

Improving argumentative writing performance among chinese EFL postgraduates using WeCWI-enabled tencent docs

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ABSTRACT

Argumentative writing is a type of academic writing that involves defending a specific viewpoint on a debatable issue to persuade the reader of its validity. Web-based Cognitive Writing Instruction (WeCWI) emphasises technology-enhanced explicit writing instruction and promotes joint construction between peers and instructors, yielding positive outcomes through computer-mediated L2 writing. In addition, it increases the opportunity for English input and output. This study examines how the WeCWI-enabled tool, Tencent Docs, impacts argumentative writing performance among postgraduate English as a Foreign Language (EFL) students, addressing factors that lead to poor writing outcomes. A quasi-experimental design was employed, wherein two intact classes were randomly assigned to one of two conditions: (1) WeCWI-enabled writing instruction (n=56) and (2) conventional writing instruction (n=55). An independent-sample t-test was conducted, revealing that students in the experimental group significantly outperformed those in the control group regarding overall writing scores and in the sub-scores for argument effectiveness and organisation. The findings suggest that WeCWI-enabled writing instruction is more effective than conventional writing instruction for enhancing argumentative writing skills. This effectiveness is attributed to the greater emphasis placed on reading, online discussions, explicit instruction, joint construction and collaborative reviewing, facilitated by the affordances of Tencent Docs. This study's implications are significant for enhancing argumentative writing skills among Chinese EFL learners. Consequently, it is recommended that WeCWI be expanded across a broader range of educational settings further to facilitate the development of students' argumentative writing abilities.

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1. INTRODUCTION

Argumentative writing poses significant challenges for ESL and EFL students (Hirose, 2003). Chinese EFL students, in particular, face difficulties in this area (Liu et al., 2023). Argumentative writing has cognitive complexity because it requires related genre knowledge, knowledge relevant to the task topic, efficient organisation of ideas based on logic and reasoning and appropriate use of language to formulate one's thoughts (Liao & Liao, 2022). Besides, the difference in the rhetorical norms between the foreign language and the mother tongue causes confusion and difficulty for EFL learners (Bacha, 2010).

These challenges that Chinese EFL encountered can be attributed to the following reasons. First, they may have insufficient knowledge and skills in related writing genres (Ghanbari & Salari, 2022; Liao & Liao, 2022). In terms of structure, argumentative writing incorporates various structural elements (argument, counterargument and rebuttal). Chinese EFL students often fail to include all the necessary elements in their arguments (Qin & Karabacak, 2010). Regarding the production of functional claims, argumentative writing requires the skills to construct solid evidence effectively (Chuang & Yan, 2022; Stapleton & Wu, 2015). Chinese EFL learners often lack the skills to effectively sufficiently support claims with relevant, sound and acceptable ideas (Fan & Chen, 2021).

Second, EFL pedagogical approaches are considered inefficient. English in the EFL context is learned as a key subject, like mathematics and biology, and students are expected to remember and construct knowledge (Peng, 2019). The teacher dominates the class, while learners are passive and have few opportunities to communicate in English, negotiate meaning and modify their output (Lengeling & Schneider, 2023). EFL learners learn English rather than acquire English (Stern, 1983). They have limited opportunities to use English for communication and information exchange. After years of language learning, many learners struggle with communicating in oral and written English (Zhang, 2020). When writing, Chinese EFL students face challenges in using linguistic items accurately, insufficient topic-related ideas, insufficient knowledge of the genre (Huang & Jun Zhang, 2020), and lack of strategies for systematic planning (Hu, 2020) and revising (Lv et al., 2021), and neglecting writing purpose and audience awareness (Cheng, 2021).

Regarding argument skills, collaboration and explicit instruction are considered effective pedagogical approaches for improving argumentative writing proficiency (Granado-Peinado et al., 2019; Landrieu et al., 2023). Collaborating with partners who present contrasting perspectives can lead to a more comprehensive argument (Kuhn & Crowell, 2011; Rapanta & Felton, 2022). In written argumentation, a writer must simultaneously adopt the roles of several interlocutors presenting opposing views and refuting others' viewpoints (Kuhn & Crowell, 2011; Rapanta & Felton, 2022). A lack of skill and the absence of individuals with opposing views can cause the writer to overlook necessary counterarguments and rebuttals (Iordanou & Rapanta, 2021; Roussey & Gombert, 1996). The argumentative conversation before composing provides the argumentative process developed by peers, which can support the learner who writes an argumentative essay individually (Prata et al., 2019). Learners' collaboration in an online environment can be facilitated with digital graphic organisers so that learners contribute more critical responses to peer's perspectives (Koszalka et al., 2021; Watson et al., 2017). In this regard, the weak and irrelevant viewpoints can be identified by peers and modified into solid evidence.

Apart from collaboration, explicit instruction is regarded as another effective pedagogical approach for enhancing argumentative writing performance (Granado-Peinado et al., 2019; Landrieu et al., 2023). Explicit instruction encompasses targeted strategy instruction, such as integrative argumentative strategies based on the principles of argument-counterargument integration (Nussbaum & Schraw, 2007), and the Self-Regulated Strategy Development (SRSD) model (Harris et al., 2009), to guide learners through the writing process. Explicit instruction is considered a crucial component for promoting argumentative writing because it models and explains the writing process, enabling students to engage in observational learning (Mateos et al., 2018). Through observational learning, the desired writing processes and collaborative

efforts become visible to learners, with a strong emphasis placed on regulation and metacognitive strategies (Braaksma et al., 2004).

In terms of language proficiency, comprehensible input, meaning negotiation and language output are all indispensable components of language acquisition (Schmidt, 1990). In an EFL environment, authentic language input primarily derives from reading and listening materials. This means that negotiation only occurs when learners can communicate and exchange ideas in English. Web-based Cognitive Writing Instruction (WeCWI) enables collaboration, explicit instruction, and more opportunity for language output.

In addition, WeCWI provides more opportunities to use English as a mode of communication. WeCWI was first proposed by Mah Boon Yih in 2014 and offers a theoretical and pedagogical framework for online instructional design, particularly within the context of English as a Second Language (ESL) education. It addresses the challenges associated with ESL learners' writing performance and critical thinking skills (Mah, 2015). "We" (Web-based) denotes a learning environment supported by the internet technology, wherein students can plan, manage, and evaluate their learning activities following their characteristics, utilising digital resources and internet applications. "C" (Cognitive) refers to a writing instructional design grounded in cognitive theory, recognising that writing is a cognitively demanding task. Certain strategies, such as pre-task planning, have effectively reduced cognitive load, allowing students to allocate more cognitive resources to the writing process (Johnson & Abdi Tabari, 2023). "W" (Writing) refers to the writing process and product, a learning outcome and a mode of communication. "I" (Instruction) integrates theoretical and pedagogical principles that inform web-based ESL instructional design.

The WeCWI framework is grounded in the theoretical foundations of language acquisition, composition studies, cognitive theories, and e-learning. It integrates reading, discussion, and writing within an e-learning environment to facilitate language instruction. The principles of WeCWI are encapsulated in the WeCWI Integrated Formula: "(language acquisition + composition studies + cognitive theories) e-learning = language and cognitive development" (Mah, 2022, p: 4). Comprehensible input derived from reading, the negotiation of meaning during discussions, and the process of language testing while composing are all critical components of language acquisition (Schmidt, 1990). The process-genre approach to writing, which synthesises elements from product-, process-, and genre- approaches, encourages students to consider the communicative purpose of their compositions, develop strategic awareness, and focus on linguistic elements in their writing (Badger & White, 2000). Furthermore, cognitive theory in second language writing emphasises the processing of information that enhances writing proficiency (Sethuraman & Radhakrishnan, 2020).

WeCWI is facilitated by adaptive technological devices and applications, which are termed "WeCWI-enabled" tools (Mah, 2014). These tools facilitate various learning activities, including reading, online discussions, and collaborative writing, all guided by the theoretical and pedagogical principles of WeCWI. WeCWI-enabled tools are anticipated to foster an environment conducive to student-centred learning, interaction, collaboration, and self-regulation, thereby enhancing student engagement and improving the effectiveness of web-based English language learning. Furthermore, WeCWI-enabled tools can expand opportunities for language practice, which may be limited in traditional face-to-face classroom settings due to restricted instructional time.

This study employs Tencent Docs (<https://docs.qq.com/>) as a WeCWI-enabled tool. Tencent Docs is a cloud-based document collaboration platform similar to Google Docs and Microsoft Office Online. It allows users to create, edit, and share documents, spreadsheets, and presentations in real time. Tencent Docs has several unique functions which facilitate web-based writing instruction. First, it integrates hyperlinks to reading materials, providing instructors and learners access to theme-related texts. Second, it supports the incorporation of instructional videos that demonstrate writing techniques. Third, the tool promotes

collaborative writing by enabling learners to collaboratively plan, draft, review, and revise their work without time or location constraints.

Most importantly, it offers the function of collaborative construction of graphic organisers. They serve as cognitive tools that enhance reading comprehension, support asynchronous discussions, and aid in pre-writing activities. Tencent Docs facilitates various learning activities, including reading, video viewing, collaborative writing and asynchronous online discussions. Research on computer-mediated second language (L2) writing has predominantly focused on the extensive collaboration facilitated by technology (Abrams, 2019; Hsu et al., 2018; M. Zhang, 2021) and its implications for writing development, including enhanced audience awareness, increased motivation, altered composing processes, promoted interactivity, and improved writing performance (Li & Storch, 2017).

However, a paucity of studies extend the advantages of computer-mediated L2 writing beyond collaboration and interaction. The WeCWI framework incorporates joint construction activities between students and instructors alongside explicit instruction in writing strategies and genre knowledge. This joint construction and explicit instruction model exemplify the writing process, representing a form of observational learning that is more effective in enhancing argumentative writing proficiency than task-based learning (Braaksma et al., 2004).

The present research aims to investigate the effectiveness of WeCWI-enabled Tencent Docs in improving the argumentative writing performance of Chinese graduates. The research questions are as follows:

- (1) Can the WeCWI-enabled Tencent Docs application enhance students' argumentative writing performance, including overall writing scores and sub-scores for constructing solid evidence, organisation, and general language use?
- (2) Is there a significant difference between WeCWI and traditional writing instruction regarding students' overall writing scores and sub-scores for constructing solid evidence, organisation, and general language use?

2. METHODS

2.1 Participants

The participants comprised 111 first-year graduate students majoring in accounting from two parallel intact English classes at a university in Northeastern China. The intact classes were randomly assigned through convenience sampling to either the experimental group (n=56) or the control group (n=55). All participants were native Chinese speakers. Their English proficiency was at a high intermediate level due to their preparation for and successful completion of the postgraduate admission examination, which includes an English test. On average, they had been learning English for approximately 15 years, and none had educational experience in English-speaking countries. The experimental and control group instructors held master's degrees in TESOL (Teaching English to Speakers of Other Languages) and had around 15 years of teaching experience.

2.2 Treatment

The writing instruction was part of the Postgraduate English course, a mandatory program that spans one semester lasting 12 weeks. The course aims to enhance graduates' comprehensive English listening, speaking, reading, and writing abilities. With two sessions each week, the allocated instruction time for writing and reading was one 90-minute weekly session. The course was conducted in a traditional classroom setting, allowing the instructor to arrange offline and online instruction to align with the teaching syllabus

and maximise educational quality. The topics for argumentative writing were developed based on the themes presented in each textbook unit. The experimental and control groups received the same writing topics and classroom contact hours. The only distinction lies in the design of the writing instruction. The similarities and differences are summarised in Table 1.

Table 1. Writing instruction for the experimental group and control group

Instructional focus	Experimental group	Control group
Instruction	WeCWI-enabled writing instruction	Conventional writing instruction
Instruction time	90 minutes each week, for 12 weeks	90 minutes each week, for 12 weeks
And another entry	5	6
Genre	Argumentative writing	Argumentative writing
Writing topics	Theme-based on textbook	Theme-based on textbook
Online learning session before face-to-face classroom instruction	Source reading and comprehension, discussion for writing topic, instructional videos for genre knowledge and strategies.	Source reading and comprehension of multiple choices and translation.
Face-to-face classroom instruction (a session of 90 minutes, twice a week)	Feedback for discussion on graphic organisers, Joint construction of an argumentative writing, independent writing.	Discussion for writing topic, learning useful expressions, instruction of argumentative text structure and model essays.
Online learning session after writing instruction	Collaborative reviewing and editing.	Independent writing. Peer reviewing.

Based on the WeCWI theoretical principles, there are three sessions for complete writing instruction. They are guided reading, online discussion and collaborative writing. First, students engage in guided reading, accumulating structural, conceptual, and linguistic knowledge by reading various texts. Hyperlinks to these reading materials are provided in Tencent Docs. The reading materials are categorised into two types: texts of the same genre, paired with writing tasks to acquire structural knowledge and texts of the same theme, accompanied by writing tasks to provide relevant linguistic input and enhance conceptual understanding. The experimental groups utilised pre-constructed graphic organisers to improve their comprehension of argumentative texts. The researcher developed a graphic organiser featuring 50% blank spaces to illustrate the spatial arrangement of key information in argumentative writing. This organiser was assigned to students to complete, guiding them to consider how a linear text is organised into a spatial structure while increasing their opportunities to produce various linguistic forms. Researchers analysed the consistency in structure and information between the argumentative texts and the graphic organisers.

Then, the discussion takes place following the reading activity. Six students formed a discussion group, a manageable number for classes in China, which typically have more than 40 students (Li & Zhang, 2021). The group was established through self-selection, which can enhance participants' commitment to the group's objectives (Chapman et al., 2006). Students remained in the same discussion group throughout the intervention. Unlike asynchronous online discussions, which are often conducted on threaded discussion boards, the online discussions in this study involved the collaborative creation of graphic organisers to improve the compositions' content and structure. Students received training, guidance, and feedback on the collaborative development of these graphic organisers for online discussions.

The discussion using graphic organisers involves two key steps. First, enter the composition topic in a box at the centre of the screen. By clicking the box and pressing the "+" button twice, two new boxes are created and connected to the central one. The arrangement of these two boxes on opposite sides of the central box can be established by clicking the "Structure" button. Participants in one discussion group were divided into two teams: one supporting the topic and the other opposing it. Each team posted their ideas in

the boxes on opposite sides of the central topic box, which needed to be completed before the first deadline. Subsequently, they challenged and elaborated on each other's opinions before the second deadline. By clicking the box that contains the idea of interest and pressing the "+" button, participants can create a new connected box where they can type alternative ideas, request clarification, and pose challenges. Specifically, participants respond to each other's perspectives by creating new boxes linked to the ideas they are addressing within the graphic organiser. The central box radiates with multiple perspectives supporting or opposing the topic. Additionally, boxes containing participants' ideas can also radiate as those ideas are challenged, elaborated upon, justified, and evaluated.

In the final phase of the study, learners composed an argumentative essay guided by a process-genre instructional framework (Badger & White, 2000). This approach to writing involves four steps that help students progress from understanding the context to acquiring the necessary linguistic input and skills for effective writing. In this study, the first and last steps were conducted online, while the third step took place in a face-to-face classroom setting. The first step involved developing context. A writing instruction video was integrated into Tencent Docs, focusing on genre knowledge specific to argumentative essays. In this video, the teacher introduced the context, communicative purpose, and target audience of the genre, enabling students to build foundational knowledge of argumentative writing—the second step involved modelling and deconstructing. A separate writing instruction video was created to analyse the genre by modelling and deconstructing an example text. This video highlighted the structural and rhetorical conventions characteristic of argumentative essays. Learners were expected to familiarise themselves with the prototypical features of the genre, understand the relevant metalanguage, and grasp how language is structured to achieve its communicative purpose.

The joint construction phase comes after the second stage of modeling and deconstructing. In this phase, students collaboratively drafted and revised an argumentative essay with the teacher in a face-to-face classroom setting. Learners were guided to plan and organise their ideas while constructing sentences incorporating topic-related vocabulary, genre-specific sentence structures, and rhetorical strategies provided by the teacher. Writing strategies such as planning, drafting, and revising were explicitly taught to the students during the joint construction stage, and constructive feedback was provided. Once the essay met the genre expectations, it served as a model for the subsequent individual composition of the same genre. Finally, in the independent construction phase, students completed the argumentative essay on Tencent Docs, followed by online peer revision, editing, and feedback from the teacher on linguistic and rhetorical issues.

2.3 Data Collection

The present study employed a pre-and post-test quasi-experimental design. A timed pre-test of argumentative writing was administered to gather pre-test data from both groups. Following this, a ten-week intervention using the WeCWI program was conducted, followed by a post-test in the final week. The writing topics for both pre- and post-tests were adapted from the College English Test (Band Six), a widely recognised English proficiency assessment in China known for its high validity and reliability. The instructors implemented both tests, during which no external resources were permitted to complete the compositions. Each test required participants to write an argumentative essay of 200 words within a 30-minute.

2.4 Data Analysis

The essays were evaluated by instructors from both the experimental and control groups. To eliminate any potential bias, students' names were kept confidential. Qin's (2009) writing rubrics were chosen because they provide a holistic and analytical assessment of both global and local aspects of argumentative essays, specifically tailored for Chinese EFL college students. The evaluation focused on three dimensions: the construction of solid evidence, organisation, and general language use, using five scales from 1 to 5 and

a total score of 15. A training session was conducted to ensure a comprehensive understanding of the rubrics, consistency in evaluation criteria, and high inter-rater reliability. Cronbach's coefficient alphas indicated an inter-rater reliability of 0.83 for overall scores, which is considered a satisfactory level of agreement among raters.

SPSS version 27 was utilised to analyse the two research questions statistically. Normality was assessed prior to the statistical analysis, and the data were found to be normally distributed throughout the study. Independent-sample t-tests were conducted to determine whether there were any differences between the experimental and control groups concerning overall scores and sub-scores of construction of solid evidence, organisation, and general language use at both pre- and post-tests. Subsequently, paired-sample t-tests were performed to examine differences within each group. The interpretation of effect sizes was based on Cohen's criteria (Cohen, 1992), which classified d values of .20, .50, and .80 as small, medium, and large, respectively.

3. RESULTS

To address the research questions, descriptive statistics for students' holistic and analytic scores were calculated for the experimental and the control groups at the pre-test and post-test (Table 2).

Table 2. Group means and standard deviations of the overall score and sub-scores in pre- & post-test

Components	Group	Pre-test		Post-test	
		Mean	SD	Mean	SD
Overall	EG	6.36	1.901	8.93	1.896
	CG	6.18	2.028	6.96	1.753
Construction of solid evidence	EG	1.75	0.667	2.66	0.793
	CG	1.62	0.593	1.73	0.679
Organisation	EG	1.57	0.628	3.00	0.894
	CG	1.64	0.677	1.95	0.678
Language	EG	3.05	1.017	3.29	0.868
	CG	2.93	1.052	3.29	0.916

EG = experimental group; CG = comparison group; SD = Standard Deviation.

At the beginning of the intervention, a pre-test was conducted using independent-sample t-tests. The results (see Table 3) indicated that there were no significant between-subject differences in various measures at the time of the pre-test (overall, $p = .639$; construction of solid evidence, $p = .274$; organisation, $p = .601$; general language use, $p = .521$). However, independent-sample t-tests for between-subject comparisons of the post-test revealed significant differences in overall scores, construction of solid evidence, and organisation ($p < .001$). Since both groups performed similarly in overall quality, construction of solid evidence, and organisation prior to the intervention, the results of the independent-sample t-test for the post-test demonstrated that students in the experimental group benefited more from WeCWI-enabled writing instruction. These findings suggest that WeCWI-enabled writing instruction is more effective than conventional writing instruction in enhancing overall quality, construction of solid evidence, and organisation.

Table 3. Group Means and Standard Deviations of the Overall Score and Sub-scores in Pre- & Post-test

Measures	Pre-test		Post-test	
	<i>T</i>	<i>p</i>	<i>t</i>	<i>P</i>
Overall Score	.470	.639	5.667	< .001
Construction of solid evidence	1.099	.274	6.657	< .001
Organisation	-.524	.601	6.900	< .001
Language	.643	.521	-.031	0.976

To detect differences within each group, paired samples *t*-tests were conducted, as shown in Table 4. The results indicated that both the experimental and control groups demonstrated improved writing performance. Although there was no significant difference in general language use between the experimental and control groups in the post-test, substantial progress was observed between the pre-test and post-test within both groups. The findings suggested that both WeCWI-enabled and conventional writing instruction effectively enhanced language proficiency. However, WeCWI had a positive impact on overall quality, as well as on the sub-scores for the construction of solid evidence and organisation. In contrast, conventional writing instruction effectively promoted students' overall quality and general language use.

Table 4: Paired Samples *t*-tests of Overall Scores and Sub-scores in Pre- and post-test

Measures (pre-post)	Experimental group			Control group		
	<i>T</i>	<i>p</i>	<i>D</i>	<i>T</i>	<i>p</i>	<i>d</i>
Overall Score	-14.013	< .001	1.37	-4.611	< .001	1.26
Construction of solid evidence	-7.253	< .001	.94	-1.062	.239	.76
Organisation	-12.275	< .001	.87	-3.457	.001	.66
Language	-4.078	< .001	.42	-5.164	< .001	.52

4. DISCUSSION

The current study aimed to investigate the effectiveness of WeCWI-enabled writing instruction on the argumentative writing performance of EFL postgraduates in China. The experimental group received instruction based on the principles of WeCWI, while the control group was taught using conventional writing methods for the same duration. The writing performance of both groups was compared in the pre-test and post-test, focusing on overall writing scores, construction of solid evidence, organisation, and general language use. The findings indicated that WeCWI-enabled writing instruction significantly enhanced the overall quality, construction of solid evidence, and organisation of EFL graduates' argumentative writing compared to conventional writing instruction.

The experimental group demonstrated a significant improvement in the construction of solid evidence compared to the control group, which can be attributed to several factors. First, online discussions facilitated by graphic organisers promote negotiation, justification, and challenge viewpoints (Kwon et al., 2018). This process of challenge and negotiation makes learners aware of alternative perspectives and helps students develop solid reasoning and reach well-founded conclusions. Activities such as negotiation, explanation, clarification, and challenge are all transactive, indicating a high level of collaboration among participants in group discussions (Kirschner et al., 2018). These transactive activities activate prior knowledge, facilitate knowledge reconstruction, and ultimately lead to deep learning (Van Boxtel et al., 2000). Besides, the process-genre approach to writing, which involves modelling and deconstructing argumentative texts, enables students to understand how information and opinions are used to support positions and claims.

Analysing model texts effectively illustrates how content achieves its communicative purpose in genre-based writing instruction (Miller et al., 2016).

Moreover, the experimental group's significant improvement in the organisation of argumentative essays suggests that they benefited from instruction in conventions, model text analysis, and the task of completing graphic organisers that illustrate argumentative text structure. These activities facilitate learners' understanding of argument structure. Collaborative planning using graphic organisers helps learners identify the interconnected components within the argumentative genre, improving their knowledge of argumentative texts and writing performance (Wette, 2017). The graphic organisers can promote reading comprehension by clarifying the organisation and relations of text concepts (Robinson et al., 1996). Completing graphic organisers made students pay attention to text structure. Text structure shows the organisation and genre, which aids in comprehending, analysing, creating information, and ultimately effectively composing an essay (Turcotte et al., 2018). Understanding how ideas are supported within the framework of text structure for clear expression of a fact or a phenomenon is critical to integrating information from texts (Robinson et al., 1996) and improving writing quality (Graham et al., 2012).

Furthermore, the experimental and control groups observed significant improvements in general language use from the pre-test to the post-test. In the control group, traditional writing instruction typically emphasised grammatical accuracy. The benefits of this approach were evident in the students' notable progress in general language use from the pre-test to the post-test. Conversely, the experimental group's significant enhancement in language use from the pre-test to the post-test stemmed from different factors. As a WeCWI-enabled tool, Tencent Docs provided students with extensive linguistic input. This substantial amount of comprehensible input contributed to language proficiency and improved writing skills among EFL learners (Han, 2023). Students engaged in online discussions within Tencent Docs, collaboratively constructing graphic organisers for the content and structure of their argumentative compositions. These discussions stimulated learners' linguistic output related to the writing task. This output enabled learners to identify language gaps, validate the language hypothesis, and focus on formulations pertinent to language problems (Swain, 1995 and Swain, 2000).

Lastly, the linguistic output encourages meaningful negotiation when misunderstandings arise, serving as a process for linguistic correction and appropriateness (Schmidt, 1990). The linguistic output can become valuable input for peers. Comprehensible input, output, and effort in language processing contribute to noticing and intake (Schmidt, 1990), ultimately enhancing learners' language proficiency. Furthermore, the process-genre approach can facilitate students' syntactic development, as teachers demonstrate that students' sentences in various forms serve different purposes and audiences, unlike traditional instruction focused on grammatical rules and complex sentences.

5. CONCLUSION

The study presents empirical evidence regarding the positive effects of WeCWI on the argumentative writing proficiency of Chinese tertiary graduates. Specifically, WeCWI significantly enhances the argumentative writing skills of EFL Chinese postgraduates in terms of overall scores, the construction of solid evidence, and organisation compared with conventional writing instruction. The findings are attributed to WeCWI guidelines and Tencent Docs, a WeCWI-enabled tool. They facilitate collaboration and interaction, where learners negotiate meaningfully with peers holding opposing viewpoints through written communication, so that they appropriate linguistic expressions and modify original opinions on the discussed issue. They enable online writing instruction, which equips learners with writing strategies and genre knowledge.

The present study has significant pedagogical implications for argumentative writing instruction in the EFL context. To begin with, in addressing the challenges of limited classroom instruction time and the lack of opportunities for feedback and guidance, WeCWI can serve as a valuable theoretical and pedagogical framework for designing writing instruction. Furthermore, language instructors may utilise digital applications to enhance opportunities for language practice in reading, communication, and writing.

In the context of computer-mediated second language writing, instructors must go beyond merely recognising the advantages of collaboration. To accomplish this, it is essential to incorporate explicit instructions and offer ample opportunities for observational learning. By implementing these strategies, we can improve the effectiveness of L2 writing education and empower learners to reach their full potential.

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7. CONFLICT OF INTEREST STATEMENT

The authors agree that this research was conducted without any self-benefits or commercial or financial conflicts.

8. AUTHORS' CONTRIBUTIONS

Chen Chen: Conceptualisation, methodology, data collection and analysis, discussion, and conclusion; **Boon Yih Mah:** Supervision, theoretical and pedagogical guidance, literature review, and language editing; **Norhaslinda Hassan:** data validation and references.

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