structure. Advanced 2 acknowledged her peer by employing 'acknowledging' (A2-Ac) to collaborate effectively, which enabled her to choose appropriate formal vocabulary. Additionally, she applied 'justification' (A2-Ju) and critical thinking to defend her perspective while seeking feedback and comments from her peers. During the while-writing activity, Advanced 3 engaged her peer by using 'requesting' (A3-Re) to make direct requests for grammar checks on the sentences she wrote.

Table 39 EFL intermediate learners 4C skills through peer scaffolding writing during the while-writing activities

EFL learners	Peer dialogues	Peer scaffolding behaviors	Peer scaffolding definition	4C skills	4C skills rubric
Intermediate 1 (I1) Topic: Family	I1: "I totally agree." (I1-Ag)	Agreeing	Expressing agreement with the viewpoints of peers.	Collaboration	Collaborates effectively with peers, leads or supports team efforts, and constructively resolves conflicts.
Intermediate 2 (I2) Topic: Violence on TV and games	I2: "I used the word "violent" in my sentence, but should I go with "aggressive" instead? What do you think?" (I2-Eli)	Eliciting	Inviting or eliciting opinions and comments from peers	Communication	Clearly and effectively communicates ideas, using suitable formats and styles while engaging peers.

Table 39 (Cont.)

EFL learners	Peer dialogues	Peer scaffolding behaviors	Peer scaffolding definition	4C skills	4C skills rubric
Intermediate 2 (I2) Topic: Family	I2: “What exactly does ‘lack of time’ mean here?” (I2-Qu)	Questioning	Asking questions about unclear topics.	Critical Thinking	Exhibits outstanding analytical and evaluative abilities, delivering well-supported conclusions and insights.
Intermediate 3 (I3) Topic: Family	I3: “The sentence ‘Children does not get enough attention’ has a grammar issue. It should be ‘Children do not get enough attention.’ ” (I3-Su)	Suggesting	Providing suggestions or recommendations regarding content, structure, formatting, and more.	Creativity	Demonstrates outstanding originality and innovation by generating new ideas or solutions for peers.

According to Table 39, the intermediate EFL learners demonstrated essential skills during while-writing activities through various peer scaffolding behaviors, specifically agreeing, eliciting, questioning, and suggesting. For example, Intermediate 1 collaborated with her peers by using 'agreeing' (I1-Ag) to support their opinions. Intermediate2 used 'eliciting' (I2-Eli) to ask her peer for suitable vocabulary for their writing. Moreover, she used 'questioning' (I2-Qu) to ask for the meaning of words with her peers, applying critical thinking to gain insightful information. Lastly, Intermediate 3 creatively used 'suggesting' (I3-Su) to provide recommendations and help correct grammatical structures for group members.

Table 40 EFL novice learners 4C skills through peer scaffolding writing during the while-writing activities

EFL learners	Peer dialogues	Peer scaffolding behaviors	Peer scaffolding definition	4C skills	4C skills rubric
Novice 1 (N1) Topic: Online Learning	N1: "That's an awesome idea." (N1-Ac)	Acknowledging	Recognizing or commending others' ideas, comments, support, and capabilities.	Collaboration	Collaborates effectively with peers, leads or supports team efforts, and constructively resolves conflicts.
Novice 2 (N2) Topic: Online learning	N2: "We should combine online learning with traditional classroom learning." (N2-Su)	Suggesting	Providing suggestions or recommendations regarding content, structure, formatting, and more.	Creativity	Demonstrates outstanding originality and innovation by generating new ideas or solutions for peers.
Novice 2 (N2) Topic: Online learning	N2: "Should I help you find information on the benefits of online learning?" (N2-Re)	Requesting	Making direct requirements or requests.	Communication	Clearly and effectively communicates ideas, using suitable formats and styles while engaging peers.
Novice 3 (N3) Topic: Family	N3: "Will every child be affected by their parents not having time for them?" (N3-Qu)	Questioning	Asking questions about unclear topics.	Critical Thinking	Exhibits outstanding analytical and evaluative abilities, delivering well-supported conclusions and insights.

According to Table 40, novice EFL learners demonstrated essential skills during their writing activities through various peer scaffolding behaviors, specifically acknowledging, suggesting, requesting, and questioning. For example, Novice 1 acknowledged his peer by using 'acknowledging' (N1-Ac) to appreciate their opinions. Novice 2 creatively utilized 'suggesting' (N2-Su) to provide recommendations on areas

where her peer was unsure about the format. Additionally, Novice 2 engaged her peer by using 'requesting' (N2-Re) to make direct requests for help in finding information for their writing. Meanwhile, Novice 3 employed 'questioning' (N3-Qu) to ask questions about unclear topics, demonstrating critical thinking.

The post-writing activities outlined in Tables 41-43 concentrated on the rewriting and proofreading stages. During this process, peer scaffolding behaviors facilitated interactions among advanced, intermediate, and novice EFL learners as they collaborated to create the third draft. This draft incorporated the changes made during the revision phase. Following this, they proofread the third draft to correct conventions such as spelling, grammar, punctuation, and mechanical errors, ultimately leading to the final draft. These collaborative efforts enhance students' 4C skills through online writing activities.

Table 41 EFL advanced learners 4C skills through peer scaffolding writing during the post-writing activities

EFL learners	Peer dialogues	Peer scaffolding behaviors	Peer scaffolding definition	4C skills	4C skills rubric
Advanced 1 (A1) Topic: Family	A1: "I switched 'busy schedules' to 'hectic routines' in one part. Does it sound more natural?" (A1-Qu)	Questioning	Asking questions about unclear topics.	Critical Thinking	Exhibits outstanding analytical and evaluative abilities, delivering well-supported conclusions and insights.
Advanced 2 (A2) Topic: Violence on TV and games	A2: "You're almost there! Try using 'behave' instead of 'behaves' since it's for he, she, or it. Also, change 'aggressive' to 'aggressively' to describe their behavior more accurately." (A2-Su)	Suggesting	Providing suggestions or recommendations regarding content, structure, formatting, and more.	Creativity	Demonstrates outstanding originality and innovation by generating new ideas or solutions for peers.

Table 41 (Cont.)

EFL learners	Peer dialogues	Peer scaffolding behaviors	Peer scaffolding definition	4C skills	4C skills rubric
Advanced 2 (A2) Topic: Violence on TV and games	A2: "Everyone, I found that we've been switching between lowercase and uppercase in a few spots. Let's go through it again together. " (A2-Re)	Requesting	Making direct requirements or requests.	Communication	Clearly and effectively communicates ideas, using suitable formats and styles while engaging peers.
Advanced 3 (A3) Topic: Online learning	A3: " Totally agree! No need to change anything—your sentence is clear and solid. " (A3-Ag)	Agreeing	Expressing agreement with the viewpoints of peers.	Collaboration	Collaborates effectively with peers, leads or supports team efforts, and constructively resolves conflicts.

According to Table 41, the advanced EFL learners demonstrated essential skills during post-writing activities by engaging in various peer scaffolding behaviors, specifically questioning, suggesting, requesting, and agreeing. For example, Advanced 1 effectively used 'questioning' (A1-Qu) to ask about suitable vocabulary to use in sentences, applying critical thinking to their inquiries. Advanced 2 creatively employed 'suggesting' (A2-Su) to offer recommendations and help correct grammatical structures for group members. Additionally, Advanced 2 made direct 'requesting' (A2-Re) to encourage everyone to double-check the use of lowercase and uppercase letters in their writing. Lastly, Advanced 3 collaborated with her peers by using 'agreeing' (A3-Ag) to support their opinions.

Table 42 EFL intermediate learners 4C skills through peer scaffolding writing during the post-writing activities

EFL learners	Peer dialogues	Peer scaffolding behaviors	Peer scaffolding definition	4C skills	4C skills rubric
Intermediate 1 (I1) Topic: Online Learning	I1: "Is there anything you think we should fix?" (I1-Qu)	Questioning	Asking questions about unclear topics.	Critical Thinking	Exhibits outstanding analytical and evaluative abilities, delivering well-supported conclusions and insights.
Intermediate 2 (I2) Topic: Online learning	I2: "Maybe change it to 'Blended learning' could be a better approach. It combines the best of both worlds." (I2-El) "What does everyone think?" (Eliciting)	Elaborating	Expanding and elaborating on one's own or others' ideas related to writing for peers.	Creativity	Demonstrates outstanding originality and innovation by generating new ideas or solutions for peers.
Intermediate 2 (I2) Topic: Family	I2: "I'm having trouble connecting the emotional and academic impacts." (Stating) "Any ideas to make it flow better?" (I2-Eli)	Eliciting	Inviting or eliciting opinions and comments from peers	Communication	Clearly and effectively communicates ideas, using suitable formats and styles while engaging peers.
Intermediate 3 (I3) Topic: Family	I3: "You're on the right track!" (I3-Ac)	Acknowledging	Recognizing or commending others' ideas, comments, support, and capabilities.	Collaboration	Collaborates effectively with peers, leads or supports team efforts, and constructively resolves conflicts.

In Table 42, the Intermediate EFL learners showcased essential skills during post-writing activities by engaging in various peer scaffolding behaviors, specifically questioning, elaborating, eliciting, and acknowledging. For instance, Intermediate 1 demonstrated ‘questioning’ (I1-Qu) by asking critical questions about unclear topics. Intermediate 2 utilized ‘suggesting’ (I2-Su) to provide recommendations for appropriate vocabulary and to add more detail to sentences in their writing. Additionally, she employed ‘eliciting’ (I2-Eli) to seek opinions and comments from her peers regarding the coherence of her sentences. Meanwhile, Intermediate 3 practiced ‘acknowledging’ (I3-Ac) by collaborating with a peer to appreciate their insights.

Table 43 EFL novice learners 4C skills through peer scaffolding writing during the post-writing activities

EFL learners	Peer dialogues	Peer scaffolding behaviors	Peer scaffolding definition	4C skills	4C skills rubric
Novice 1 (N1) Topic: Violence on TV and games	N1: "I'm with you on that! (N1-Ag)	Agreeing	Expressing agreement with the viewpoints of peers.	Collaboration	Collaborates effectively with peers, leads or supports team efforts, and constructively resolves conflicts.
Novice 1 (N1) Topic: Violence on TV and games	N1: "I think we still have some mistakes, but I can't see them yet." (N1-St)	Stating	Stating one's ideas and the concepts previously discussed by the group; sharing written content or information.	Communication	Clearly and effectively communicates ideas, using suitable formats and styles while engaging peers.
Novice2 (N2) Topic: Online learning	N2: "I noticed this sentence: 'Online learning help reduce costs for schools.'" Shouldn't it be "helps" instead?	Questioning	Asking questions about unclear topics.	Critical Thinking	Exhibits outstanding analytical and evaluative abilities, delivering well-supported conclusions and insights.

Table 43 (Cont.)

EFL learners	Peer dialogues	Peer scaffolding behaviors	Peer scaffolding definition	4C skills	4C skills rubric
Novice 3 (N3) Topic: Online learning	N3: "I think we should check the font and size for accuracy as well." (N3-Su)	Suggesting	Providing suggestions or recommendations regarding content, structure, formatting, and more.	Creativity	Demonstrates outstanding originality and innovation by generating new ideas or solutions for peers.

In Table 43, the novice EFL learners demonstrated essential skills during post-writing activities by engaging in various peer scaffolding behaviors, specifically agreeing, stating, questioning, and suggesting. For instance, Novice 1 collaborated with his peers by using 'agreeing' (N1-Ag) to support their opinions. Additionally, Novice 1 employed 'stating' (N1-St) to effectively communicate his ideas to his peers. Novice 2 used 'questioning' (N2-Qu) to ask about unclear grammar in the sentences, demonstrating critical thinking. Meanwhile, Novice 3 utilized 'suggesting' (N3-Su) to provide recommendations regarding the font and size of their writing.

In conclusion, the findings indicated that EFL learners engaged in various peer scaffolding behaviors across the pre-writing, while-writing, and post-writing stages. Thai EFL learners, whether advanced, intermediate, or novice, demonstrated their ability to support peers by sharing diverse knowledge and skills, as their writing expertise varies across different areas. Additionally, active participation in the writing process enhanced the development of the 4C skills: critical thinking, communication, collaboration, and creativity, particularly through online collaborative writing activities.

Conclusion

This chapter presented both quantitative and qualitative results. The quantitative findings revealed that online collaborative writing activities positively impacted EFL learners' argumentative writing abilities. Significant improvements were observed in pre-test and post-test scores, with confidence intervals confirming the

reliability of the results. All proficiency levels (advanced, intermediate, and novice) showed progress, with advanced learners achieving the highest scores. Intermediate and novice learners also demonstrated substantial gains. The analysis of standard deviations indicated consistent performance among advanced learners, moderate variability in the intermediate group, and improved consistency in the novice group. Additionally, four argumentative writing assignments showed consistent improvements in group performance, with statistically significant results emphasizing the effectiveness of online collaborative writing in enhancing both individual skills and group performance across all proficiency levels.

The quantitative data on peer scaffolding behaviors among EFL learners at all proficiency levels during the writing process were categorized into pre-writing, while-writing, and post-writing stages. These behaviors, including acknowledging, agreeing, disagreeing, elaborating, and others as defined by Li & Kim (2016), were most frequent during the pre-writing stage. This was due to collaborative activities like outlining, brainstorming, and organizing information, which helped learners structure their drafts. The second-highest frequency was observed during the while-writing stage, where learners revised drafts, focusing on vocabulary, content, and organization. The lowest frequency occurred in the post-writing stage, as learners mainly focused on proofreading and refining their final drafts.

The qualitative data on the analysis of students' perspectives on the 4C skills (critical thinking, communication, collaboration, and creativity) across all proficiency levels were based on discussions and the adapted 4C skills rubric by Marwa et al. (2024). Engaging in the writing process helped students strengthen their critical thinking by evaluating and integrating information from various sources, while also enhancing communication skills through clear and argumentative writing. Collaboration was encouraged through peer reviews and group projects, and creativity was fostered as students explored innovative ways to present their ideas. Overall, active participation in the writing process, particularly in online collaborative writing activities, significantly supported the development of the 4C skills.

Semi-structured interviews were conducted to gather students' perspectives after the experiment, with nine EFL learners from advanced (S1-S3), intermediate (S4-

S6), and novice (S7-S9) levels participating. They collaborated on writing argumentative paragraphs using MS Teams. The interview responses indicate that online collaborative writing tasks offer valuable opportunities to improve writing skills. These activities promoted teamwork, engagement, and constructive feedback, leading to better outcomes. Despite challenges such as unstable internet, varying skill levels, and coordination issues, the benefits of collaboration, skill development, and collective learning far outweigh these obstacles. Ultimately, online collaborative writing provided an interactive and enriching learning experience, making it an essential tool for academic growth.

Students' responses to the 4C skills questionnaire in the context of online collaborative writing showed a predominantly positive perception of collaboration, communication, critical Thinking, and creativity when using MS Teams. They actively participated, contributed meaningfully, and engaged in discussions, which enhanced their confidence in teamwork. Collaboration was highly valued, and communication was well-received, with students providing constructive feedback. Critical thinking was strongly supported, as students effectively analyzed sources, applied logical reasoning, and improved their writing quality. Creativity emerged as the most emphasized skill, encouraging idea generation, problem-solving, and adaptability, earning the highest average score among the 4Cs. Overall, students recognized online collaborative writing as a practical approach to developing 21st-century skills, with creativity and critical thinking receiving the most substantial support.

The questionnaire on learners' attitudes toward online collaborative writing activities revealed overwhelmingly positive perceptions. The consistently high mean scores across all statements indicated that learners found online collaborative writing both effective and enjoyable. MS Teams, in particular, stood out as a favored platform, with many participants recognizing it as an effective tool for online collaboration. A clear preference for MS Teams emerged as learners reported greater enjoyment, increased confidence in argumentative writing, and a stronger appreciation for peer collaboration. Additionally, interactions with teachers and classmates enriched their learning experience, fostering a sense of pride in their contributions. Overall, MS Teams was regarded as an effective and engaging tool for improving academic writing.

CHAPTER V

CONCLUSION

This chapter presented the conclusion of the study, discussing the effects of online collaborative writing on EFL students' argumentative writing ability. It also explored the students' perspectives on the 4C of 21st-century skills toward online collaborative writing via MS Teams. Lastly, recommendations for a future research study were presented.

Summary of the study

1. Summary of the effects of online collaborative writing on EFL students' argumentative writing ability

The study revealed that four argumentative paragraph writing assignments were conducted through online collaborative activities emphasizing group work. Twenty students were organized into five mixed-ability groups to collaboratively compose argumentative paragraphs for each assignment. Group formation was determined by students' prior English writing course grades, ensuring a blend of advanced, intermediate, and novice learners. Although students could select their groups, each group was required to include members from all proficiency levels. These groups collaborated throughout the study to write argumentative paragraphs on four distinct topics. The results indicated a steady improvement in scores across the four argumentative writing assignments, emphasizing the impact of group work during online collaborative writing activities. The first assignment had the lowest mean score, establishing a baseline with minimal variability (S.D. = 0.916). A notable increase of 2.00 points in the mean score was observed in the second assignment, with greater consistency (S.D. = 0.734). The third assignment showed a further mean increase of 1.80 points, though a slightly higher S.D. (1.122) indicated some variability. The fourth assignment achieved the highest mean score, with a significant increase of 3.20 points and the lowest S.D. (0.489), reflecting strong performance with high consistency. The statistically significant t-test results ($p < 0.05$) confirm that the observed

improvements were meaningful, highlighting the effectiveness of online collaborative writing in fostering skill development and performance growth.

The pre-test and post-test scores for students' skills in argumentative writing across three different proficiency levels (Advanced, Intermediate, and Novice) indicated marked improvements. At the outset, the advanced group recorded the highest average score (20.00), followed by intermediate (16.00) and novice (15.00). After participating in online collaborative writing activities, the advanced group obtained the highest post-test score (26.80), with the intermediate group following at (23.66) and novice at (21.33), illustrating significant advancement across all proficiency levels. Students of all proficiency levels (advanced, intermediate, and novice) showed statistically significant improvements in argumentative writing after participating in online collaborative writing activities. While advanced learners achieved the highest post-test scores, intermediate and novice students made notable progress relative to their starting proficiency. These findings highlight the effectiveness of online collaborative writing in developing argumentative writing skills across different proficiency levels.

2. Summary of the students' perspectives on the 4C of 21st-century skills toward online collaborative writing via MS Teams

The study found that peer scaffolding behaviors emerged among Thai EFL learners during writing process activities and group work. These behaviors included acknowledging, agreeing, disagreeing, elaborating, eliciting, greeting, justifying, questioning, requesting, stating, and suggesting (Li and Kim, 2016). They were most common during the pre-writing stage, as learners collaborated in online groups to engage in activities such as outlining, listing, freewriting, brainstorming, and organizing information. These collaborative efforts supported them in developing their work's introduction, body, and conclusion, ultimately creating a rough first draft. The second-highest frequency occurred during the while-writing stage, as learners collaborated online via Microsoft Teams to refine their initial drafts. They concentrated on enhancing vocabulary, content, and organization, making essential adjustments, additions, or deletions to strengthen their second drafts. The lowest frequency was observed during the post-writing stage, where learners worked together to produce the third draft, incorporating revisions from the previous phase. Following this, they proofread the third draft to address

issues like spelling, grammar, punctuation, and other mechanical errors, ultimately resulting in the final draft.

Based on the analysis of students' perspectives on the 4C skills (critical thinking, communication, collaboration, and creativity) across all proficiency levels was based on discussions and the adapted 4C skills rubric by Marwa, et al. (2024). Engaging in the writing process helps students strengthen their critical thinking by evaluating and integrating information from various sources, while also enhancing communication skills through clear and argumentative writing. Collaboration is encouraged through peer reviews and group writing, and creativity is fostered as students explore innovative ways to present their ideas. Overall, active participation in the writing process, particularly in online collaborative writing activities, significantly supports the development of the 4C skills.

The study of students' perspectives on the 4C skills (critical thinking, communication, collaboration, and creativity) at varying proficiency levels was conducted through engaging discussions and a carefully refined 4C skills rubric developed by Marwa et al. (2024). By immersing themselves in the writing process, students enhance their critical thinking by evaluating and integrating information from diverse sources. This process also strengthens their communication skills, allowing them to express their ideas with precision and impact. Collaborative writing assignments and peer reviews foster teamwork, while creativity flourishes as students explore innovative methods to convey their thoughts. Ultimately, active participation in the writing process, mainly through dynamic online collaborative activities, is pivotal in cultivating these essential 4C skills.

Semi-structured interviews were conducted to capture students' insights following an experiment that engaged nine English EFL learners at advanced, intermediate, and novice proficiency levels. These participants collaborated on composing argumentative paragraphs using MS Teams. The interview responses reveal that online collaborative writing tasks present invaluable opportunities for honing writing skills. Such activities cultivate teamwork and engagement and encourage constructive feedback, leading to significantly improved outcomes. While challenges like unstable internet connections, differing skill levels, and coordination issues

were encountered, the advantages of collaboration, skill enhancement, and collective learning far surpass these hurdles. Online collaborative writing emerges as a powerful and enriching platform for elevating writing proficiency, transforming obstacles into stepping stones for greater achievement.

Students' responses to the 4C skills questionnaire about online collaborative writing revealed a largely positive view of Collaboration, Communication, Critical Thinking, and Creativity while using MS Teams. They actively engaged in discussions, contributing ideas and boosting their confidence in teamwork. Collaboration was highly valued, with students appreciating their ability to work together and share feedback in a supportive environment. Communication thrived as students provided constructive input, facilitating learning and growth. Critical thinking emerged as a vital skill, as students effectively analyzed sources and applied logical reasoning to enhance their writing. However, creativity was the standout skill, encouraging innovative idea generation, problem-solving, and adaptability, earning the highest average score. Overall, students recognized online collaborative writing as an effective way to develop essential 21st-century skills, particularly highlighting the growth they experienced in creativity and critical thinking.

The questionnaire assessing learners' attitudes toward online collaborative writing activities revealed largely positive perceptions among participants. The consistently high average scores indicate that learners consider online collaborative writing to be both practical and enjoyable. MS Teams mainly emerged as a preferred platform, with many respondents recognizing it as a valuable tool for facilitating online collaboration. A clear preference for MS Teams was evident, as learners noted increased enjoyment, enhanced confidence in their argumentative writing skills, and a greater appreciation for peer collaboration. Furthermore, meaningful interactions with teachers and classmates enriched their learning experience, fostering a sense of pride in their contributions.

Discussion of the study

1. Discussion of the effects of online collaborative writing on EFL students' argumentative writing ability

The findings of this study clearly demonstrated a continuous improvement in students' argumentative writing skills. This was evidenced by significantly higher post-test scores compared to pre-test scores, as well as the increased scores across the four argumentative writing assignments. Notably, the fourth writing assignment yielded the highest average score, reflecting remarkable progress in students' writing proficiency.

Learning through online collaborative writing activities provided students with authentic opportunities to practice and enhance their writing skills, particularly in argumentative writing. Working in groups not only fostered collaborative planning, outlining, and idea sharing, but also enabled students to learn grammar usage techniques, appropriate vocabulary selection, and the development of effective communication skills. In addition, the use of Microsoft Teams as an online platform with flexible and diverse functionalities such as chat, video meetings, file sharing, and whiteboard tools, played a crucial role in facilitating collaboration and increasing work efficiency. It allowed students to work together anytime and anywhere, thereby overcoming the limitations of face-to-face interaction. The integration of online collaborative writing activities via Microsoft Teams into the learning process resulted in improved efficiency and effectiveness in students' writing abilities.

The results showed significant improvements in learners' writing skills, aligning with the findings of Dobao (2012), McDonough, et al. (2018), and Villarreal & Gil-Sarratea (2019). These studies emphasized that collaborative writing creates an effective learning environment by promoting active engagement and teamwork among learners. Similarly, Wigglesworth & Storch (2019) supported the idea that collaborative writing allows writers to contribute to the content of the text while engaging in the review and discussion of each other's suggestions. This process encourages learners to analyze and discuss linguistic choices and the organization of ideas, facilitating learning through critique, questioning, and dialogue. Such peer interaction enables learners to expand their linguistic resources and gain a deeper understanding of writing.

Building upon the insightful findings of Storch (2005) and Fung (2006), collaborative writing is a more effective learning approach than traditional single-teacher instruction. It fosters peer interaction and shared learning, significantly enhancing students' writing skills. The impact varies between L1 (first language) and L2 (second language) learners, underscoring its importance in language acquisition. Instructors guide students through brainstorming, drafting, and editing, often facilitating group discussions and incorporating presentations or peer reviews to enrich the writing process.

Moreover, incorporating online collaborative writing significantly enhanced learners' development and boosts writing performance, as supported by the findings of Hsu (2020), Abrams (2019), and Hafner & Ho (2020). This innovative approach promoted real-time communication and teamwork, bridged geographical gaps and connected learners in their writing endeavors. Fostering feedback from a diverse audience enriched the writing process and stimulated creativity. Additionally, the online collaborative environment provided access to various valuable resources such as dictionaries, grammar tools, and dynamic writing communities, which empowered learners to refine their skills and confidently tackle writing challenges. According to the study of, Kioumars, et al. (2018); Cho (2017); Moonma (2022); Ghada and Nuwar (2023) explored the impact of online collaborative writing in their respective studies. Their research highlighted that integrating online platforms in collaborative writing exercises significantly improved students' writing skills. This advancement was attributed to the collaborative writing approach, which encouraged students to engage actively in various stages of the writing process. Students collaboratively planned their work, brainstormed ideas, analyzed information, and shared insights, all while providing constructive feedback and support to one another. This dynamic interaction fostered a sense of community among learners and enriched the overall writing experience. Furthermore, the strategic use of online tools in educational settings enhanced students' development, enabling them to explore their topics more deeply and express their thoughts more effectively.

Therefore, online collaborative writing was widely regarded as a significant enhancer of students' writing abilities. This improvement became particularly evident during group activities, where sharing ideas and constructive feedback cultivated

a dynamic and stimulating learning environment, enabling students to unlock their full writing potential.

2. Discussion of the students' perspectives on the 4C of 21st-century skills toward online collaborative writing via MS Teams.

Peer Scaffolding in Thai EFL Learners' Writing Activities

The study revealed that Thai EFL learners effectively employed peer scaffolding during writing activities. In the pre-writing stage, the EFL learners collaborated in online groups to outline, brainstorm, list ideas, free write, and organize information. This collaborative process enabled them to structure their introduction, body, and conclusion, culminating in the development of a rough draft. The findings were consistent with Dewi et al. (2023), who emphasized the critical role of the planning stage in writing. At this stage, students identified their topic and purpose by brainstorming ideas and sharing perspectives. These findings also aligned with Zeki and Kuter (2018), who demonstrated that peer feedback enhanced learners' comprehension of the task during the writing process. By engaging in pre-writing activities, EFL learners collaboratively planned, generated, and exchanged ideas, fostering mutual interactions and adopting complementary roles.

During the while-writing stage, EFL learners revised their first drafts by refining vocabulary, content, and organization. They made adjustments, additions, and deletions to improve their second drafts. These findings supported the work of Zufikar and Aulia (2020), who emphasized the advantages of integrating the writing process into EFL classrooms. Collaborative group work allowed students to exchange ideas, explore different writing styles, and provide mutual support in completing tasks. Through cooperative learning, students could openly share thoughts, plan their writing, and enhance their language skills in a learner-centered and interactive environment.

In the post-writing activity, Thai EFL learners refined their third drafts by proofreading and correcting spelling, grammar, punctuation, and mechanical errors, leading to the final draft. These findings were supported by Guo, et al. (2021), who emphasized that these activities helped students recognize their challenges and improve content and organization. Before finalizing their drafts, students collaborated by giving feedback on initial drafts, allowing them to refine ideas and revise sentences

based on peer suggestions. In post-writing activities, students took on a fresh perspective to spot errors and polish their work. The revising and editing processes enabled them to evaluate their writing proficiency and strengthen their skills. Collaboration and constructive feedback during the writing process helped students refine their skills and become more proficient writers.

Peer scaffolding during pre-writing, while-writing, and post-writing activity

Based on their language competency and capacity for successful group learning, the various levels of Thai EFL learners utilized different peer scaffolding behaviors throughout the **pre-writing activity**.

Advanced learners skillfully employed various peer scaffolding techniques, such as 'Questioning,' 'Suggesting,' and 'Elaborating,' during the pre-writing activity. Their proficient command of language structures and writing techniques allows them to engage in comprehensive discussions. Through their analytical and critical thinking abilities, they effectively propose enhancements and develop well-organized content. This finding is similar to Chairinkam and Yawiloeng (2021), who revealed that the pre-writing activity helps participants generate ideas for their content, allowing them to create more well-developed pieces. By utilizing questioning, they foster critical thinking; by suggesting, they present alternative perspectives and improvements; and by elaborating, they refine and systematically organize ideas.

Intermediate learners effectively employed the strategies of 'Questioning,' 'Stating,' and 'Eliciting' to balance idea generation and expression clarity. The use of 'Questioning' facilitated the pursuit of clarification and confirmation while 'Stating' allowed for the clear articulation of ideas. 'Eliciting' actively encouraged peer participation, thereby enhancing engagement in the pre-writing process. Curry and Hewings (2003) emphasized that, at this stage, the primary focus was on organizing ideas effectively. The planning process focused on shaping clear, structured concepts that provided a solid framework for the drafting phase. As these learners continued to cultivate their confidence in writing, these strategies supported their ability to organize their thoughts and structure content more effectively.

Novice learners predominantly employed three strategies 'Agreeing,' 'Questioning,' and 'Eliciting' in developing writing skills, with significant reliance

on peer support. The 'Agreeing' bolstered their confidence and promoted a collaborative environment. Meanwhile, 'Questioning' provided a means for seeking guidance and clarification, enhancing their understanding. 'Eliciting' peer input facilitated the effective generation and organization of ideas before writing.

The peer scaffolding strategies used by each group emphasized their respective proficiency levels and learning approaches. Advanced learners focused on refining and expanding their ideas, while intermediate learners found a balance between clarification and expression. Novice learners, on the other hand, depended on support and encouragement to become engaged in the writing process.

During **the while-writing activity**, learners at various proficiency levels exhibited specific peer scaffolding behaviors aligned with their writing abilities. These findings were supported by Curry and Hewings (2003), who emphasized that the initial draft in the while-writing stage emphasized creating meaning and integrating ideas from pre-writing. Later drafts were polished through peer reviews and constructive feedback. This collaborative process fostered critical thinking, deepened understanding of reader perspectives, and strengthened overall writing quality. The experiment results showed that EFL learners had to collaborate to develop their writing to be as effective as possible by using different peer scaffolding behaviors.

Advanced learners predominantly utilized three key peer scaffolding strategies: 'Suggesting,' 'Elaborating,' and 'Stating.' These approaches reflected their strong writing skills and in-depth understanding of structure and coherence. Through 'Suggesting,' learners provided constructive feedback on sentence structure, vocabulary, and overall organization. 'Elaborating' enabled them to expand on their ideas, resulting in writing that was both detailed and cohesive. Additionally, 'Stating' allowed them to articulate their viewpoints clearly. Advanced learners actively refined their writing by employing these strategies with increased confidence, ensuring their content was well-structured and logically developed.

Intermediate learners effectively employed the strategies of 'Stating,' 'Agreeing,' and 'Questioning' during the while-writing activity. The 'Stating' facilitated the articulation of ideas and enhanced understanding of the task requirements. 'Agreeing' played a crucial role in reinforcing confidence through positive peer affirmation.

Additionally, 'Questioning' allowed learners to clarify grammar, structure, and organization uncertainties, thereby contributing to the refinement of their drafts. As group work fosters the development of writing skills, these strategies offer essential support for clear idea expression and the progressive refinement of writing mechanics.

Novice learners employed 'Questioning,' 'Stating,' and 'Eliciting' to address their writing challenges effectively. They used 'Questioning' to facilitate their exploration of vocabulary, sentence structure, and grammar by allowing them to seek guidance when needed. 'Stating' empowered them to articulate their thoughts clearly and confidently. Additionally, 'Eliciting' encouraged peer collaboration, providing essential support that contributed to their writing development. Despite their limited proficiency, these strategies proved instrumental in helping them acquire assistance and deepen their understanding throughout the writing activities.

The scaffolding behaviors during the while-writing activity reflected each group's writing proficiency and confidence. Advanced learners refined content through suggestions and elaboration, intermediate learners balanced clarity with peer validation, and novice learners relied on questioning and eliciting support to navigate the writing process.

Learners across various proficiency levels demonstrated distinct peer scaffolding behaviors during **the post-writing activity**, showcasing their language abilities and collaborative skills. These findings aligned with Mora-Flores (2009), who highlighted that the final stage of the writing process involved revising and proofreading. EFL learners had to recognize that elements like formatting, referencing, footnotes, and linguistic accuracy could affect their grades. By consulting with peers, students were able to improve their spelling. The experiment results demonstrated that EFL learners had to collaborate and use various peer scaffolding behaviors to enhance the effectiveness of their writing.

Advanced learners consistently engaged in 'Stating,' 'Suggesting,' and 'Elaborating' during the final drafting stage, strongly emphasizing refinement and improvement. 'Stating' helped the EFL learners evaluate their own and peers' writing, while 'Suggesting' provided constructive feedback to enhance clarity and coherence. 'Elaborating' allowed them to expand critiques and refine ideas further. With a solid

foundation in writing mechanics, these learners actively implemented these strategies to ensure their work was polished and of high quality before submission.

Intermediate learners mainly used 'Stating,' 'Questioning,' and 'Eliciting' in the post-writing activity. 'Stating' allowed the EFL learners to express feedback and understand writing rules, while 'Questioning' helped clarify grammar, coherence, and structure uncertainties. 'Eliciting' encouraged peer input to ensure comprehensive revisions. As they continued developing their skills, these strategies helped them refine their final drafts effectively.

Novice learners primarily used 'Requesting,' 'Questioning,' and 'Stating' in the post-writing activity, as they needed substantial assistance with revisions. 'Requesting' helped the EFL learners seek peer support for grammar, punctuation, and structure, while 'Questioning' clarified doubts and guided their revisions. 'Stating' allowed them to confirm their understanding or express their thoughts on their final draft. With limited confidence and proficiency, these strategies provided essential support in finalizing their work.

Peer scaffolding behaviors in the post-writing activity reflected the group's writing confidence and self-editing skills. Advanced learners prioritized refinement through detailed feedback and elaboration, intermediate learners balanced feedback with clarification, and novice learners depended on peer support to finalize their drafts.

The students' perspectives on the 4C skills across all proficiency levels

The analysis of students' perspectives regarding the 4C skills, critical thinking, communication, collaboration, and creativity, was conducted across various proficiency levels, drawing insights from in-depth discussions. This evaluation utilized an adapted 4C skills rubric developed by Marwa, et al. (2024), which provided a structured framework for assessing these essential competencies. Engaging in the writing process serves as a powerful catalyst for students to cultivate their 4C skills. Additionally, the development of these skills is further supported by the peer scaffolding behaviors adapted from Li and Kim (2016), which encouraged collaborative learning and mutual support among students.

The peer scaffolding behaviors 'Eliciting,' 'Greeting,' 'Requesting,' and 'Stating' contributed to developing communication skills. These findings were consistent with

Lubis, et al. (2020), who emphasized that communication is the ability to share thoughts and ideas through spoken, written, and interpersonal forms, and that technology platforms made communication more accessible. Applying this element in teaching writing skills was crucial as it enabled students to communicate with each other, helping resolve challenges during the writing process. Therefore, incorporating communication into writing instruction was vital, especially for constructing and organizing main ideas into coherent paragraphs.

The peer scaffolding behaviors 'Acknowledging' and 'Agreeing' played a role in fostering collaboration skills. Collaboration involved students actively participating in meaningful cooperative learning, where individuals and groups worked together to generate new ideas and knowledge (Fianti, et al., 2019; Sharratt & Planche, 2016). When students collaborate with peers, they had more time to discuss and address challenges in writing. This collaborative process benefited them by improving their writing skills through peer discussions. Students often felt more comfortable with peers than with language teachers, as some may have feel shy, fearful, or uncomfortable interacting directly with their teacher during lessons (Yu, et al., 2019).

The peer scaffolding behaviors 'Disagreeing,' 'Justifying,' and 'Questioning' helped develop critical thinking skills, while 'Elaborating' and 'Suggesting' supported creativity skills. Writing was a vital skill that required individuals to take enjoyment in producing quality content. Choosing the proper grammar and vocabulary was essential, and students had to engage in both critical thinking and creativity skills, as writing was a cognitive process. These findings were consistent with Duncan-Andrade and Morrell (2008), who explained that engaging students in activities that foster critical thinking helped generate ideas that allowed them to analyze, evaluate, and assess their abilities. Students had to plan carefully and critically evaluate grammar and vocabulary choices for effective writing. This aligned with Reay (2018), who emphasized the strong connection between critical thinking and writing skills. Critical thinking helped students organize their thoughts and ideas clearly, enabling them to create well-structured writing. This highlighted the need for practical guidelines to improve students' grammar and vocabulary skills. Moreover, all societies considered creativity skills key priorities. Tse and Shum (2000) supported the idea that many researchers

recognized the importance of creativity in language writing. Students needed to avoid repeating the same grammatical structures and vocabulary in writing. By applying their creativity, they could use a variety of sentence structures expressively. Additionally, they should demonstrate proper use of grammatical features.

In summary, active engagement in the writing process, primarily through online collaborative activities, was essential for fostering the 4C skills (critical thinking, creativity, collaboration, and communication). These skills were integral to today's educational landscape, as they empowered students to express their ideas effectively and work together with their peers. Additionally, such collaborative endeavors fostered peer scaffolding behaviors, where students supported and built upon each other's insights and contributions. Consequently, seamlessly integrating the 4Cs of 21st-century learning into writing instruction was essential for significantly enhancing students' writing abilities and preparing them for future challenges.

Students' perspectives on online collaborative writing using Microsoft Teams: Insights from semi-structured interviews

According to the semi-structured interview results, the EFL students had a positive point of view toward implementing online collaborative writing activities with Microsoft Teams, expressing strong enthusiasm for this innovative approach to learning. These EFL students highlighted Microsoft Teams as an effective platform for online collaborative writing, improving efficiency, time management, and teamwork. The findings of this study aligned with Anwar (2020), who emphasized that online learning could be a successful alternative to in-person education. With appropriate tools and resources, meaningful learning occurred in a virtual environment. Its features, such as real-time editing, screen sharing, and seamless communication, streamlined the writing process. The platform's user-friendly interface simplified scheduling, file sharing, and project management, while chat and video calls facilitated discussions and progress tracking (Henderson, et al., 2020; Ilag, 2020; McVey, et al., 2019; Rojabi, 2020; Wea & Kuki, 2021; Winqvist, 2022).

Furthermore, online collaborative writing enhanced teamwork, communication, and efficiency. It eliminated the need for physical meetings, enabling seamless remote collaboration while saving time and costs. Task division ensured

equal participation and practical problem-solving, while a structured workflow from planning to finalization improved clarity and enriched writing through diverse perspectives. The interactive environment promoted engagement, idea sharing, and mutual support, with immediate feedback helping refine work, boost confidence, and enhance writing skills (Barrot, 2021; Liu, et al., 2023; Ravid, et al., 2008; Xu, et al., 2019).

In addition, the EFL learners indicated that online collaborative writing enhanced writing quality by fostering teamwork, diverse perspectives, and a supportive learning environment (Elola & Oskoz, 2010). Peer collaboration led to more structured and comprehensive writing while brainstorming, drafting, and revising, resulting in a polished final product. Peer feedback helped identify and correct mistakes, improving writing skills, and group discussions boosted confidence while reducing stress. Although some students struggled with structuring ideas or integrating suggestions, and less confident participants hesitated to contribute, constructive feedback and peer support helped build confidence. Overall, students found online collaborative writing highly effective for improving writing quality, fostering personal growth, and creating an engaging learning experience (Abrams, 2019; Hafner & Ho, 2020; Reinhardt, 2019).

Students' perspectives on the 4C skills toward online collaborative writing via MS Teams: Insights from a questionnaire

Students' responses to the 4C skills questionnaire in the context of online collaborative writing via MS Teams reflected a predominantly positive perception of Collaboration, Communication, Critical Thinking, and Creativity. The EFL learners actively engaged in discussions, contributed meaningfully, and developed confidence in teamwork. Collaboration was highly valued, while communication was well-received, with students effectively exchanging feedback. Critical thinking played a key role in analyzing sources, applying logical reasoning, and enhancing writing quality. Creativity emerged as the most emphasized skill, driving idea generation, problem-solving, and adaptability, receiving the highest average score. Overall, students viewed online collaborative writing as an effective method for developing 21st-century skills, with creativity and critical thinking standing out as the most influential (Duncan-Andrade & Morrell, 2008; Fianti, et al., 2019; Lubis, et al., 2020; Sharratt & Planche, 2016; Reay, 2018).

Students' attitudes toward the use of online collaborative writing via MS Teams: Insights from a questionnaire

Learners also shared their perspectives on using online collaborative writing to enhance their argumentative writing skills through a questionnaire. The overall attitude toward these activities was strongly positive, with a clear consensus that they were effective, enjoyable, and beneficial for improving academic writing. These findings aligned with Elola & Oskoz (2010), who highlighted the positive impact of collaborative writing on the quality of written texts. This approach enabled real-time collaboration regardless of location, allowing learners to receive feedback from a wider audience, thereby enhancing their writing experience (Hsu, 2020). Furthermore, it helped students overcome writing challenges and supported skill development (Hafner & Ho, 2020; Reinhardt, 2019).

Limitations of the Study

There are three limitations in this study

1. The subjects of this study were third-year undergraduate students registered for the English writing course of Academic Writing at the University of Phayao, Phayao, Thailand in the academic year 2024.
2. This study focused only on one type of writing: argumentative paragraph writing.
3. Indeed, this study employed an online learning platform as a medium of online collaborative writing. Nonetheless, there are a significant number of online learning platforms nowadays. Therefore, this research employed Microsoft Teams as an online learning platform for online collaborative writing; the employment of other platforms might produce dissimilar results.

Recommendations

Analyzing learners' engagement throughout various stages of the online collaborative writing process is essential for understanding the complex dynamics of collaboration. To achieve this, a method was designed to identify online collaboration

patterns that reflect the fluid and evolving nature of interactions in collaborative writing. The study concludes with key recommendations for future research.

1. The findings can be applied to various contexts throughout Thailand and across different educational levels, offering valuable insights into the effectiveness of online collaborative writing in diverse settings.

2. The study examines both the benefits and challenges of online collaborative writing, providing valuable insights into how technological tools can enhance the development of argumentative writing skills, especially for EFL learners in Thailand.

3. Rather than taking a broad, holistic approach, the approach recommends focusing on interaction patterns within specific aspects of the task, such as content, organization, and language use.

4. Exploring the relationship between learners' attitudes and a qualitative assessment of their collaboratively written work could provide a deeper understanding of how a learner's mindset influences the effectiveness of online collaborative writing, as attitude and motivation are often closely linked.

Chapter V summarizes the study, followed by a discussion of the findings. It highlights the study's limitations and offers recommendations for future research.



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APPENDIX

APPENDIX A Lesson Plan

Course Syllabus

1. **Course Title:** Academic Writing
2. **School/Department:** School of Liberal Arts/ Department of English
3. **Curriculum:** B.A. (English)
4. **Degree:** Bachelor's degree
5. **Hours:** 64 hours (16 weeks)

6. Course Description:

Definition, styles, and principles of academic writing, academic language, writing different types of academic writings (**argumentative writing**) for academic presentation, citation and references in writing academic English, ethics in academic writing.

7. Course Objectives

Upon the completion of the course, the students should be able to:

- 7.1 Engage in writing processes that are appropriate for each type of writing
- 7.2 Plan and structure their writing effectively
- 7.3 Evaluate and justify information and ideas obtained from sources e.g. articles or books
- 7.4 Use academic language appropriately and effectively in an academic writing
- 7.5 Make reference to sources appropriately and effectively in their work concerning ethics and plagiarism e.g. quotation, paraphrase, or APA style referencing
- 7.6 Produce academic writing with appropriate content for each designated topic

8. Instructional Materials:

- 8.1 Handouts
- 8.2 PowerPoint slides
- 8.3 MS Teams

9. Assessment:

- 9.1 Exercises
- 9.2 Pre-test and Post-test
- 9.3 Writing assignments

Lesson Plan 1

Topic: Introduction to argumentative paragraph writing; (Pre-test)

Level: Undergraduate Year 3

Time: 240 minutes per 1 week

Unit objectives:

After the completion of this unit, students will be able to:

- Explain the meaning, characteristics, and structure of an argumentative paragraph accurately.
- Identify and analyze the key components of an argumentative paragraph, including the topic sentence, supporting reasons, and evidence.

Teaching Procedure:

Teacher Activity	Students Activity
Section 1: Warm-up (20 minutes) 1. The teacher greets the students and introduces herself to the class. Then, the teacher starts the warm-up activity by asking the students to share their experiences with writing in English.	Warm-up 1. Students introduce themselves to the teacher and the class.
Presentation (40 minutes) 2. The teacher explains the course syllabus to the class, detailing what topics will be covered and what students can expect to learn. 3. The teacher explains the different types of academic writing, such as argumentative writing, and how to write a paragraph effectively. 4. Teacher reviews students' prior knowledge of argumentative writing, providing explanations and examples.	Presentation 2 Students discuss their experiences with English writing and offer advice to others. 3. Students attempt to comprehend the course syllabus so that they can be successful in the class. 4. Students study the different types of academic writing, and how to write a paragraph effectively from the teacher.

Teacher Activity	Students Activity
<p>Practice (60 minutes)</p> <p>5. Teacher provides the topic and assigns students to write a pre-test about argumentative writing, requiring each writing to be approximately 200 words in length.</p> <p>“Some people think that the internet has brought people closer together while others think that people and communities are become more isolated. Is the Internet Bridging Gaps or Creating Isolation?”</p> <p>6. Students are to complete this task individually.</p> <p>7. Teacher collects all of the pre-tests on argumentative paragraph writing.</p>	<p>Practice</p> <p>5. Students take a pre-test by themselves on argumentative writing. After students have completed their pre-test argumentative writing, they should go over their work again to make sure it is accurate and then hand it into the teacher.</p>
<p>Section 2:</p> <p>Presentation (60 minutes)</p> <p>1. Teacher explains the structure of argumentative writing to students.</p> <p>2. Then, the teacher explains how to write the thesis statement of an argumentative writing.</p> <p>3. The teacher assigns students to do exercise A: Write the thesis statements of the following topics.</p> <p>4. The teacher asks students to answer exercise A and discusses the correct answers.</p>	<p>Presentation</p> <p>1. Students study the structure of argumentative writing.</p> <p>2. Students are instructed on how to write a thesis statement for argumentative writing on their handout.</p> <p>3. Students do the exercise by writing the thesis statements of the following topics.</p> <p>4. Students answer the question and then check to see if their answer is correct.</p>

Teacher Activity	Students Activity
<p>Practice (55 minutes)</p> <p>5. The teacher explains the elements of argumentative writing to students.</p> <p>6. The teacher describes the expressions to introduce a counterargument and a refutation.</p> <p>7. The teacher assigns students to do exercise B: Match the counterarguments with the correct refutations. Then underline the clauses and expressions that introduce them.</p> <p>8. The teacher asks students to answer exercise B and discusses the correct answers.</p>	<p>Practice</p> <p>5. Students study the elements of an argumentative writing.</p> <p>6. Students study how to introduce a counterargument and refutation in order to make their writing more persuasive.</p> <p>7. Students do the exercise by matching the counterarguments with the correct refutations. Then underline the clauses and expressions that introduce them.</p> <p>8. Students discuss the answer together to check for accuracy.</p>
<p>Wrap-up (5 minutes)</p> <p>9. Teacher and students end the lesson by discussing what they have learned.</p>	<p>Wrap-up</p> <p>9. At the end of the lesson, the students will meet with the teacher to go over what they learned.</p>

Lesson Plan 2

Topic: Structure of an argumentative writing

Level: Undergraduate Year 3

Time: 240 minutes / 4 hours

Unit objectives:

After the completion of this unit, students will be able to:

- Clearly explain the main components of an argumentative writing, including the introduction, body paragraphs, and conclusion.

- Analyze the function of each part in the structure of argumentative writing, such as identifying the thesis statement, providing supporting reasons and evidence, and presenting counterarguments or refutations.

Teaching Procedure:

Teacher Activity	Students Activity
Section1: Presentation (60 minutes) 1. The teacher provides students with a model of argumentative writing and allows them to read it in order to gain a better understanding of the model.	Presentation 1. Students carefully read the writing model and work together to analyze the different components of argumentative writing.
Practice (30 minutes) 2. The teacher asks students to do exercise C: analyze the components of the argumentative writing and answer the questions. 3. The teacher asks students to answer exercise C and discusses the correct answers.	Practice 2. Students do the exercise by analyzing the components of the argumentative writing and answering the questions. 3. Students work together to answer the question, and then check their work to ensure that they have the correct answer.

Teacher Activity	Students Activity
<p>Section 2:</p> <p>Overview (60 minutes)</p> <ol style="list-style-type: none"> 1. The teacher explains the guidelines for collaborative writing to the students. 2. The teacher asks students to choose their group members from three different levels of learners: advanced, intermediate, and novice 	<p>Overview</p> <ol style="list-style-type: none"> 1. Students attempt to comprehend the guidelines for collaborative writing. 2. Students are placed into groups of four, based on their abilities, with advanced, intermediate, and novice learners all represented.
<p>Practice (80 minutes)</p> <ol style="list-style-type: none"> 3. The teacher provides a tutorial on Microsoft Teams and its functionalities using an instructional guide derived from Microsoft Teams (2018) to students. 	<p>Practice</p> <ol style="list-style-type: none"> 3. Students must acquaint themselves with the step-by-step instructions tailored for devices like computers, laptops, and tablets, ensuring meticulous adherence to the guidelines.
<p>Wrap-up (10 minutes)</p> <ol style="list-style-type: none"> 4. The teacher and students end the lesson by discussing what they have learned. 	<p>Wrap-up</p> <ol style="list-style-type: none"> 4. At the end of the lesson, the students will meet with the teacher to go over what they learned.

Lesson Plan 3

Topic: Argumentative Paragraph Writing Assignment (Task 1+2)

Level: Undergraduate Year 3

Time: 240 minutes / 4 hours

Unit objectives:

After the completion of this unit, students will be able to:

- analyze the organization of argumentative writing: the introductory, body, and concluding paragraphs.
- identify and write the thesis statement of an argumentative writing.
- identify the main elements of argumentative writing: an argument, a counterargument, and a refutation.
- write well-organized argumentative writing using paragraph writing organization, vocabulary, and grammar structures learned in this unit.

Teaching Procedure:

Teacher Activity	Students Activity
<p>Prewriting (30 minutes) (Online collaborative writing) (Argumentative writing: Task 1)</p> <p>1. Teacher assigns students to write an argumentative on a given topic, requiring each essay to be approximately 200 words in length.</p> <p>“Online education is becoming more and more popular. Some people claim that e-learning has so many benefits that it will replace face-to-face education soon. Others say that traditional education is irreplaceable. Will Online Education Replace Traditional Classroom Learning?”</p>	<p>Prewriting (Online collaborative writing) (Argumentative writing: Task 1)</p> <p>1. Working together in groups, students brainstorm and research an argumentative topic using various methods including outlining, listing, and freewriting. They then organize all of the information they have gathered.</p>

Teacher Activity	Students Activity
<p>Drafting (30 minutes) (First Draft)</p> <p>2. Teacher helps students as a consultant, providing guidance and support during their online collaborative writing process. After the students finish their first draft, teacher asks them to do the group assessment checklist.</p>	<p>Drafting (First Draft)</p> <p>2. Students write their first draft in groups, focusing on the introduction, body, and conclusion, based on the structure outline. After the students finish their first draft, they do the group assessment checklist to verify the completeness of their first draft's components.</p>
<p>Revising (20 minutes)</p> <p>3. Teacher reminds students to revise their first draft by focusing on vocabulary, content, and organization, including adding or removing details as necessary.</p>	<p>Revising</p> <p>3. Students revise their first draft, focusing on vocabulary, content, and organization, including adding or removing details as necessary.</p>
<p>Rewriting (20 minutes) (Second Draft)</p> <p>4. Teacher informs students to rewrite the draft based on the revisions identified in the revision stage. After the students finish their second draft, teacher asks them to do the group assessment checklist.</p>	<p>Rewriting (Second Draft)</p> <p>4. After the students revised their drafts, they rewrote them incorporating the identified changes. After the students finish their second draft, they do the group assessment checklist to verify the completeness of their second draft's components.</p>
<p>Proofreading (15 minutes) (Final Draft)</p> <p>5. The teacher requests students to proofread their work for spelling, grammar, punctuation, or mechanics errors.</p>	<p>Proofreading (Final Draft)</p> <p>5. Students analyze their final draft for any spelling, grammar, punctuation, or mechanical errors.</p>

Teacher Activity	Students Activity
<p>Publishing (5 minutes)</p> <p>6. Teacher asks students to submit their writing.</p>	<p>Publishing</p> <p>6. Students write a completed writing and submit it to the teacher.</p>
<p>Section 2:</p> <p>Prewriting (30 minutes)</p> <p>(Online collaborative writing)</p> <p>(Argumentative writing: Task 2)</p> <p>1. The teacher assigns students to write an argumentative on a given topic, requiring each writing to be approximately 200 words in length. “In contemporary society, many parents have limited time to spend with their children. How does this lack of time affect parents and children?”</p>	<p>Prewriting</p> <p>(Online collaborative writing)</p> <p>(Argumentative writing: Task 2)</p> <p>1. Working together in groups, students brainstorm and research an argumentative topic using various methods including outlining, listing, and freewriting. They then organize all of the information they have gathered.</p>
<p>Drafting (30 minutes)</p> <p>(First Draft)</p> <p>2. The teacher helps students as a consultant, providing guidance and support during their online collaborative writing process. After the students finish their first draft, teacher asks them to do the group assessment checklist.</p>	<p>Drafting</p> <p>(First Draft)</p> <p>2. Students write their first draft in groups, focusing on the introduction, body, and conclusion, based on the structure outline. After the students finish their first draft, they do the group assessment checklist to verify the completeness of their first draft's components.</p>
<p>Revising (20 minutes)</p> <p>3. The teacher reminds students to revise their first draft by focusing on vocabulary, content, and organization,</p>	<p>Revising</p> <p>3. Students revise their first draft, focusing on vocabulary, content, and organization, including adding or</p>

Teacher Activity	Students Activity
including adding or removing details as necessary.	removing details as necessary.
<p>Rewriting (20 minutes) (Second Draft)</p> <p>4. Teacher informs students to rewrite the draft based on the revisions identified in the revision stage. After the students finish their second draft, teacher asks them to do the group assessment checklist.</p>	<p>Rewriting (Second Draft)</p> <p>4. After the students revised their drafts, they rewrote them incorporating the identified changes. After the students finish their second draft, they do the group assessment checklist to verify the completeness of their second draft's components.</p>
<p>Proofreading (15 minutes) (Final Draft)</p> <p>5. Teacher requests students to proofread their work for spelling, grammar, punctuation, or mechanics errors.</p>	<p>Proofreading (Final Draft)</p> <p>5. Students analyze their final draft for any spelling, grammar, punctuation, or mechanical errors.</p>
<p>Publishing (5 minutes)</p> <p>6. Teacher asks students to submit their writing.</p>	<p>Publishing</p> <p>6. Students write a completed writing and submit it to the teacher.</p>

Lesson Plan 4

Topic: Argumentative Paragraph Writing Assignment (Task 3-4)

Level: Undergraduate Year 3

Time: 240 minutes / 4 hours

Unit objectives:

After the completion of this unit, students will be able to:

- analyze the organization of argumentative writing: the introductory, body, and concluding paragraphs.
- identify and write the thesis statement of an argumentative writing.
- identify the main elements of argumentative writing: an argument, a counterargument, and a refutation.
- write well-organized argumentative writing using paragraph writing organization, vocabulary, and grammar structures learned in this unit.

Teaching Procedure:

Teacher Activity	Students Activity
<p>Section 1:</p> <p>Prewriting (30 minutes)</p> <p>(Online collaborative writing)</p> <p>(Argumentative writing: Task 3)</p> <p>1. The teacher assigns students to write an argumentative on a given topic, requiring each writing to be approximately 200 words in length.</p> <p>“Some people believe that violence on television and in computer games has a damaging effect on society. Others deny that these have any significant influence on people's behavior. Is Violence in TV Shows and Video Games Harmful to Society?”</p>	<p>Prewriting</p> <p>(Online collaborative writing)</p> <p>(Argumentative writing: Task 3)</p> <p>1. Working together in groups, students brainstorm and research an argumentative topic using various methods including outlining, listing, and freewriting. They then organize all of the information they have gathered.</p>

Teacher Activity	Students Activity
<p>Drafting (30 minutes) (First Draft)</p> <p>2. The teacher helps students as a consultant, providing guidance and support during their online collaborative writing process. After the students finish their first draft, the teacher asks them to do the group assessment checklist.</p>	<p>Drafting (First Draft)</p> <p>2. Students write their first draft in groups, focusing on the introduction, body, and conclusion, based on the structure outline. After the students finish their first draft, they do the group assessment checklist to verify the completeness of their first draft's components.</p>
<p>Revising (20 minutes)</p> <p>3. Teacher reminds students to revise their first draft by focusing on vocabulary, content, and organization, including adding or removing details as necessary.</p>	<p>Revising</p> <p>3. Students revise their first draft, focusing on vocabulary, content, and organization, including adding or removing details as necessary.</p>
<p>Rewriting (20 minutes) (Second Draft)</p> <p>4. Teacher informs students to rewrite the draft based on the revisions identified in the revision stage. After the students finish their second draft, teacher asks them to do the group assessment checklist.</p>	<p>Rewriting (Second Draft)</p> <p>4. After the students revised their drafts, they rewrote them incorporating the identified changes. After the students finish their second draft, they do the group assessment checklist to verify the completeness of their second draft's components.</p>
<p>Proofreading (15 minutes) (Final Draft)</p> <p>5. The teacher requests students to proofread their work for spelling, grammar, punctuation, or mechanics errors.</p>	<p>Proofreading (Final Draft)</p> <p>5. Students analyze their final draft for any spelling, grammar, punctuation, or mechanical errors.</p>

Teacher Activity	Students Activity
<p>Publishing (5 minutes)</p> <p>6. The teacher asks students to submit their writing.</p>	<p>Publishing</p> <p>6. Students write a completed writing and submit it to the teacher.</p>
<p>Section 2:</p> <p>Prewriting (30 minutes)</p> <p>(Online collaborative writing)</p> <p>(Argumentative writing: Task 4)</p> <p>1. Teacher assigns students to write an argumentative on a given topic, requiring each writing to be approximately 200 words in length.</p> <p>"Some people say that it is acceptable to test medicine intended for people on animals. Others, however, believe that it is not right to use animals in this research. Should Medicine Testing on Animals Be Permitted?"</p>	<p>Prewriting</p> <p>(Online collaborative writing)</p> <p>(Argumentative writing: Task 4)</p> <p>1. Working together in groups, students brainstorm and research an argumentative topic using various methods including outlining, listing, and freewriting. They then organize all of the information they have gathered.</p>
<p>Drafting (30 minutes)</p> <p>(First Draft)</p> <p>2. The teacher helps students as a consultant, providing guidance and support during their online collaborative writing process. After the students finish their first draft, the teacher asks them to do the group assessment checklist.</p>	<p>Drafting</p> <p>(First Draft)</p> <p>2. Students write their first draft in groups, focusing on the introduction, body, and conclusion, based on the structure outline. After the students finish their first draft, they do the group assessment checklist to verify the completeness of their first draft's components.</p>

Teacher Activity	Students Activity
<p>Revising (20 minutes)</p> <p>3. The teacher reminds students to revise their first draft by focusing on vocabulary, content, and organization, including adding or removing details as necessary.</p>	<p>Revising</p> <p>3. Students revise their first draft, focusing on vocabulary, content, and organization, including adding or removing details as necessary.</p>
<p>Rewriting (20 minutes) (Second Draft)</p> <p>4. The teacher informs students to rewrite the draft based on the revisions identified in the revision stage. After the students finish their second draft, the teacher asks them to do the group assessment checklist.</p>	<p>Rewriting (Second Draft)</p> <p>4. After the students revised their drafts, they rewrote them incorporating the identified changes. After the students finish their second draft, they do the group assessment checklist to verify the completeness of their second draft's components.</p>
<p>Proofreading (15 minutes) (Final Draft)</p> <p>5. The teacher requests students to proofread their work for spelling, grammar, punctuation, or mechanics errors.</p>	<p>Proofreading (Final Draft)</p> <p>5. Students analyze their final draft for any spelling, grammar, punctuation, or mechanical errors.</p>
<p>Publishing (5 minutes)</p> <p>6. Teacher asks students to submit their writing.</p>	<p>Publishing</p> <p>6. Students write a completed writing and submit it to the teacher.</p>

Lesson Plan 5

Topic: Argumentative Paragraph Writing; (Post-test, Interview)

Level: Undergraduate Year 3

Time: 240 minutes/4 hours

Unit objectives:

After the completion of this unit, students will be able to:

- analyze the organization of argumentative writing: the introductory, body, and concluding paragraphs.
- identify and write the thesis statement of an argumentative writing.
- identify the main elements of argumentative writing: an argument, a counterargument, and a refutation.
- write well-organized argumentative writing using paragraph writing organization, vocabulary, and grammar structures learned in this unit.

Teaching Procedure:

Teacher Activity	Students Activity
<p>Section 1</p> <p>Post-test (60 minutes)</p> <p>1. The teacher provides the topic and assigns students to write a post-test about argumentative writing, requiring each writing to be approximately 200 words.</p> <p>"Some people think that getting a degree from university is the best way to guarantee a good job, others believe that it would be better to go straight into work and get experience instead. Is a university degree necessary for a successful career, or Is gaining work experience more valuable?"</p>	<p>Post-test</p> <p>1. Students take a post-test by themselves on argumentative writing.</p> <p>2. After students have completed their post-test argumentative writing, they should go over their work again to make sure it is accurate and then hand it in to the teacher.</p>

Teacher Activity	Students Activity
2. The teacher collects all of the post-tests on argumentative writing.	
Section 2: Discussion (60 minutes) 3. The teacher asks the students to share their experiences or challenges in their online collaborative writing activity.	Discussion 3. Students discuss about their experiences or challenges in their online collaborative writing activity.
A semi-structured interview (15 minutes) 4. The teacher randomly selects 12 students, four from each proficiency level (advanced, intermediate, and novice), to participate in the interview sessions individually.	A semi-structured interview 4. students answer to the interview questions.

Lesson Plan 6

Topic: Argumentative Paragraph Writing; (Questionnaires)

Level: Undergraduate Year 3

Time: 240 minutes/4 hours

Unit objectives:

After the completion of this unit, students will be able to:

- analyze the organization of argumentative writing: the introductory, body, and concluding paragraphs.
- identify and write the thesis statement of an argumentative writing.
- identify the main elements of argumentative writing: an argument, a counterargument, and a refutation.
- write well-organized argumentative writing using paragraph writing organization, vocabulary, and grammar structures learned in this unit.

Teaching Procedure:

Teacher Activity	Students Activity
<p>Questionnaire 1 (30 minutes)</p> <p>1. The teacher asks students to complete the questionnaire on the students' perspectives toward online collaborative writing activity.</p>	<p>Questionnaire 1</p> <p>1. Students complete the questionnaire.</p>
<p>Questionnaire 2 (30 minutes)</p> <p>1. Teacher asks students to complete the questionnaire on the students' attitudes toward the online collaborative writing activity using Microsoft Teams.</p>	<p>Questionnaire 2</p> <p>1. Students complete the questionnaire.</p>

APPENDIX B: TOEFL Writing Scoring Guide (Educational Testing Service, 2014)

TOEFL Writing Scoring Guide (Educational Testing Service, 2014)

Score	Task description
5	<p>Effectively demonstrates proficiency in both rhetorical and syntactic aspects.</p> <p>At this level:</p> <ul style="list-style-type: none">• effectively addresses the writing task• is well-organized and well developed• uses clearly appropriate details to support a thesis or illustrate ideas• displays consistent facility in the use of language• demonstrates the syntactic variety and appropriate word choice
4	<p>Demonstrates proficiency in writing at both the rhetorical and syntactic levels.</p> <p>At this level:</p> <ul style="list-style-type: none">• may address some parts of the task more effectively than others• is generally well organized and developed• uses details to support a thesis or illustrate an idea• displays facility in the use of the language• demonstrates some syntactic variety and range of vocabulary
3	<p>Demonstrates a fundamental level of proficiency in writing at both the rhetorical and syntactic levels.</p> <p>At this level:</p> <ul style="list-style-type: none">• addresses the writing topic adequately but may slight parts of the task• is adequately organized and developed• uses some details to support a thesis or illustrate an idea• demonstrates adequate but possibly inconsistent facility with

Score	Task description
	syntax and usage <ul style="list-style-type: none"> • may contain some errors that occasionally obscure meaning
2	Indicates improvement in writing competence, but it still contains flaws in either the rhetorical or syntactic aspects or in both. At this level: may reveal one or more of the following weaknesses: <ul style="list-style-type: none"> • inadequate organization or development • inappropriate or insufficient details to support or illustrate generalizations • a noticeably inappropriate choice of words or word forms • an accumulation of errors in sentence structure and/or usage
1	Suggests incompetence in writing. At this level: seriously flawed by one or more of the following weaknesses: <ul style="list-style-type: none"> • serious disorganization or underdevelopment • little or no detail, or irrelevant specifics • serious and frequent errors in sentence structure or usage • serious problems with focus
0	Demonstrates incompetence in writing. At this level, the writing will be rated 0 if it: <ul style="list-style-type: none"> • contains no response • merely copies the topic • is off-topic, is written in a foreign language or consists only of keystroke characters

APPENDIX C: The Students' Perspectives on the 4C of 21st-Century Skills toward Online Collaborative Writing via MS Teams Questionnaire

The Students' Perspectives on the 4C of 21st-Century Skills toward Online Collaborative Writing via MS Teams Questionnaire

Instructions: For each of the statements below, please indicate the extent of your agreement or disagreement by placing a tick ✓ in the appropriate box. Tick ✓ a number that reflects your opinion:

5 = strongly agree

4 = agree

3 = neutral

2 = disagree

1 = strongly disagree

Items	Contents	5	4	3	2	1
Collaboration Skills						
1.	I actively contributed to the group's online collaborative writing efforts.					
2.	I actively participated in group discussions and brainstorming sessions.					
3.	I actively participated in collaborative decision-making processes concerning our online writing assignments.					
4.	I contributed to creating a positive and productive group dynamic during our online collaborative writing experience.					
5.	Online collaborative writing activities enable me to have more confidence working with other students.					

Items	Contents	5	4	3	2	1
Communication Skills						
6.	Online collaborative writing activities enhance my communication skills					
7.	I effectively communicated with my group members during the online collaborative writing process.					
8.	I effectively communicated my ideas to my group members during the online collaborative writing process.					
9.	I provided constructive feedback on my group members' contributions to enhance the quality of our writing.					
10.	I effectively resolved conflicts or disagreements within the group using communication skills.					
Critical thinking Skills						
11.	I encouraged critical thinking and analysis among group members during discussions.					
12.	I critically analyzed and evaluated the information and sources used in our online collaborative writing.					
13.	I effectively incorporated evidence and logical reasoning to support our arguments and ideas.					
14.	I identified and addressed weaknesses or gaps in our writing and suggested improvements.					
15.	I used critical thinking skills to enhance the overall quality and effectiveness of our online collaborative writing.					

Items	Contents	5	4	3	2	1
Creativity Skills						
16.	Online collaborative writing activities enhance my creativity skills					
17.	I utilized my creative skills to effectively express my ideas to my group members throughout the online collaborative writing process.					
18.	I actively sought creative solutions to writing-related problems and obstacles encountered in online collaborative writing					
19.	I effectively used creativity skills to adjust our writing strategy in response to unexpected issues to ensure the achievement of our goals and the success of online writing assignments.					
20.	I used creativity skills to enhance the overall quality and success of our online collaborative writing assignments.					

This questionnaire was adapted from Abdel, Mohammed & Farrah, Mohammed. (2015). Online Collaborative Writing: Students' Perception. **Journal of Creative Practices in Language Learning and Teaching (CPLT)**, 3, 17-32.

APPENDIX D: The Students' Attitudes toward the Online Collaborative Writing Activity Using Microsoft Teams Questionnaire

The Students' Attitudes toward the Online Collaborative Writing Activity Using Microsoft Teams Questionnaire

Instructions: For each of the statements below, please indicate the extent of your agreement or disagreement by placing a tick ✓ in the appropriate box. Tick ✓ a number that reflects your opinion:

5 = strongly agree

4 = agree

3 = neutral

2 = disagree

1 = strongly disagree

Items	Contents	5	4	3	2	1
1.	I improve my writing skills when learning Academic Writing through MS Teams.					
2.	I believe that learning Academic Writing through MS Teams is as effective as learning in the regular classroom.					
3.	I like learning Academic Writing through MS Teams more than the traditional method.					
4.	I enjoy doing online collaborative writing activities through MS Teams.					
5.	I grow more confident in argumentative writing as I learn Academic Writing through MS Teams.					
6.	I can actively participate in online collaborative writing activities through MS Teams when working in a group.					

Items	Contents	5	4	3	2	1
7.	I can express more opinions in online collaborative writing activities through MS Teams.					
8.	I have the opportunity to practice argumentative writing in online collaborative writing activities and presentation with friends through this platform.					
9.	I can interact with teachers and friends while learning Academic Writing lessons through MS Teams.					
10.	I am proud of myself for contributing to the success of the online collaborative writing activities through MS Teams.					

This questionnaire was adapted from Wichanpricha (2021). Synchronous Online Learning through Microsoft Teams at Tertiary Level: Academic English Course. **Journal of Educational and Social Research.**

APPENDIX E: An Example of the Transcription and Initial Reading Peer scaffolding behaviors during pre-writing activities: Acknowledging (Ac.)

**An Example of the Transcription and Initial Reading
Peer scaffolding behaviors during pre-writing activities: Acknowledging (Ac.)**

Move	Peer dialogues	Peer scaffolding behaviors	online collaborative writing during pre-writing
1	Intermediate learner 1: “Should we enhance our writing topic by adding problem-solving aspects?” (Eliciting)		
2	Novice learner 1: “That's a great idea”.	Acknowledging	Collaboration
3	Advanced learner1: “Absolutely, it will add important details to the work”.	Acknowledging	Collaboration
4	Advanced learner2: “I think online learning has more advantages than disadvantages”. (Stating)		
5	Intermediate learner 2: “It's a really good one, just like I mentioned earlier”.	Acknowledging	Collaboration
6	Advanced learner3: “I think playing computer games influences imitative behavior in teenagers”. (Stating)		
7	Intermediate learner 3: “That's an awesome idea”.	Acknowledging	Collaboration

Peer scaffolding behaviors during pre-writing activities: Agreeing (Ag.)

Move	Peer dialogues	Peer scaffolding behaviors	online collaborative writing during pre-writing
1	Intermediate learner 1: “I think the impact is much more severe”. (Stating)		
2	Novice learner 1: “I totally agree”.	Agreeing	Collaboration
3	Intermediate learner 2: “Parents don't have time for their children because they have to work to earn money to support them”. (Stating)		
4	Advanced learner2: “Exactly, that's the main issue nowadays”.	Agreeing	Collaboration
5	Advanced learner 3: “I think playing games has its benefits too; it helps with language learning”. (Stating)		
6	Novice learner 5: “That's right, I think the same”.	Agreeing	Collaboration

Peer scaffolding behaviors during pre-writing activities: Disagreeing (Di.)

Move	Peer dialogues	Peer scaffolding behaviors	online collaborative writing during pre-writing
1	Novice learner 1: “Can we only write about the positive aspects of online learning?” (Questioning)		
2	Advanced learner 1: “No, we can't write it that way because we're writing an argumentative.”	Disagreeing	Critical Thinking
3	Intermediate learner 2: “It's impossible to get everyone in the family to do an activity together”. (Stating)		
4	Novice learner 4: “I disagree. You can find activities to do together, like going out for a meal, planting flowers, or finding a common interest to share”.	Disagreeing	Critical Thinking
5	Novice learner 5: “I like playing online games because they're fun”. (Stating)		
6	Advanced learner 3: “You can't just write that. You need to find reasons to support your opinion”.	Disagreeing	Critical Thinking

Peer scaffolding behaviors during pre-writing activities: Elaborating (EL.)

Move	Peer dialogues	Peer scaffolding behaviors	online collaborative writing during pre-writing
1	Intermediate learner 1: “What do you think are the causes of this problem?” (Eliciting)		
2	Advanced learner 1: I think the cause comes from various social media technologies. They didn’t exist in the past, so we spent most of our time together. But nowadays, everyone is busy staring at their phones, doing their own thing.	Elaborating	Creativity
3	Novice learner 3: I don’t get what you’re saying. Can you explain a bit more? (Requesting)		
4	Advanced learner 2: Well, kids who play games a lot can get annoyed easily, lose their temper, and act aggressive. If they keep it up, it can mess with their behavior.	Elaborating	Creativity
5	Advanced learner 3: So, how does it affect family problems? (Eliciting)		
6	Intermediate learner 3: When kids get addicted to games, they spend all day playing and don’t interact with their family. That causes family issues.	Elaborating	Creativity

Peer scaffolding behaviors during pre-writing activities: Eliciting (Eli.)

Move	Peer dialogues	Peer scaffolding behaviors	online collaborative writing during pre-writing
1	Advanced learner 1: What are the benefits of face-to-face learning? How many points should we include?	Eliciting	Communication
2	Intermediate learner 1: How about dividing it into teaching aspects and learner aspects? (Questioning)		
3	Intermediate learner 2: What are the social impacts?	Eliciting	Communication
4	Advanced learner 2: I think kids mimic behavior from media and games, like the mall shooting incidents in the news. (Elaborating)		
5	Advanced learner 3: Can everyone help think about why parents don't have time for their children?	Eliciting	Communication
6	Intermediate learner 3: I think it's not just the parents, but the kids don't have time for their parents either. For example, I'm studying in another province and only get to go home once in a while. (Disagreeing + Elaborating)		

Peer scaffolding behaviors during pre-writing activities: Greeting (Gr.)

Move	Peer dialogues	Peer scaffolding behaviors	online collaborative writing during pre-writing
1	Advanced learner 1: Hello, everyone.	Greeting	Communication
2	Intermediate learner 1: Hello. Can you hear me?	Greeting	Communication
3	Advanced learner 2: Hello, everyone. Are you ready? Turn on your cameras and microphones.	Greeting	Communication
4	Novice learner 3: Hello. I'm ready.	Greeting	Communication
5	Intermediate learner 3: Hello. How is everyone doing?	Greeting	Communication
6	Novice learner 6: Hello.	Greeting	Communication



Peer scaffolding behaviors during pre-writing activities: Justifying (Ju.)

Move	Peer dialogues	Peer scaffolding behaviors	online collaborative writing during pre-writing
1	Advanced learner 1: I think kids should learn to be more independent. (Stating)		
2	Intermediate learner 1: I agree to some extent, but kids still need guidance and encouragement from their parents while they're growing up.	Justifying	Critical Thinking
3	Novice learner 3: I think playing violent games is just a way to release stress. (Stating)		
4	Intermediate learner 2: I disagree because violent games can sometimes encourage aggressive behavior.	Justifying	Critical Thinking
5	Novice learner 6: Kids know that their parents have to work hard. (Stating)		
6	Advanced learner 3: That could be true, but kids still need their parents' love and care.	Justifying	Critical Thinking

Peer scaffolding behaviors during pre-writing activities: Questioning (Qu.)

Move	Peer dialogues	Peer scaffolding behaviors	online collaborative writing during pre-writing
1	Novice learner 1: Is online learning suitable for all ages?	Questioning	Critical Thinking
2	Intermediate learner 1: I don't think so. For example, kindergarten kids can't do things independently yet and have trouble focusing. Learning in a classroom would probably be better for them. (Disagreeing + Elaborating)		
3	Intermediate learner 2: Online learning helps cut costs a lot.		
4	Advanced learner 2: What kind of costs are we talking about?	Questioning	Critical Thinking
5	Advanced learner 3: Do you think all kids will be affected the same way by playing violent games?	Questioning	Critical Thinking
6	Novice learner 5: Not really. Some kids can distinguish between the game world and reality. (Elaborating)		

Peer scaffolding behaviors during pre-writing activities: Requesting (Re.)

Move	Peer dialogues	Peer scaffolding behaviors	online collaborative writing during pre-writing
1	Intermediate learner 1: I'll type everyone's opinions so it will be easier to create the outline.	Requesting	Communication
2	Novice learner 2: That's awesome! You're a fast typist anyway. (Acknowledging)		
3	Advanced learner 2: Everyone, please find research or information to support your opinions.	Requesting	Communication
4	Intermediate learner 2: "Sure, give me a moment". (Stating)		
5	Advanced learner 3: Everyone, let's help check the outline.	Requesting	Communication
6	Intermediate learner 3: What parts are missing? (Questioning)		

Peer scaffolding behaviors during pre-writing activities: Stating (St.)

Move	Peer dialogues	Peer scaffolding behaviors	online collaborative writing during pre-writing
1	Advanced learner 1: The topic we will write about today is "Will Online Education Replace Traditional Classroom Learning?"	Stating	Communication
2	Intermediate learner 1: How about we brainstorm the pros and cons of both, then decide which point to focus on? (Questioning)		
3	Advanced learner 2: Online learning lets us change the instruction to fit our own needs	Stating	Communication
4	Intermediate learner 2: Yes, because you can learn anytime and anywhere that's convenient for you, and there's technology to help. (Agreeing + Elaborating)		
5	Advanced learner 3: Some subjects that require experiments or hands-on practice might not be fully doable online.	Stating	Communication
6	Intermediate learner 3: We should have a blend of online learning and traditional classroom learning.	Stating	Communication

Peer scaffolding behaviors during pre-writing activities: Suggesting (Su.)

Move	Peer dialogues	Peer scaffolding behaviors	online collaborative writing during pre-writing
1	Advanced learner 1: We should add the point about the lack of interaction with others so the information is more complete.	Suggesting	Creativity
2	Intermediate learner 1: “I agree”. (Agreeing)		
3	Intermediate learner 2: Do we need to write about suggestions for improving online learning too? (Questioning)		
4	Advanced learner 2: Yes, you could suggest methods or tools that can help improve the effectiveness of online learning, so it benefits the students more.	Suggesting	Creativity
5	Advanced learner 3: Everyone, don’t forget to write in academic language. And remember to use the transition words the teacher taught us.	Suggesting	Creativity
6	Intermediate learner 3: I almost forgot to add the transition words. (Stating)		

BIOGRAPHY

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