

Arabic Learners' Perceptions of Google Docs-Mediated Small-Group Collaborative Writing

Maher Abdel Alkhateeb

*Ph.D. student, University of Kentucky, Department of Curriculum and Instruction, College of Education
Khateebam82@gmail.com; malkh2@uky.edu
<https://orcid.org/0000-0002-4244-078X>*

ABSTRACT

This study explored the perceptions of Arabic as a Foreign Language (AFL) learners regarding the use of Google Docs for small group writing tasks in three AFL classes at two U.S. universities. Utilizing an exploratory single case study design, the research gathered survey data from twenty students to examine their experiences with technology-mediated collaborative writing. The findings suggest that students viewed Google Docs as a flexible and user-friendly tool that facilitated collaboration and enhanced their writing process. Students also had a positive perception of small group collaborative writing, which contributed to the improvement of their final written texts, provided them with opportunities to observe and learn from their group partners' writing styles, and enhanced their vocabulary and grammar knowledge. However, the study's small sample size and reliance on self-reported survey data limit the generalizability of the results and do not fully capture students' interactions during the writing process.

Keywords: Arabic as a Foreign Language, collaborative writing, Google Docs, technology integration, student perceptions

INTRODUCTION

Collaborative learning in second language (L2) classes is an important pedagogical practice that has been shown to improve L2 acquisition (Swain & Lapkin, 1998). One form of collaborative learning that is increasingly utilized in L2 contexts is collaborative writing. Research has identified many benefits of collaborative writing for L2 learners, such as providing learners with the opportunity to pool their linguistic knowledge and resources (Donato, 1994; Elola & Oskoz, 2010; Storch, 1999, 2005), which can lead to improvements in writing quality and accuracy (Elola & Oskoz, 2010; Storch, 2005; Wigglesworth & Storch 2009; Woo, Chu, & Li, 2013). Additionally, collaborative writing gives learners a sense of audience (Alwaleedi, 2017), and increases students' attention to structure, grammar, and vocabulary use during the writing process (Swain & Lapkin, 1998).

Advancements in technology that facilitate collaboration processes have gained the interests of L2 teachers, researchers, and practitioners. As Kessler and Bikowski (2010) noted, "the evolution of collaborative writing may be intrinsically connected with the iterations of technology" (p. 43). One of these technologies that has been found to facilitate the collaboration process is web 2.0 tools (e.g., wikis, blogs, Google Docs). Various studies have shown the benefits of integrating web 2.0 technologies into L2 instruction. For example, these technologies enable a group of learners to co-construct, view, and edit texts both synchronously and asynchronously in ways that are not possible in paper-based collaborative writing (Bikowski & Vithanage, 2016; Godwin-Jones, 2018), which increases L2 learner's exposure to the target language beyond the walls of traditional classrooms and allows teachers and researchers to access the writing process history, including every user's participation (Arnold, Ducate, Lomicka, & Lord, 2009; Arnold, Ducate, & Kost, 2012; Elola & Oskoz, 2010; Godwin-Jones, 2018). Teachers can also monitor the writing process without the need to collect drafts from the students (Kessler, Bikowski & Boggs, 2012), while learners can track who has viewed and edited the document, helping the learners to monitor their progress throughout the writing task (Godwin-Jones, 2018).

This study aims to explore the perceptions of Arabic as a foreign language (AFL) students regarding the integration of a Web 2.0 tool (Google Docs) into a small-group writing task in advanced Arabic Language courses at two universities in the USA.

LITERATURE REVIEW

L2 studies examining learners' perceptions of small-group writing, with or without technology support, have revealed mixed results. Some research has found that learners hold positive attitudes toward online technology-supported collaborative writing because it provides learners with flexibility and ability to work on a shared document without the need to be in the same place at the same time (Bikowski & Vithanage, 2016; Strobl, 2014).

For example, in Bikowski and Vithanage's (2016) study, 56 English as a second language (ESL) students reported that using wiki facilitated collaboration, allowing multiple students to work synchronously on the same document. Similarly, Strobl (2014) reported that German as L2 learners had positive attitudes toward using Google Docs for collaborative writing, highlighting the ability to write at their own pace and space as a major advantage.

Other studies have indicated that small group writing provides learners with a sense of ownership and shared responsibility, encouraging students to work collaboratively, and resulting in a higher quality written text (Lee, 2010; Lund, 2008). Additionally, research has highlighted the benefits of peer feedback in technology-supported collaborative writing. In Lin and Yang's (2011) study of a university-level English reading and writing course in Taiwan, students reported that receiving and providing feedback was among the most important benefits of wiki-supported writing. One participant in Lin and Yang's study noted that learning how to use the past tense correctly was one of the benefits. Similarly, in Elola and Oskoz's (2010) study, students reported that correcting each other's grammatical mistakes significantly helped improve their grammar knowledge. Caruso's (2014) study found that English as a foreign language students perceived improvements in vocabulary and grammar through collaborative writing.

Although small-group writing activities offer many benefits, some studies have reported that students have negative perceptions of these tasks. For example, Nelson and Carson (1998), in a case study of four ESL students at a U.S. university, found that students did not trust peer feedback as much as teacher feedback. Bikowski and Vithanage (2016) also reported that participants preferred receiving feedback from teachers over peers. Some students also felt uncomfortable editing or changing their peers' writing (Lin & Yang 2011). Additional challenges include issues with work distribution within groups. For instance, Strobel (2014) identified "free rider" issue during group synthesis writing tasks, where some members contributed minimally or did not participate in the collaborative task. Stroble also reported that some students expressed a preference for individual writing to avoid potential disagreement with peers and maintain their own writing pace.

Rationale for this Study

While many studies have examined collaborative writing in English as a second language (Arnold, Ducate, Lomicka, and Lord, 2009; Bikowski & Vithanage, 2016; Kessler, Bikowski, Boggs, 2010; Kessler, 2009; Mak & Coniam, 2008; Lai, Lei, & Liu, 2016; Lin & Yang, 2011; Lund, 2008; Woo, Chu, & Li, 2013), and some studies have been conducted in the German (Arnold, Ducate, & Kost, 2012; Kost, 2011; Strobl, 2014), and Spanish contexts (Elola and Ozkoz, 2010), there is a lack of research on technology-supported collaborative writing in less commonly taught languages such as Arabic and Turkish.

This study aims to fill this gap by investigating students' perceptions of completing a small-group writing task in a technology-mediated environment, specifically using Google Docs as the collaborative writing platform in advanced Arabic language Courses. This study seeks to answer the following questions:

How do AFL students perceive the use of Google Docs as a collaborative tool?

How do AFL students perceive a small group writing task?

METHEDOLOGY

This study is part of a larger project that utilized an exploratory, holistic, single case study design to understand how AFL learners approach a Google Docs-mediated writing assignment at two public universities in the USA. Specifically, this paper reports on students' perceptions of technology-mediated small group writing using a survey instrument. Survey items were developed based on relevant literature on collaborative writing and technology integration in L2 contexts (e.g., Storch, 2017; Kessler, 2009).

According to Yin (2009) defines case study as "an empirical inquiry that investigates a contemporary phenomenon in depth and within its real-life context" (p.18). Yin also argues that one of the reasons for the use of case study is "to examine contemporary events when the related behaviors cannot be manipulated" (p.11).

Participants

Twenty students enrolled in three third-year Arabic language classes at two research universities in the United States participated in this study. The distribution of participants was as follows: Five students were enrolled in one class at the first university, seven students and nine students in two classes at the second university. The students were instructed to self-select their writing partners to work on a shared writing assignment using Google Docs. Because of the uneven number of students in each class, students formed pairs and small groups. Table 1 displays the demographic information of the participant students.

Table 1. Demographic Information of the Participant Students

Variable	Category	Number
Gender	Male	6
	Female	13
	Other	1
Native language	Arabic	1
	English	16
	English & Arabic	2
	English & Spanish	1
Number of academic semesters studying Arabic language	5	2
	5.5	1
	6	12
	7	1
	8	4

As shown in Table 1, most participants identified as female ($n = 13$), while six identified as male and one identified as “other.” In terms of native language, most students reported English ($n = 16$) as their native language, with one student reporting Arabic, two students reporting both English and Arabic, and one student reporting both English and Spanish. Regarding Arabic language study, nearly all participants had studied Arabic for at least five semesters, with twelve students having completed six semesters and four students having completed eight semesters of study. This indicates that the participants had substantial prior exposure to Arabic language learning, making them suitable for participation in a technology-mediated, small group writing assignment in an advanced AFL context.

Procedures

As an Arabic language instructor, I piloted the survey in one of my second year Arabic language classes to assess the feasibility of using Google Docs for collaborative writing and to evaluate the clarity and validity of the post-study perception survey items as suggested by Dörnyei (2003).

After obtaining Institutional Review Board (IRB) approval for this study, I visited the participating classes to deliver a PowerPoint presentation explaining the purpose of this study and to distribute consent forms to both students and teachers. Then I revisited the classes to collect the signed consent forms. While participation in the survey was voluntary, the Google Docs-mediated writing assignment was a required component of the course and was completed by all students as part of their regular coursework. Following the completion of the writing assignment, the survey was administered in the students’ classes. In total, twenty students completed the survey.

The survey consisted of four sections. The first section collected demographic information related questions (see methodology section). The second and third sections measured students’ perceptions of using Google Docs and the small group writing assignment, using on a 5-point Likert scale. The fourth section included five open-ended questions to elicit insights into the students’ experiences and opinions.

To assess the internal consistency of the Likert-scale items, Cronbach Alpha coefficient was calculated, yielding a value of 0.93. According to Dörnyei (2003), Cronbach Alpha coefficient of 0.70 or higher is considered a good indicator of internal consistency. Frequency analyses of Likert-scale data were conducted using SPSS Statistics. Responses to the open-ended questions were analyzed thematically through iterative reading to identify emerging patterns and insights relevant to the research objectives.

FINDINGS and DISCUSSION

Perceptions of Google Docs as a Collaborative Tool

Nine statements addressed students’ perceptions of using Google Docs as a collaborative tool. The statements measured the students’ perceptions on a 5-point Likert scale ranging from “strongly disagree” to “strongly agree”.

Table 2. Students' Perceptions of Using Google Docs as a Collaborative Tool

Statements	N	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree
1.Google Docs provided me with greater flexibility regarding time and place of working with my group members.	20	10%	0%	0%	35%	55%
2.Google Docs facilitated the collaboration process during this writing assignment.	20	0%	10%	0%	35%	55%
3.Google Docs was easy to use.	20	0%	0%	5%	25%	70%
4.I liked using Google Docs as a collaboration tool in this Arabic language class	20	5%	5%	5%	25%	60%
5.I would like the option to complete more small-group writing assignments using Google Docs in the Arabic language classes.	20	20%	0%	45%	30%	5%
6.I would have performed better on this writing assignment if it had been handwritten.	20	20%	20%	40%	5%	15%
7.Typing in Arabic using Google Docs was easy.	20	5%	35%	20%	35%	5%
8.Typing in Arabic using Google Docs was beneficial.	20	5%	0%	30%	50%	15%
9.Overall, I had a positive experience completing this writing assignment using Google Docs.	20	5%	0%	5%	60%	30%

Overall, students have positive perceptions of using Google Docs as a collaborative tool for completing group writing tasks in AFL classes. As shown in Table 2, most students (90%) agreed or strongly agreed that Google Docs provided flexibility in terms of time and place and facilitated collaboration among group members. Similarly, 95% of students agreed or strongly agreed that Google Docs was easy to use, and 85% reported that they enjoyed using it as a collaborative tool. These findings are consistent with previous studies (Bikawski & Vithanage, 2016; Strobl, 2014), which reported that flexibility and asynchronous nature of accessing web 2.0, such as Wiki and Google Docs, among the most perceived benefits. Suwantarathip and Wichadee's (2014) study also showed that majority of participants perceived Google Doc as either easy or very easy to use for English collaborative online writing assignments.

Although the students have positive views of Google Docs as a collaborative tool, their responses were more mixed regarding their preference to use Google Docs more frequently for future writing assignments. While 35% agreed or strongly agreed that they would like more assignments using Google Docs, 45% of students were neutral, suggesting uncertainty toward using Google Docs as a writing platform. Additionally, students also expressed neutral perceptions (40%) about whether handwritten assignments would be better than those completed via Google Docs. This neutrality may be related to challenges with typing in Arabic, as indicated below.

Responses indicated some challenges related to typing in Arabic. While 65% of students agreed or strongly agreed that typing in Arabic using Google Docs was beneficial, their perceptions of the ease of typing were divided: 40% agreed or strongly agreed that typing in Arabic was easy, whereas 40% disagreed or strongly disagreed. These findings suggest that although students have viewed typing in Arabic as beneficial, many still find it a challenging skill to learn.

Finally, students generally viewed the use of Google Doc positively, with 90% indicating that they had a positive experience completing the collaborative writing assignment using Google Docs. These findings echo those of

Nasri, Habali, and Adam (2022), who also found that ESL students perceived Google Docs as an effective tool that encourages collaboration and improves writing skills.

Perceptions of Small-Group writing

Sixteen statements addressed students' perceptions of small-group collaborative writing. The statements measured the students' perceptions on a 5-point Likert scale ranging from "strongly disagree" to "strongly agree". Table 3 below is a frequency analysis of the students' perceived opinions.

Table 3. Students' Perceptions of Small Group Writing

Statements	N	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree
10. Writing in small groups in this Arabic course increased my motivation to write.	20	10%	0%	20%	50%	20%
11. Writing in small groups in this Arabic course helped me generate more ideas.	20	5%	5%	15%	50%	25%
12. Writing in small groups in this Arabic course helped me organize my ideas.	20	5%	5%	20%	45%	25%
13. Writing in small groups in this Arabic course provided me with opportunities to observe how other students write.	20	0%	0%	5%	55%	40%
14. Writing in small groups using Google Docs in this Arabic course helped me produce a better text than what I would have achieved writing alone.	20	5%	10%	15%	40%	30%
15. Writing in small groups in this Arabic course using Google Docs made me pay closer attention to my writing.	20	5%	5%	25%	35%	30%
16. Writing in small groups in this Arabic course enhanced the lexical (vocabulary) variety of our written text.	20	5%	10%	0%	50%	35%
17. Writing in small groups in this Arabic Course helped me understand some of the grammatical mistakes I make.	20	5%	0%	0%	70%	25%
18. Writing in small groups in this Arabic course helped me improve my vocabulary knowledge.	20	5%	0%	0%	75%	20%
19. Writing in small groups in this Arabic course helped me improve my grammar knowledge.	20	0%	5%	5%	60%	30%
20. I felt comfortable correcting my peers' mistakes.	20	10%	5%	0%	65%	20%
21. I felt comfortable commenting on my peers' writing.	20	0%	0%	0%	70%	30%
Table 3 (continued)						
22. My Arabic language proficiency made me confident editing my peers' writing.	20	5%	20%	15%	40%	20%
23. It was easy to agree with my peer(s) on the ideas to include in the text.	20	0%	0%	0%	50%	50%
24. Writing in small groups in this	20	5%	5%	0%	50%	40%

Arabic course enhanced the overall quality of the text.						
25. Overall, I enjoyed writing in small groups for this Arabic writing assignment.	20	0%	0%	20%	50%	30%

Students' responses regarding their perceptions of small-group writing in the Arabic course were generally positive. As shown in Table 3, 70% of students agreed or strongly agreed that writing in small groups increased their motivation to write in Arabic. Similarly, more than 70% of students reported that small-group writing helped them generate more ideas and organize them effectively within the shared text.

One of the most significant benefits highlighted was exposure to peer writing. Nearly all participants (95%) agreed or strongly agreed that small-group writing provided opportunities to observe how other students write in Arabic. In addition, 70% indicated that working collaboratively helped them produce a better written text than what they would have achieved individually. These findings align with previous research (Elola & oskoz, 2010; Nasri, Habali, & Adam, 2022), which reported that students perceived collaborative writing as beneficial for improving text quality, particularly in terms of content development and organization.

Regarding linguistic development, students reported substantial learning gains. More than 80% of students agreed or strongly agreed that small-group writing enhanced their vocabulary and grammar knowledge and helped them become more aware of their grammatical errors through peer interaction and correction. Similarly, 90% indicated that collaborative writing contributed to improvements in their grammar knowledge. These findings echo Bikawski and Vithanage (2016), who also reported that majority of the participants indicated that collaborative writing helped them improve their grammar. Likewise, Elola and Oskoz (2010) found that writing collaboratively increased learners' awareness of their grammar usage and led to more accurate writing.

Empirical evidence from previous studies supports these findings. Storch (2005), for example, compared texts written individually with texts written collaboratively and found that paired texts scored higher regarding grammatical accuracy and structure complexity among ESL learners. Other studies (Caruso, 2014; Hsu & Lo, 2018) have also reported that ESL learners' texts produced in pairs scored higher in terms of accuracy and complexity than those written individually, which reinforce the positive impact of collaborative writing on linguistic development.

Students also expressed high levels of comfort engaging in peer feedback. More than 85% of students agreed or strongly agreed that they felt comfortable correcting and commenting on their peers' writing, and that they were able to reach consensus with their group members regarding which ideas to include in the text. These results are consistent with Nasri, Habali, and Adam's (2022) study which revealed that students felt comfortable working collaboratively and editing their team member's written contributions. However, a study by Lin and Yang (2011) showed contrasting results, with participants reporting discomfort editing and changing their peers' writing.

Finally, 80% of students agreed or strongly agreed that collaborative writing enhanced the overall quality of the final product and enjoyed the experience.

Open-Ended Questions

In response to the question, "How would you describe the group you worked in? Did you all contribute in a balanced way?", students 35% of students reported varied experiences with group member contribution. About 35% indicated they contributed to the writing assignment in a balanced manner. For example, one student noted, "Both contributed in a balanced and equal way." Another 20% attributed balanced contribution to dividing the assignment into subtasks, with each group member responsible for a specific portion. As one student stated, "Yes—we split up the work evenly and didn't run into any issues." Another 35% reported that while contributions were generally balanced, one student took on a greater role due to advanced Arabic proficiency or being a native speaker. For instance, a student shared, "We all contributed, but we had one native speaker who did most of the editing of grammar and word choice." These findings are consistent with previous research by Bikawski and Vithanage (2016), where majority of the participants indicated a successful collaboration. Stroble (2014) also reported similar results where most of the participants noted that the collaboration between group members went well. However, 10% of students reported that although contributions appeared balanced, one member tended to dominate the writing process. As one student explained, "Yes, I think we all contributed in a balanced way, but one group member deleted the section I wrote because they said they had new ideas and wanted to write it instead". This implies that disagreement between group members could be an issue in collaborative learning activities. Similar concerns were reported in Stroble' (2014) study, who found that some students have negative opinions about writing in groups or pairs and prefer to write individually to avoid such conflicts.

In response to the question, “Did you learn any skills from doing this writing assignment in pairs/small groups that you will use in future individually assigned Arabic writing assignments? If yes, please provide examples, 90% of students indicated that they had learned beneficial skills for future assignments, while 10% reported not gaining new skills from this experience. Frequently cited skills included typing in Arabic, developing new writing strategies and planning techniques, improving sentence structure, and identifying grammatical errors. For example, one student wrote, “I learned how to better type in Arabic and how to fix grammatical mistakes.”

In response to the question, “What are the advantages of the small-group writing assignment using Google Docs?”, students highlighted several benefits, including the ability to collaborate asynchronously without the need to meet in person, the opportunity to share and expand ideas, exposure to peers’ writing styles, learning new vocabulary, having additional reviewers to catch errors, and the ability to track changes easily. As one student stated, “More ideas, you get to learn new vocabulary and have another set of eyes on mistakes that you might not notice, you get to see changes that peers make in Google.”

Regarding disadvantages, students’ responses to the question, “What are the disadvantages of the small-group writing assignment using Google Docs?”, indicated that typing in Arabic was challenging and time-consuming, particularly without access to a standard Arabic keyboard. Additionally, the use of online translation tools such as Google Translate sometimes led to inaccurate word choices. Students also noted that using written comments to share ideas was less effective than face-to-face discussions. Other reported challenges included difficulties in coordinating schedules, combining ideas coherently, and dealing with group members who dominated the writing process and made changes without consulting others.

In response to the final question, “What do you suggest to improve pair/small group writing assignments using Google Docs in Arabic language classes?”, students made several recommendations: providing training on Arabic typing, ensuring access to computers with Arabic keyboards, requiring at least one face-to-face meeting for planning and discussion, allowing more time for assignments, and offering detailed feedback on the first draft rather than general comments.

CONCLUSION

The findings showed that students perceived both Google Docs and collaborative writing positively. Most students valued flexibility, ease of use, and collaboration opportunities that Google Docs provided. Small-group writing was also seen as beneficial for increasing motivation, generation and organizing ideas, and improving vocabulary and grammar knowledge. These results echo the findings of previous research that highlighted the pedagogical benefits of technology-mediated collaborative writing.

Despite the benefits, the study identified several challenges and concerns related to collaborative writing via Google Docs. Some students expressed uncertainty about using Google docs in future assignments. A significant concern was the difficulty of typing in Arabic, especially without access to Arabic keyboards. Other challenges related to task management and group dynamics, such as unequal participation and difficulties in coordination.

This study contributes to field of language education by focusing on Arabic as a less commonly taught language. The findings suggest that implementing Google Docs in collaborative writing tasks offers many pedagogical affordances for AFL learners. The results also suggest that Arabic language educators should consider providing Arabic typing training and clear instructions on how to access Arabic keyboards. It is also highly recommended to include rubrics with criteria to organize students’ group work and support more equal participation.

LIMITATIONS

This study employed an exploratory single case study design with a sample of twenty students across three Arabic as a Foreign Language (AFL) class. Therefore, the findings of this study may not be generalizable to broader AFL learner populations due to the small sample size and the specific instructional contexts in which the study was conducted.

Additionally, the study relied solely on student surveys to collect data, which may not fully capture the dynamics of students’ interactions during the collaborative writing process. Including additional data sources, such as classroom observations or post-study interviews, could provide a more comprehensive understanding of students’ collaborative behaviors and experiences.

REFERENCES

- Alwaleedi, M. A. (2017). Examining Language Related Episodes (LREs) of Arabic as a second language (ASL) learners during collaborative writing activities. *Theory and Practice in Language Studies*, 7(4), 256-263.
- Arnold, N., Ducate, L., & Kost, C. (2012). Collaboration or cooperation? Analyzing group dynamics and revision processes in wikis. *Calico Journal*, 29(3), 431-448.
- Arnold, N., Ducate, L., Lomicka, L., & Lord, G. (2009). Assessing online collaboration among language teachers: A cross-institutional case study. *Journal of Interactive Online Learning*, 8(2), 121-139.
- Bikowski, D., & Vithanage, R. (2016). Effects of web-based collaborative writing on individual L2 writing development. *Language Learning & Technology*, 20(1), 79-99.
- Caruso, G. C. (2014). The impact of wiki-based collaborative writing on English L2 learners' individual writing development. (publication No.1568387) [Master's thesis, Portland State University]. ProQuest Dissertations and Theses Global.
- Donato, R. (1994). Collective scaffolding in second language learning. In J. P. Lantolf, & G. Appel (Eds.), *Vygotskian approaches second language research* (pp. 33-56). New Jersey: Ablex.
- Dörnyei, Z. (2003). Questionnaires in second language research: Construction, administration, and processing. Mahwah, New Jersey: Lawrence Erlbaum Associates, Publishers.
- Elola, I. & Oskoz, A. (2010). Collaborative writing: Fostering foreign language and writing conventions development. *Language Learning & Technology*, 14(3), 51-71.
- Godwin-Jones, R. (2018). Second language writing online: An update. *Language Learning & Technology*, 22(1), 1-15.
- Kern, R., & Warschauer, M. (2000). Theory and practice of network-based language teaching. In M. Warschauer & R. Kern (Eds.), *Network-based language teaching: Concepts and practice* (pp. 1-19). New York: Cambridge University Press.
- Kessler, G. (2009). Student-initiated attention to form in wiki-based collaborative writing. *Language Learning & Technology*, 13(1), 79-95.
- Kessler, G., & Bikowski, D. (2010). Developing collaborative autonomous learning abilities in computer mediated language learning: Attention to meaning among students in wiki space. *Computer Assisted Language Learning*, 23(1), 41-58.
- Kessler, G., Bikowski, D., & Boggs, J. (2012). Collaborative writing among second language learners in academic web-based projects. *Language Learning & Technology*, 16(1), 91-109.
- Kost, C. (2011). Investigating writing strategies and revision behavior in collaborative wiki projects. *Calico Journal*, 28(3), 606-620.
- Lai, C., Lei, C., & Liu, Y. (2016). The nature of collaboration and perceived learning in wiki-based collaborative writing. *Australasian Journal of Educational Technology*, 32(3).
- Lee, L. (2010). Exploring wiki-mediated collaborative writing: A case study in an elementary Spanish course. *Calico Journal*, 27(2), 260-276.
- Lin, W. C., & Yang, S. C. (2011). Exploring students' perceptions of integrating Wiki technology and peer feedback into English writing courses. *English Teaching: Practice and Critique*, 10(2), 88-103.
- Lomicka, L., & Lord, G. (2016). Social networking and language learning. In Farr, F., & Murray, L. (Eds.). *The Routledge handbook of language learning and technology*. (pp. 255-268). Routledge.
- Lund, A. (2008). Wikis: A collective approach to language production. *ReCALL*, 20(1), 35-54. DOI: 10.1017/S0958344008000414
- Mak, B., & Coniam, D. (2008). Using wikis to enhance and develop writing skills among secondary school students in Hong Kong. *System*, 36(3), 437-455.
- Nasri, N. F., Habali, A., & Adam, M. (2022). Google Docs: students' perceptions as online collaborative tool in learning writing skills. *International Journal of Academic Research in Progressive Education and Development*, 11(3), 690-705.
- Nelson, G. L., & Carson, J. G. (1998). ESL students' perceptions of effectiveness in peer response groups. *Journal of Second Language Writing*, 7(2), 113-131.
- Storch, N. (1999). Are two heads better than one? Pair work and grammatical accuracy. *System*, 27(3), 363-374.
- Storch, N. (2002). Patterns of interaction in ESL pair work. *Language learning*, 52(1), 119-158.
- Storch, N. (2005). Collaborative writing: Product, process, and students' reflection. *Journal of Second Language Writing*, 14(3), 153-173.
- Storch, N. (2017). Collaborative writing. In Manchón, R. & Matsuda, P. (Eds.), *Handbook of Second and Foreign Language Writing* (pp. 387-403). Berlin: Walter de Gruyter.
- Strobl, C. (2014). Affordances of Web 2.0 technologies for collaborative advanced writing in a foreign language. *Calico Journal*, 31(1), 1-18.
- Swain, M., & Lapkin, S. (1998). Interaction and second language learning: Two adolescent French immersion students working together. *The Modern Language Journal*, 82(3), 320-337.

- Suwantharathip, O., & Wichadee, S. (2014). The Effects of Collaborative Writing Activity Using Google Docs on Students' Writing Abilities. *Turkish Online Journal of Educational Technology-TOJET*, 13(2), 148-156
- Wigglesworth, G., & Storch, N. (2009). Pair versus individual writing: Effects on fluency, complexity, and accuracy. *Language Testing*, 26(3), 445-466.
- Woo, M. M., Chu, S. K. W., & Li, X. (2013). Peer-feedback and revision process in a wiki mediated collaborative writing. *Educational Technology Research and Development*, 61(2), 279-309.
- Yin, R. K. (2009). *Case study research and applications: Design and methods*. Sage Publications.