The Cognitive Challenges in Argumentative Writing for EFL Learners: A Scoping Review

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Abstract
Argumentative writing is a problem-solving cognitive process, which is perceived as a challenging activity, especially for students learning English as a Foreign Language (EFL). Students are required to master argumentative writing in international English proficiency tests, and the importance of argumentation skills has been emphasized by most countries. Most previous studies mentioned the difficulties of learning English argumentative writing; however, few have systematically concluded and classified the cognitive challenges. The objective of this scoping review is to clarify the cognitive challenges and understand the classification of them in argumentative writing for EFL learners. The selection was conducted for downloadable full journal articles from 2019 to 2023, and the limited language is English using Arksey and O'Malley's 5-stage framework, guided by meta-analyses (PRISMA) framework. Thirty-one articles were chosen for data extraction, and according to the analysis of 31 articles, the cognitive challenges in argumentative writing included the insufficient mastery of argument structure, the poor critical thinking in argumentative writing, and inadequate feedback from instructors or peers. With adequate understanding of cognitive challenges in argumentative writing, the future research is hoped to yield better pedagogy in the teaching of argumentative writing.
Keywords: Cognitive Challenges, English Argumentative Writing, EFL Learners, Scoping Review

Introduction
English writing has been perceived as a pivotal and difficult part in studying English as a foreign language (EFL) and English as a second language (ESL) among countries, including China, India, Sweden, etc (Hu & Saleen, 2023; Fajaryani et al., 2021). Writing means that the writer enters into the conversation with others, while the academic writing not only calls the writer to express ideas, but offers the responses to what others have said (Graff & Birkenstein, 2010). However, after two-year epidemic and online education, the overall writing capacities

of students have been declined, and they had less understanding about writing summaries of academic reading or comparing reading materials with two orientations to a same issue (Alexander et al., 2023).

Argumentative writing is one of genres, gaining considerable momentum in EFL and ESL teaching (Qin & Karabacak, 2010; Amini Farsani et al., 2023), and it has been involved into IELTS, TOEFL and GRE as international English proficiency tests. Being different from narrative and descriptive writing, argumentative writing can express the process of argumentation (Yang, 2022), with evidence and reasons to support claims (Jin et al., 2020). The purpose of argumentative writing is to persuade readers or listeners to agree with the writer's opinions (Aziz et al., 2023), and it can aim to increase or decrease the acceptability of controversial standpoints by illustrating a constellation of reasonable contents (Amini Farsani et al., 2023).

Nguyen et al. (2020) claimed that EFL learners required a high cognitive effort in producing a meaningful written discourse. Argumentation is also regarded as a cognitive process, justifying or critiquing a claim with the purpose to rise or reduce the tenability of a contentious point of view (Liu, Zhong & Nesbit, 2023; Nussbaum, 2011). Moreover, argumentation is a reasonable process to stimulate the ability of problem solving and knowledge construction, which is essential for students especially in academic institutions (Yang, 2022). Argumentative writing is a complicated cognitive task, which includes a greater intellectual challenge than other genres (Sehlström et al., 2022). In terms of the process of argumentative writing, the effective organization, the appropriate use of language, and the process of genre and subject domain knowledge related to the topic are required (Liu, Zhong & Nesbit, 2023). Yang (2022) also points out the argumentative writing is a focus not only in the first language, but in the study of EFL and ESL writing.

According to the previous research of English argumentative writing, the linguistic challenge is a main factor, and EFL learners lack linguistic resources. In argumentative writing, ESL students are challenging in the language, spelling as well as the cohesion and coherence (Sehlström et al., 2022). Based on the comparison of English proficiency level among eight undergraduate ESL students, the low-level proficiency students payed more attention to solving language-related difficulties, while students with higher English proficiency level spent more time on discourse synthesis process, such as selecting related information, organizing the structure, etc (Knouzi, 2023). Knouzi (2023) and Li (2013) discuss the tensions and contradictions that students need to overcome when they write texts from sources within the framework of activity theory. Therefore, the improvement and quality of argumentative writing for EFL learners can not be limited in language level, which is in line with the opinion of Yang (2022). The previous studies also proved that the proficiency performance of English writing has a close relationship with the various cognitive skills (Peng et al., 2021; Hu & Saleem, 2023), so it needs the conception and analytical capabilities, logical and synthetic reasoning, instead of linguistic capabilities. As a result, it is possible that the weak cognitive ability can lead to students' low writing performance.

Argumentative writing needs the effective coordination of language use, reasoning processes and background knowledge about the given topic (Liu et al., 2023). Yang (2022) added that EFL learners lack adequate argumentation skill, who are not able to combine convincing evidence and reasons effectively. In view of the cognitive challenges of understanding

argument structure, students are weak in organizing solid and deep argumentation, and their argumentation lacks strong validation and justification, because of their poor understanding and insufficient mastery of crucial skills of argumentation knowledge (Ranjbaran et al., 2023; Liu et al., 2023). Besides, argumentative process is perceived as the combination of critical and creative thinking by Liu et al. (2023), in which critical thinking is an essential ability in presenting arguments, which can prompt argumentation and cognitive thinking skills (Sato, 2022). Sato (2022) links critical thinking theories with argumentative writing, who also stresses the importance of critical thinking skills in ESL pedagogy on promoting argumentation and cognitive thinking skills. Students' ability in argumentative writing depends much on critical thinking and their awareness of the topic discussed (Mukminin, 2019), and in their study results, giving arguments is difficult due to the unfamiliar topic and critical thinking skills. Moreover, students have few chances to write argumentative essays and get high-quality feedback on writing assignments (Davies et al., 2022). Instructors are working on correcting structural mistakes and analyzing the sentence building, rather than what and how to write (Nguyen et al., 2020; Trinh & Nguyen, 2014). Also, providing detailed feedback on both language and content issues is thought as a time-consuming task (Su et al, 2023). Even though various challenges of argumentative writing for EFL learners have been come up with and a preliminary search of was conducted, no current or underway systematic reviews or scoping reviews on the current topic were identified.

The most recent research mentioned challenges or difficulties that students have been experienced in learning English argumentative writing, but few of them systematically conclude the cognitive challenges and classify them into various categories. Thus, in the current scoping review, it highlights the cognitive challenges in argumentative writing of EFL learners from three dimensions: insufficient mastery of argument structure, poor critical thinking, and inadequate feedback. The scoping review aims to clarify the cognitive challenges, and understand the three dimensions in argumentative writing for EFL learners.

Materials and Methods
This scoping review was guided by Arksey & O'Malley's (2005) framework to clarify the cognitive challenges and three dimensions of them in argumentative writing of EFL learners. The framework consists of 5 stages: (1) determining the research questions; (2) recognizing relevant studies; (3) selecting review studies; (4) visualizing data charts; (5) summarizing and providing reports (Arksey & O'Malley, 2005; Levac et al., 2010). The scoping review synthesized studies and research about the challenges in argumentative writing, and the principles of the Preferred Reporting Items for Systematic Reviews and MetaAnalyses Extension for Scoping Reviews (PRISMA-ScR) was applied in the review ((Peters et al. 2020; Aromataris et al., 2022). This methodology is appropriate to identify the important elements related to the review area and collect significant literature for reference.

Scoping Review Research Question (Step 1)
According to Arksey & O'Malley (2005), the first step is to make sure the review research questions, which guides the whole review and sets the foundation for interpretation. The review question was as follows:
What are the cognitive challenges in argumentative writing for EFL learners?

This review outlined the challenges that EFL learners have experienced in argumentative writing, and all challenges which were elicited from past studies and related to cognition were concluded.

Identification of Relevant Studies (Step 2)

The relevant keyword search for the past research was conducted from the database of Web of Science (WoS). The reason why to choose WoS is that it has the unsurpassed quality control and impactful assessment tool to offer high-quality articles and determine journals' importance in comparison to others by presenting 'impact factors'. In this review, the Boolean operators 'AND' was used in the search that narrowed a search where all keywords listed must appear in the article, while 'OR' was broaden the search in which either keyword is acceptable. The applied searched lexical bundles were as follows: (argumentative writing OR argumentative essays OR argumentation OR argument) AND (challenges OR difficulties) AND (EFL learners OR ESL learners OR English learners). These keywords reduced the risk of losing valuable published articles related to the topic.

Study selection: Inclusion & Exclusion Criteria (Step 3)

Lexical combination are preferred over Boolean operator due to their efficient, comprehensive, reproducible and simple nature. The speedier access to previous relevant literature is provided for novice researchers, which makes research methodologies more replicable and interpretable compared with Boolean operators that could need more logical thinking. The purpose of this scoping review is to better understand the cognitive challenges in argumentative writing for EFL learners. The lexical bundles chosen are based on the essential concepts, making it easier to match appropriate documents or articles in search engines. These bundles are closely related to the study subject, and generate less repetitive findings. They also allow for the collection of relevant material within constrained resources and time, ensuring the search is complete and feasible. The key search of lexical bundles presents 446 results in the WoS database. With the limitation of time span between 2019 to 2023, document type and language, the number of results was 164, and 77 of them could be accessed in full text. As recommended by Moher et al. (2010), the selected articles can use a two-stage screening of evidence regarding the scoping review. The first stage is to identify and screen the titles and abstracts of the articles to determine the relevance to the current research. Then, the second stage is to review the full texts. There is a conclusion of the inclusion and exclusion criteria, as shown in Table 1.

Table 1

Inclusion and Exclusion Criteria

Inclusion criteria	Exclusion criteria
Studied that were published in the Web of Science;	Studies that were not published in the Web of Science;
Studies that explored argumentative writing for EFL learners;	Studies that did not include argumentative writing for EFL learners;
Studies that investigated the cognitive challenges from different dimensions.	Studies that did not include the cognitive challenges from different dimensions.
Time limit	
Studies that were published in English from 2019 to 2023	Studies that were not published in English from 2019 to 2023
Reason for chosen time period	
According to the number of published articles in the past ten years, the trend during 2019 to 2023 increased gradually.	
Database	
Indexed database: WoS	No-indexed database

Charting the Data (Step 4)

With screening all articles based on the research question, the results were concluded, and the cognitive challenges of argumentative writing of EFL learners were classified. As Figure 1 presents, the overall steps of the process followed the PRISMA 2009 flowchart. It presented the exact reasons of inclusion and exclusion, which led to 31 pieces of articles in the current scoping review.
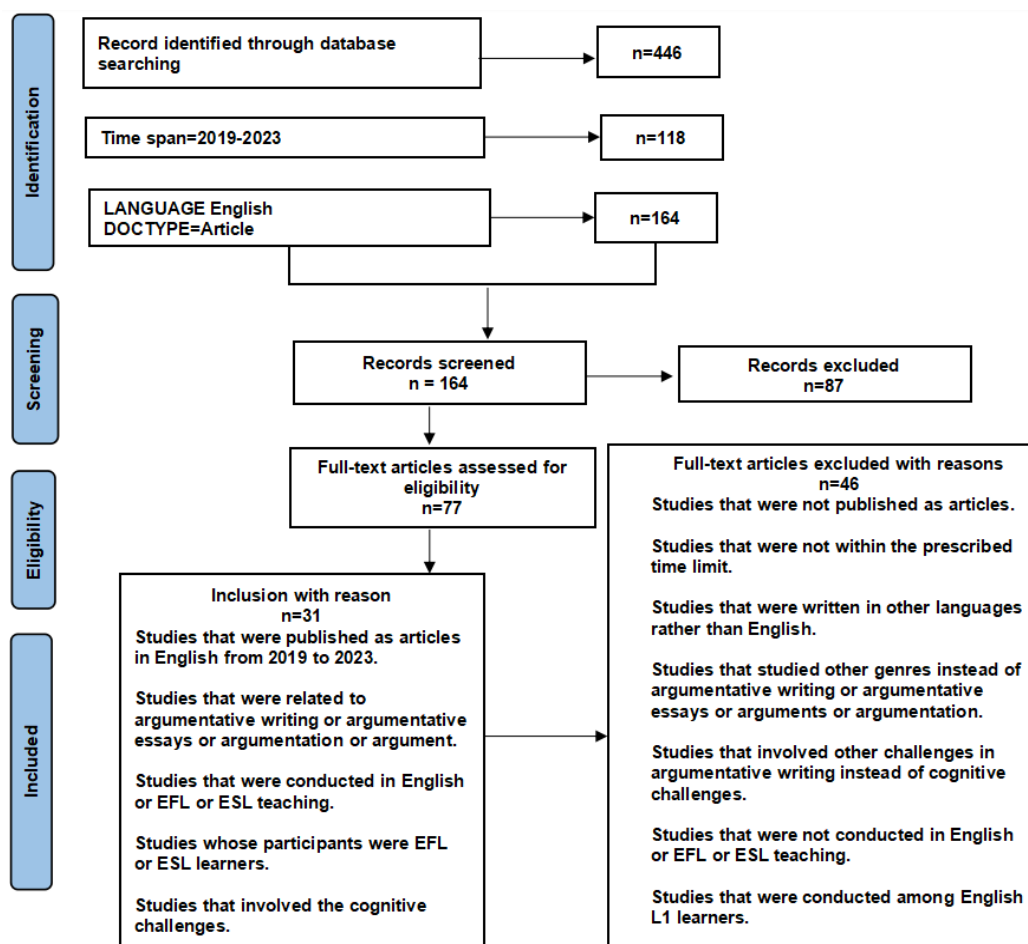

Figure 1. PRISMA article search and study selection flowchart

Results

A total of 31 articles were reviewed to investigate the cognitive challenges in EFL learners' argumentative writing according to past studies, which could also be divided into three dimensions. Figure 2 as below shows the number of selected articles during 2019 to 2023, and the trend of studying cognitive challenges in argumentative writing was increasing during the past 5 years, especially in 2023. Table 2, whose detailed information can be seen in Appendix A, summarizes the 31 articles reviewed according to the scope, including author and year, location, research design, type of instruments, main challenges, and dimensions in cognitive challenges. These articles were mainly from China, Japan, Spain and Germany. In terms of the research design, 11 studies chose the quantitative research design by applying pre-post tests, quasi-experiments, or comparative analysis. By contrast, 13 studies used the qualitative research design, and they collected data mainly through content analysis or case study. 6 studies applied the mixed study design, by combing tests or experiments for the quantitative data, and interviews or observations for the qualitative one.
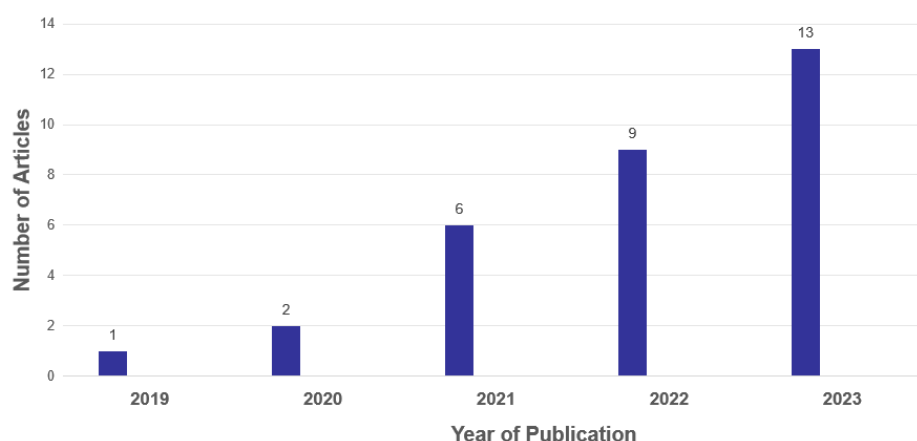
Figure 2. Cognitive challenges in argumentative writing from 2019 to 2023

All reviewed study highlighted the main challenges of argumentative writing for EFL learners, and the current scoping review concluded three dimensions about the cognitive challenges in argumentative writing in Table 2: insufficient mastery of argument structure, poor critical thinking, and inadequate feedback. Regarding the impacts of cognitive challenges in argumentative writing for EFL learners, this scoping review identified specific dimensions of cognitive challenges. Based on the the analysis of 31 articles, 27 of them regarded the insufficient mastery of argument structure as the main cognitive challenge in argumentative writing, 6 articles stressed the close relationship between poor critical thinking and argumentative writing, and 4 articles focused on inadequate feedback from instructors or peers. There were 6 articles mentioned two kinds of the cognitive challenges in one article. The three dimensions were regarded as cognitive skills that were challenging in English writing performance (Hu & Saleem, 2023), which can be regarded as three themes.

As presented in Table 2, in terms of insufficient mastery of argument structure, Siekmann et al. (2022), and Yang & Pan (2023), pointed out that text structures were main challenges in organizing argumentative essays. Amini et al. (2023), and Yang (2022), thought EFL learners had difficulties in constructing authorial voices and argumentative elements, so they had little understanding of argumentation and poor performance in constructing logical, coherent and convincing arguments (Liu et al., 2023; Chen et al., 2021; Wu et al., 2023; Ranjbaran et al., 2023; Marttunen & Kill, 2022; Sehlstrom et al., 2022; Arroyo et al., 2020; Yasuda, 2023). EFL learners lacked the capabilities of analysis and justifications for claims, and sufficient employment of counterarguments and rebuttals (Guo et al., 2023; Hu & Saleem, 2023). Additionally, for the critical thinking, researchers found that EFL learners were challenging in organizing arguments with strong critical thinking, involving the strategic thinking (Robillos & Art-in, 2023; Sato, 2022; Hu and Saleem, 2023; Gebele et al., 2022; Wu et al., 2023; Sehlstrom et al., 2022). Besides, EFL learners received few good quality feedback from teachers and peers (Davies et al., 2021; Ranjbaran et al., 2023), and providing feedback was thought as a time-consuming activity for instructors (Su et al., 2023).

Table 2

Summary of 31 articlesTeachers would choose non-corrective feedback and automated feedback by using corrective application, such as Grammarly (Thi et al., 2022)

	Author & Year	Location	Research design	Type of instrument	Main challenges	Dimension in cognitive challenges
1	*Siekmann et al. (2022)*	*Germany*	*Quantitative*	*Rating scale*	*Text structure and coherence*	*Insufficient mastery of argument structure*
2	*Yang & Pan (2023)*	*China*	*Mixed*	*Interview/ questionnaire/ pre-post test*	*Structure and model*	*Insufficient mastery of argument structure*
3	*Davies et al. (2021)*	*U.K.*	*Qualitative*	*Content analysis*	*Few good-quality feedback*	*Inadequate feedback*
4	*Su et al. (2023)*	*China*	*Qualitative*	*Content analysis*	*Linguistic aspects of argumentation; time-consuming feedback for instructors*	*Inadequate feedback*
5	*Thi et al. (2022)*	*Hungary*	*Quantitative*	*Pre-post test through a rating scale/questionnaire*	*Non-corrective feedback and automated feedback*	*Inadequate feedback*
6	*Amini et al. (2023)*	*Iran*	*Mixed*	*Comparative experiment/ interview*	*Challenges in constructing authorial voice*	*Insufficient mastery of argument structure*
7	*Yang (2022)*	*China*	*Quantitative*	*A quasi-experiment*	*Challenges in argumentative element*	*Insufficient mastery of argument structure*
8	*Liu et al. (2023)*	*Canada*	*Quantitative*	*A quasi-experiment*	*Little understanding of argumentation, poor performance on argument construction, & insufficient mastery of crucial skills*	*Insufficient mastery of argument structure*
The rest can be seen Appendix A						

Discussion

This section aims to tackle the research question: What are the cognitive challenges in argumentative writing for EFL learners? The purpose of the current study is to investigate cognitive challenges and classify them in argumentative writing for EFL learners. There are three themes concluded from the reviewed study, and they are insufficient mastery of argumentative structure, poor critical thinking, and inadequate feedback.

Insufficient Mastery of Argument Structure

Based on the previous study of argumentative writing for EFL learners (Xie & Lv, 2022), the results showed that EFL learners' cognitive resources had influences on the discourse connection of argumentative writing, and the content support and planning instruction could enhance EFL writers' cognitive base. It is admitted that argumentation was a reasonable process to promote the ability of process-solving and knowledge, which was the importance in the teaching of L2 writing (Yang, 2022). She claims that various intervention pedagogy has been applied to argumentative writing based on argument theory, such as argumentative writing templates, process-genre pedagogy, and the teaching of argumentative basics. Learners were supposed to combine evidence and reasons effectively, but they did not master argumentative skills. Liu et al. (2023) claimed that in the study of argumentation skills in Chinese mainland, the obvious challenge was learners' poor understanding and insufficient mastery of crucial skills in organizing argumentation. In their summary, argumentative writing was a cognitive task to combine processing of the genre, subject domain knowledge and effective organization. When facing the complicated information sources, students needed to gain the ability to choose and connect them (Granado-Peinado et al., 2023). Therefore, content support and planning instruction could enhance EFL writers' cognitive base (Xie & Lv, 2022), and in order to achieve it, the cognitive competence should be developed to organize reasonable argumentation with rigorous structures and evidence (Chen et al., 2021). Hence, one of cognitive challenges in argumentative writing is the insufficient mastery of argument structure, which can be the focus in selecting and improving pedagogical methodology.

Poor Critical Thinking

The reasonable argumentation with evidence can improve the argumentative competence in cognitive development (Chen et al., 2021), but in their opinion, it also needed the critical thinking. It was agreed by Hu & Saleem (2023) that the cognitive thinking ability could not be separated with English academic writing, because the positive critical thinking ability would contribute to the high writing proficiency. According to critical thinking theories, and the assessment of critical thinking through argumentative essays, the IELTS raters' assessment of students' critical thinking abilities were connected with the task achievement and lexical resource criterion (Sato, 2022). The essay's quality of ideas, logicality, content development, and relevance to the issue all influenced their assessments of the writers' critical thinking abilities. As a result, writers' abilities of critical thinking can be assessed from the content of argumentation, and they were essential in giving arguments (Fajaryani et al., 2021). Students' critical thinking abilities and understanding of the subject matter are key factors in their capacity to write a logical and thoughtful argumentative essay.

Inadequate Feedback

According to Davis et al. (2021), the timely high-quality feedback is an effective way to improve learners' writing, and providing feedback for learners' writing is thought important for both learners and instructors (Thi et al., 2022). Ranjbaran et al. (2023) stressed argumentative peer feedback that is a learning activity for students to review peers' work critically, provide critical reflections with evidence and justification, as well as improve themselves. In their conclusion, argumentative feedback is beneficial to improve the learning process, including learning autonomy, self-regulation and critical thinking. In this aspect, the dimensions in the current scoping review are related. Besides, the automated writing evaluation system could provide correct feedback on language feature and argument structure (Shi et al., 2022). However, automated writing evaluation systems failed to be involved in the social aspects of argumentative writing, and they has inadequate capacity to provide detailed feedback in argumentative writing, such as Grammarly, providing feedback about surface-level errors (Su et al., 2023). In addition, for the background of teaching writing, learners had few chances to get good-quality feedback on writing assignments, and it may be impossible to make formative feedback in large class sizes with limited instructor backgrounds (Davis et al., 2022). Instructors also thought that the detailed feedback on both language and contents aspects was time-consuming (Guo et al., 2022; Su et al., 2023). Therefore, Thi et al. (2022) summarized that many researchers emphasized the importance of the effectiveness of written feedback in writing tasks, which was a booming field of inquiry. Written feedback was divided into corrective feedback and non-corrective feedback (Luo & Liu, 2017). Corrective feedback can motivate the learning of a target language by offering poor evidence, while non-corrective feedback guides English writing in content, organization, linguistic performance and format. There were much work aiming to examine the efficiency of corrective feedback in EFL and ESL learners' accuracy, but studies about non-corrective feedback were limited.

Conclusion

This article provides a scoping review of cognitive challenges in argumentative writing for EFL learners. It shows that cognitive challenges that have been experienced by EFL learners, even though linguistic challenges were also thought as a main factor. However, through screening the previous studies, the improvement of argumentative writing cannot focus on linguistic level, and it requires more cognitive skills for better writing performance (Hu & Saleem, 2023; Yang, 2022). This review demonstrated that the cognitive challenges can be categorized into three dimensions, including insufficient mastery of argument structure, poor critical thinking, and inadequate feedback, which achieved the objective of the current scoping review. It is highly hoped that the cognitive challenges of argumentative writing in this review can be helpful for instructors to be aware of challenges that should be overcome, and design more appropriate teaching methods.

The current review contributes to both theoretical and practical aspects. For the theoretical perspective, this study integrates the argument theory, critical thinking theory, and activity theory. Based on the theory frameworks according to previous study, various challenges of argumentative writing for EFL learners were found and clarifies. In terms of practical side, it is highly advisable to understand different cognitive challenges when teaching and learning argumentative writing. Although the scoping review did not provide straightforward solutions for argumentative writing, making sense of related cognitive challenges in argumentative

writing of EFL learners is crucial for researchers and instructors to design appropriate pedagogy in the future research. It is believed that the scoping review can inspire other researchers and scholars who are interested in English argumentative writing and managing to satisfy EFL learners' needs.

There is no doubt that every study has its limitations, and the present scoping review only chose one database-WoS during 2019 to 2023. Therefore, the omission of other potential relevant articles from other databases is considered as one of the limitations. Another limitation is that all reviewed articles were in English, so the articles in other languages have been ignored. Despite these limitations, the scoping review is trying to represent an accurate and meaningful trend of cognitive challenges in argumentative writing for EFL learners.

References

Alexander, P. A., Fusenig, J., Schoute, E. C., Singh, A., Sun, Y., & van Meerten, J. E. (2023). Confronting the Challenges of Undergraduates' Argumentation Writing in a "Learning How to Learn" Course. *Written Communication*, 40(2), 482-517. https://doi.org/10.1177/07410883221148468.

Amini, F. M., Abdollahzadeh, E., & Hashemi, B.S. (2023). A Premier on Authorial Voice-Promoting Pedagogy in an Academic Argumentative Efl Context: An Innovative Mixed-Methods Research Approach. *SSRN*, 2023. https://ssrn.com/abstract=4143687.

Arksey, H., & O'Malley, L. (2005). Scoping studies: Towards a methodological framework. *Int J Soc Res Methodol,* 8(1):19–32. https://doi.org/10.1080/ 1364557032000119616.

Aromataris, E., & Munn, Z. (eds). (2020). *JBI Manual for Evidence Synthesis*. JBI: Adelaide, Australia.

Aromataris, E., Stern, C., Lockwood, C., Barker, T.H., Klugar, M., Jadotte, Y., Evans, C., Ross-White, A., Lizarondo, L., Stephenson, M., & McArthur, A. (2022). JBI series paper 2: tailored evidence synthesis approaches are required to answer diverse questions: a pragmatic evidence synthesis toolkit from JBI. *Journal of clinical epidemiology*, 150, pp.196-202. https://doi.org/10.1016/j.jclinepi.2022.04.006.

Arroyo, G. R., Fernández-Lancho, E., & Hoz-Ruiz, J. (2021). Technologies for learning writing in L1 and L2 for the 21st century: Effects on writing metacognition, self-efficacy, and argumentative structuring. *Journal of Information Technology Education: Research*, 20, 87-116. https://doi.org/10.28945/4705.

Arroyo, G. R., Hoz-Ruiz, J., & Montejo Gamez, J. (2020). The 2030 challenge in the quality of higher education: metacognitive, motivational and structural factors, predictive of written argumentation, for the dissemination of sustainable knowledge. *Sustainability*, 12(19), p.8266. https://doi.org/10.28945/4705.

Aziz, F. I. A., Salam, S. N., & Said, S. B. M. (2023). Improving English Persuasive Writing in Malaysia: A Recommendation. *Asian Journal of Research in Education and Social Sciences*, 5, 10. https://doi.org/10.55057/ajress.2023.5.2.7.

Chen, H., Lewis, H., & Myhill, D. (2021). Fostering critical reasoning: Developing argumentative competence in early and middle primary years. *The Australian Journal of Language & Literacy*, 44(2), pp.46-61. https://doi.org/10.1007/BF03652072.

Davies, P. M., Passonneau, R. J., Muresan, S., & Gao, Y. (2021). Analytical techniques for developing argumentative writing in STEM: A pilot study. *IEEE Transactions on Education*, 65(3), pp.373-383. https://doi.org/10.1109/TE.2021.3116202.

Du, H., & List, A. (2021). Evidence use in argument writing based on multiple texts. *Reading Research Quarterly*, 56(4), pp.715-735. https://doi.org/10.1002/rrq.366.

Fajaryani, N., Mukminin, A., Hidayat, M., Muhaimin, M., Haryanto, E., Nazurty, N., Habibi, A., Marzulina, L., & Harto, K. (2021). Cultural Capital and Argumentative Writing in English: Challenges and Strategies Used by EFL Student Teachers. *Qualitative Report*, 26(10). https://doi.org/10.46743/ 2160-3715/2021.4784.

Gebele, D., Zepter, A.L., Königs, P., & Budke, A. (2022). Metacognition in argumentative writing based on multiple sources in geography education. *European journal of investigation in health, psychology and education*, 12(8), pp.948-974. https://doi.org/10.3390/ejihpe12080069.

Graff, G., & Birkenstein, C. (2010). *They say, I say. The moves that matter in academic writing*. W. W. Norton & Company.

Granado-Peinado, M., Cuevas, I., Olmos, R., Martín, E., Casado-Ledesma, L., & Mateos, M. (2023). Collaborative writing of argumentative syntheses by low-performing undergraduate writers: Explicit instruction and practice. *Reading and Writing*, 36(4), pp.909-936. https://doi.org/10.1007/s11145-022-10318-x.

Guo, K., Wang, J., & Chu, S. K. W. (2022). Using chatbots to scaffold EFL students' argumentative writing. *Assessing Writing*, 54, 100666. https://doi.org/10.1016/j.asw.2022.100666.

Guo, K., Li, Y., Li, Y., & Chu, S.K.W. (2023). Understanding EFL students' chatbot-assisted argumentative writing: An activity theory perspective. *Education and Information Technologies*, 29(1), pp.1-20. https://doi.org/10.1007/s10639-023-12230-5.

Hu, Y., & Saleem, A. (2023). Insight from the association between critical thinking and English argumentative writing: catering to English learners' writing ability. *PeerJ*, 11, p.e16435. https://doi.org/10.7717/peerj.16435.

Jin, T., Su, Y., & Lei, J. (2020). Exploring the blended learning design for argumentative writing. *Language Learning and Technology*, 24(2), 23–34. http://hdl.h&le.net/10125/44720

Khairuddin, Z., Rahmat, N.H., Noor, M.M., & Khairuddin, Z. (2021). The Use of Rhetorical Strategies in Argumentative Essays. *Pertanika Journal of Social Sciences and Humanities*, 29. https://doi.org/10.47836/pjssh.29.S3.14.

Kleemola, K., Hyytinen, H., & Toom, A. (2022). The challenge of position-taking in novice higher education students' argumentative writing. *In Frontiers in education* (Vol. 7, p. 885987). Frontiers Media SA. https://doi.org/10.3389/feduc.2022.885987.

Knouzi, I. (2023). The Cognitive Processes of ESL Writers Responding to an Integrated Argumentative Writing Task. *TESL Canada Journal*, 40(1), pp.61-80. https://doi.org/10.18806/tesl.v40i1/1385.

Luo, Y., & Liu, Y. (2017). Comparison between peer feedback and automated feedback in college English writing: A case study. *Open Journal of Modern Linguistics*, 07(04), 197–215. https://doi.org/10.4236/ojml.2017.74015

Li, Y. (2013). Three ESL students writing a policy paper assignment: An activity-analytic perspective. *Journal of English for Academic Purpose*s, 12(2), 73–86. https://doi.org/10.1016/j.jeap.2012.11.006

Liu, Q., Zhong, Z., & Nesbit, J.C. (2023). Argument mapping as a pre-writing activity: Does it promote writing skills of EFL learners?. *Education & Information Technologies*, 29(7), pp.7895-7925. https://doi.org/10.1007/s10639-023-12098-5.

Marttunen, M., & Kiili, C. (2022). Supporting university students' argumentative source-based writing. *Written Language and Literacy*, 25(2), pp.228-252. https://doi.org/10.1075/wll.00068.

Moher, D., Liberati, A., Tetzlaff, J., Altman, D. G., & Prisma Group. (2010). Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement. *International journal of surgery*, 8(5), pp.336-341. https://doi.org/10.1016/j.ijsu.2010.02.007.

Mukminin, A. (2019). Acculturative experiences among indonesian graduate students in dutch higher education. *Journal of International Students*, 9(2), 488-510. https://doi.org/10.32674/jis.v0i0.265.

Nguyen, P. N. T., Rijlaarsdam, G., Janssen, T., & Admiraal, W. (2020). Effects of rhetorical text analysis on idea generation and text quality. *ITL-International Journal of Applied Linguistics*, 171(2), pp.280-306. https://doi.org/10.1075/itl.16013.rij.

Nussbaum, E. M. (2008). Using argumentation vee diagrams (AVDs) for promoting argument-counterargument integration in reflective writing. *Journal of Educational Psychology*, 100(3), 549–565. https://doi.org/10.1037/0022-0663.100.3.549.

Peters, MDJ., Marnie, C., Tricco, AC., Pollock, D., Munn, Z., Alexander, L., McInerney, P., Godfrey, CM., & Khalil, H. (2020). Updated methodological guidance for the conduct of scoping reviews. *JBI Evid Synth,* 18(10):2119–2126. https://doi.org/ 10.11124/JBIES-20-00167

Qin, J., & Karabacak, E. (2010). The analysis of Toulmin elements in Chinese EFL university argumentative writing. *System,* 38 (3), 444–456. https://doi.org/10.1016/j.system.2010.06.012.

Ranjbaran, F., Babaee, M., Parvaneh, M., Gohari, M., Ghorbani, B.D., Kerman, N.T., Banihashem, S.K., & Noroozi, O. (2023). Students' argumentation performance in online learning environments: Bridging culture and gender. *International Journal of Technology in Education*, 6(3), pp.434-454. https://doi.org/10.46328/ijte.460.

Robillos, R. J., & Art-in, S. (2023). Argument mapping with translanguaging pedagogy: A panacea for EFL students' challenges in writing argumentative essays. *International Journal of Instruction*, 16(4), pp.651-672. https://e-iji.net/ats/index.php/pub/article/view/38.

Sato, T. (2022). Assessing critical thinking through L2 argumentative essays: an investigation of relevant and salient criteria from raters' perspectives. *Language Testing in Asia*, 12(1), p.9. https://doi.org/10.1186/s40468-022-00159-4.

Sehlström, P., Waldmann, C., Steinvall, A., & Levlin, M. (2022). Swedish (L1) and English (L2) argumentative writing of upper secondary students with reading difficulties. *L1-Educational Studies in Language & Literature*, 22(1). https://doi.org/10.21248/L1ESLL.2022.22.1.405.

Siekmann, L., Parr, J.M., & Busse, V. (2022). Structure and coherence as challenges in composition: A study of assessing less proficient EFL writers' text quality. *Assessing Writing*, 54, p.100672. https://doi.org/10.1016/j.asw.2022.100672.

Su, Y., Lin, Y., & Lai, C. (2023). Collaborating with ChatGPT in argumentative writing classrooms. *Assessing Writing*, 57, p.100752. https://doi.org/10.1016/j.asw.2023.100752.

Su, Y., Liu, K., Lai, C., & Jin, T. (2021). The progression of collaborative argumentation among English learners: A qualitative study. *System*, 98, p. 102471. https://doi.org/10.1016/j. system.2021.102471

Taylor, K. S., Lawrence, J. F., Connor, C. M., & Snow, C. E. (2019). Cognitive and linguistic features of adolescent argumentative writing: Do connectives signal more complex reasoning?. *Reading and Writing*, 32, pp.983-1007. https://doi.org/10.1007/s11145-018-9898-6.

Thi, N. K., & Nikolov, M. (2022). How Teacher and Grammarly Feedback Complement One Another in Myanmar EFL Students' Writing. Asia-Pacific Edu Res 31, 767–779. https://doi.org/10.1007/s40299-021-00625-2

Trinh, Q. L., & Nguyen, T. T. (2014). Enhancing Vietnamese learners' ability in writing argumentative essays. *The Journal of Asia TEFT*, 11(2), 63–91.

Wu, Q., Jin, T., Chen, J. & Lei, J. (2023). Peer leadership in collaborative argumentative writing: A qualitative case study of blended design. *Journal of Second Language Writing*, 60, p.100995. https://doi.org/10.1016/j.jslw.2023.100995.

Xie, Y., & Lv, X. (2022). Effects of content support and planning instruction on discourse connection in EFL argumentative writing. *Frontiers in Psychology*, 13, p.912311. https://doi.org/10.3389/fpsyg.2022.912311.

Yang, R., & Pan, H. (2023). Whole-to-Part Argumentation Instruction: An Action Research Study Aimed at Improving Chinese College Students' English Argumentative Writing Based on the Toulmin Model. *SAGE Open*, 13(4), p.21582440231207738. https://doi.org/10.1177/21582440231207738.

Yang, R. (2022). An empirical study on the scaffolding Chinese university students' English argumentative writing based on toulmin model. *Heliyon*, 8(12). https://doi.org/10.1016/j.heliyon.2022.e12199.

Yasuda, S. (2023). What does it mean to construct an argument in academic writing? A synthesis of English for general academic purposes and English for specific academic perspectives. *Journal of English for Academic Purposes*, 66, p.101307. https://doi.org/10.1016/j.jeap.2023.101307.