

Technologies in English as a Second/Foreign Language Writing Classes

Tecnologias em aulas
de escrita em inglês
como segunda língua/
língua estrangeira

Tecnologías en clases
de escritura en inglés
como segunda lengua/
lengua extranjera

Maria-Lourdes Lira-Gonzales* 
Kuok Wa Chao Chao** 
Joanie David*** 



Para citar este artículo

Lira-Gonzales, M. L., Chao Chao, K. W. y
David, J. (2023). Technologies in English
as a Second/Foreign Language Writing
Classes. *Folios*, (58), 173-189.
<https://doi.org/10.17227/folios.58-16435>

- * Universidad de Quebec en Abitibi-Témiscamingue, Canadá. Doctora en Psicopedagogía por la Universidad de Montreal, Canadá.
Correo electrónico: maria.lira@uqat.ca
- ** Universidad de Costa Rica, Costa Rica. Doctorado en Medición y Evaluación en Educación, Universidad de Montreal, Canadá.
Correo electrónico: kuok.chao@ucr.ac.cr
- *** Universidad de Quebec en Abitibi-Témiscamingue, Canadá. Bachillerato en TESL, Canadá.
Correo electrónico: joanie.david@outlook.com

Artículo recibido
05•04•2022

Artículo aprobado
13•02•2023

Abstract

This paper presents a systematic review on the use of technologies in English as a Second Language (ESL) and as a Foreign Language (EFL) writing classes. The pursued objectives were to: 1) review recent empirical studies for the use of technologies in ESL/EFL writing classes; and 2) synthesize and assess the impacts of digital technologies on written texts and the writing process. Hence, the findings of this review are relevant because the arrival of new technologies has changed the environment in which digital writing is practiced and there is a lack of rigorous literature reviews that allow a better comprehension of these impacts (Lira-Gonzales & Grégoire, 2022).

Keywords

digital writing; ESL/EFL; educational technology; writing skills; English

Resumo

Este artigo apresenta uma revisão sistemática sobre o uso de tecnologias em aulas de escrita de Inglês como Segunda Língua (ISL) e Língua Estrangeira (ILE). Os objetivos foram: 1) revisar estudos empíricos recentes para o uso de tecnologias nas aulas de redação ISL/ILE; e 2) sintetizar e avaliar os impactos das tecnologias digitais em textos escritos e no processo de escrita. Portanto, os achados desta revisão são relevantes porque a chegada de novas tecnologias mudou o ambiente em que a escrita digital é praticada e há um vácuo de rigorosas revisões bibliográficas que permitem uma melhor compreensão desses impactos (Lira-Gonzales e Grégoire, 2022).

Palavras-chave

escrita digital; ISL/ILE; tecnologia educacional; habilidades de escrita; inglês

Resumen

Este artículo presenta una revisión sistemática sobre el uso de tecnologías en clases de escritura de inglés como Segunda Lengua (ISL) y Lengua Extranjera (ILE). Los objetivos perseguidos fueron: 1) revisar estudios empíricos recientes para el uso de tecnologías en las clases de escritura de ISL/ILE y 2) sintetizar y evaluar los impactos de las tecnologías digitales en los textos escritos y en el proceso de escritura. Por lo tanto, los hallazgos de esta revisión son relevantes porque la llegada de las nuevas tecnologías ha cambiado el entorno en el que se practica la escritura digital y existe un vacío de revisiones bibliográficas rigurosas que permitan una mejor comprensión de estos impactos (Lira-Gonzales y Grégoire, 2022).

Palabras clave

escritura digital; ISL/ILE; tecnología educativa; habilidades de escritura; inglés

Introduction

The process of digitalization is leading to a fundamental social change affecting all spheres of social life (Kergel & Heidkamp, 2022). In the pedagogical field, more specifically in the field of second language pedagogy, there is a need for restructuring key concepts such as learning, teaching and education that consider socio-economic and cultural changes. Indeed, “with the ever-growing significance and diversification of media, there is a call to challenge, renegotiate and expand on current discourses that have formulated media literacy as an integral objective in 21st-century education” (Lütge, 2022 p. 1).

This paper reports on a systematic literature review on the use of technologies in ESL/EFL writing classes. In a previous knowledge synthesis concerning the use of technologies in L1 and L2 classes (Lira-Gonzales & Grégoire, 2022), the scope of study was limited to elementary and secondary educational levels, and further research in the context of tertiary education was proposed.

The present literature review responds to that call aiming to: (1) review empirical studies carried out between 2015 and 2021 on the use of technologies in ESL/EFL tertiary writing classes and (2) synthesize and assess the impacts of digital technologies on written texts and the writing process.

We hope that this literature review contributes to analyse the implications of cultural change on second language education in the digital age by bringing together various studies engaging with electronic writing practices in second language education. In painting a picture as to the current landscape of second and foreign language writing practice in formal and informal contexts, this work aims to outline practices of use that are promising for implementation within second and foreign language education.

Method

To include only the most recent research findings, we reviewed full articles published in peer-reviewed academic journals between 2015 and 2021.

To conduct the literature review we established a series of keywords connected with different aspects of digital writing. As in Lira-Gonzales and Grégoire (in press), we based all searches on the word “writing” combined with a modifier related to concepts, practices, and tools in digital technologies. Table 1 presents the keywords.

Table 1. Literature review keywords

Primary Keyword	Secondary Keywords	
	English	
Writing	+	<ol style="list-style-type: none"> 1. Digital 2. Educational technology/Electronic learning 3. ICT 4. Handheld devices 5. Smartphone 6. SMS 7. Tablet (iPad) 8. Laptop computers 9. Computers 10. Word processing 11. Blog 12. Microblog 13. Twitter 14. Collaborative writing

Source: Author's own elaboration (2021).

The process of analysing the 355 references initially found followed the criteria listed in Lira-Gonzales and Grégoire (in press), except for the students' educational levels. Therefore, the relevance of an article was determined by the following conditions:

1. It must address a form of digital writing practiced by learners.
2. It must be published in a peer-reviewed academic journal.
3. It must present the results of an original empirical study.
4. It must be focused on students (learning), not teachers.
5. It must present a study conducted at a college, university, or language institute (adult students).
6. It must present a study concerned with English language learning as an L2/FL.

We independently vetted a sample of 60 texts and achieved 98.5% intercoder reliability. After analysing the titles and abstracts of all 355 texts, 15% were identified as out of scope, 2.8% were not published in academic journals, 2% were not based on original empirical research, 0.3% focused exclusively on teachers, 11% were concerned with either elementary or secondary school, 31% were published prior to

2015, and 5% investigated languages other than English. In the end, 32.9% of the found references met all the criteria for retention according to the systematic review objectives.

We read and analysed each retained article, importing their PDFs into NVivo and coding them according to the categories in Lira-Gonzales and Grégoire (in press). Table 2 presents the text category codes.

Table 2. Text categories codes

Database	Possible values
Research questions	Objectives considered relevant for this knowledge synthesis
Country	Country in which the study took place
Data collection environment	Urban, suburban, rural environment, environment not mentioned
Teaching level	College, university, language institute
Sector	Private, public, no sector mentioned
Length of technology implementation	Less than 2 months, 2-4 months, 5-7 months, more than 8 months, no duration mentioned
Web-based tools	Blogs, computers, e-readers, Edmodo, Facebook, Instagram, messaging apps, podcasts, smartphone, storytelling websites, Twitter, wikis, word processors
Pedagogical use	Argumentative texts, collaborative writing, academic writing, peer feedback, student perceptions, summary writing
Equipment	Desktop computer, laptop computer, tablet, smartphone, e-reader, equipment not mentioned
Qualitative data collection method	Interviews, observation, questionnaire, student's productions, focus groups
Quantitative data collection method	Standardized tests, evaluation by criteria, keystroke logging
Analysis method	Inductive analysis, content analysis, descriptive statistics, inferential statistics
Research types	Experimental, quasi-experimental, case study, action-research, control group, no control group, qualitative, quantitative, mixed methods
Number of participants	0-10, 11-25, 26-50, 51-75, 76-100, 101+
Conclusions and results	Conclusions and results related to objectives considered relevant

Source: Author's own elaboration (2021).

These codes allowed us to produce a cross-reference matrix to understand the studies' characteristics, presented in the following sections.

Results and discussion

In the following sections we will present and discuss the results of this systematic review on the use of technologies in ESL and EFL tertiary writing classes.

For research purposes, we preselected 355 journal articles referencing the impact of information and communication technologies (ICTs) on ESL/EFL writing. We excluded 248 articles according to the following criteria: (1) participants not in language institutes, college, or university (n=44); (2) non-empirical studies (n=6); (3) teacher-centred studies (e.g., teachers' perceptions or practices related to the use of ICTs to improve writing) (n=1); (4) studies of

L2s other than English (n=19); (5) studies outside the scope of the knowledge synthesis (e.g., studies of ICTs used for pedagogical purposes without examining their impact on writing skills) (n=60); (6) studies not published in academic journals (n=9); and (7) studies published before 2015 (n=109). Based on the established criteria and methodology, we selected 107 articles for this review (henceforth, the retained studies).

The following subsections present a synthesis of the 107 studies selected for systematic review.

Research designs. Research on L2/FL digital writing was conducted following qualitative (n=37), quantitative (n=18), and mixed method (n=52) designs.

For research type, 47 studies were quasi-experimental, while 17 were experimental. Only 34 used a control group. In certain cases, authors qualified their studies as experimental even though they did not meet the defining characteristics of true experimental studies (i.e., random selection, experimental treatment, pre- and post-testing). In Altakhaineh and Al-Jallad (2018) and Alharbi's (2015) studies, for example, the participants were not randomly selected nor assigned to research groups. Finally, case study (n=39) was a more frequent methodology than action project (n=4).

The most common instruments used in these studies were students' written productions (n=107), questionnaires (n=64), and evaluations by criteria (n=46). Interviews (n=30), standardized tests (n=21), observation grids (n=9), focus groups (n=6), and keystroke logging analysis(n=1) were less frequent.

This section describes the research contexts of the retained studies, including data collection, educational level, number of participants, and duration of technology use.

Data collection. Thirty-seven studies were conducted in urban areas and one rurally. For 69 studies, no information was provided on data collection. Thirty-two specified taking place in public institutions, 17 were conducted in the private sector, two dealt with both private and public sectors, and the remaining 60 did not specify.

Educational level and number of participants. Eight studies were conducted at colleges, 91 at universities, and 8 at language institutes. Low numbers of participants were reflected in the methodologies; 6 studies had fewer than 10 participants; 22 had between 11 and 25; 32 studies had 26 to 50; 28 had 51 to 75; 13 had 76 to 100; and only 6 studies had more than 101 participants.

Duration of technology use. Most of the retained studies (n=82) mentioned the amount of time students spent using writing technologies in language classrooms. Fifty-four studies indicated duration of 2 to 4 months; 7 were carried out in 5 to 7 months; 1 lasted more than 8 months; and 20 took less than 2 months. Twenty-five studies did not mention the duration of technology use. Since these timeframes often reflect the study's total duration and not the amount of class time spent using technology, it is difficult to know if technology use was extensive or limited to specific tasks.

Approaches towards digital writing in ESL/EFL tertiary language writing classes

In general, the retained studies approached digital writing from two distinct perspectives: they either examined students' writing performance through specific pedagogical uses of digital technologies (n=32) or focused on students' perceptions toward a particular emerging digital technology (n=37). Most investigated students' writing performance and perceptions (n=42). In this review, we used "perceptions" as an umbrella term for students' attitudes, preferences, and opinions regarding the use of digital technologies in ESL/EFL writing classes.

One common pedagogical use of digital technologies is feedback provision, both for teacher (n=13) and peer feedback (n=26). The studies' findings share the positive impact of feedback on students' writing performance in different areas, such as academic writing (e.g., Chiang, 2020), argumentation skills (e.g., Kathpalia & See, 2016) summary writing (e.g., Termsinsuk, 2015) and student perception (e.g., Chen, W. C. et al., 2015). Findings also agree on students' positive perceptions towards peer and

teacher feedback provision (e.g., Alvira, 2016). One of the advantages of using digital technology in classrooms is that it allows students to receive formative feedback—not only from their teachers, but also their peers and, potentially, the public at large, rather than being limited by traditional classroom affordances (Lira-Gonzales & Nassaji, 2019).

Writing non-traditional textual genres

Blog writing. Among the 24 studies related to blogs, 12 reported positive outcomes in terms of: reading and writing learners' performance (Alharbi, 2015; Asoodar et al., 2016; Lin, 2015; Sauro & Sundmark, 2016; Tan, 2017); metalinguistic awareness and critical thinking (Chen, 2016; Gunduz, 2016), self-regulation (Fathi et al., 2019), argumentation structure (Kathpalia & See, 2016), collaboration skills (Roy, 2016; Zenouzagh, 2018) and summary writing ability (Termsinsuk, 2015). Five studies reported positive student perceptions towards the use of blog writing in L2 classes and showed that students who hold positive perceptions towards non-traditional textual genres participated actively in online activities (Chen, 2015; Chen, W. C. et al., 2015; Rashid et al., 2017; Sakamoto, 2017; Yang, 2018). Three studies also reported students' perceptions of corrective feedback through blog writing; whereas the findings of two of them were positive (Pollard, 2015; Xu & Yu, 2018), 1 study (Huang, 2016) found that students' perceptions towards blogs were positive, even though they were mixed in terms of the suitableness of peer feedback.

Finally, 4 studies reported no effect on writing skills (Jayaron & Abidin, 2016; Özdemir & Aydin, 2017; Pham & Usaha, 2016; Thomas, 2017).

Facebook. The 19 studies on the use of Facebook in L2 writing comprised 10 illuminating positive outcomes for students' performance including: intrinsic motivation and self-efficacy improvement (Alberth, 2019), vocabulary acquisition (Alkurdi et al., 2019), writing accuracy (Bailey & Judd, 2018; Barrot, 2016; Elfatah & Ahmed, 2016; Ho et al., 2020; Rodliyah, 2016; Yen et al., 2015) and writing fluency improvement (Dizon, 2016) as well as increased engagement with task review (Saeed & Ghazali, 2017).

Seven studies outlined positive perceptions towards Facebook as an online learning, five of them reported on students perceiving Facebook as an environment facilitating learning English (AbuSa'aleek, 2015; Alam & Mizan, 2019; Bailey et al., 2017; Kitchakarn, 2016; Razak & Saeed, 2015); positive perceptions were also found towards using Facebook to provide and receive peer corrective feedback on grammatical errors (Amin et al., 2016) and as a means to improve students' motivation to writing in English (Yu, 2018). Finally, two studies noted no effect on students' writing attributable to Facebook use (Altakhineh & Al-Jallad, 2018; Dizon & Thanyawatpokin, 2018).

Wikis. Of 18 studies, ten denoted positive effects on students' performance stemming from the use of wikis including improvement in: writing accuracy (Akbari & Erfani, 2018; Estaji & Salimi, 2018; Li & Zhu, 2017; Zou et al. 2016), collaborative learning (Castillo et al., 2017; Franco-Camargo & Camacho-Vásquez, 2018; Hsu, 2019; Kioumarsi et al., 2018) and summarization skills (Wu, 2016). One study reported that wiki mediated peer feedback led to writing abilities improvement (Gharehbeg et al., 2019).

Two studies found learners' perceptions and preferences towards the use of wikis to be positive, showing students' preferring wikis to pen-and-paper writing (Chen, C. J. et al., 2015; Wang, 2015). Studies also reported that the use of wikis in L2 classes reduced writing anxiety levels (Iksan & Halim, 2018; Kassem, 2017) and showed that student enjoyed wiki mediated peer feedback (Vahedipour & Rezvani, 2017). 2 studies underscored that although participants were motivated using wikis and the interaction they allow, students experienced certain difficulties using these tools (Hudson, 2018; Ramanair et al., 2017). Finally, 1 study (Hsu & Lo, 2018) reported no effect on writing performance.

Messaging apps. Messaging apps were also of interest. Of 10 related studies, 7 found positive effects on students' performance and 1 found positive student perceptions. Only 1 reported no signs of significant long-term improvement (see Table 3).

Table 3. Messaging apps

Studies	Participants and setting	Methods	Results
Aghajani and Adloo (2018)	70 EFL university students in Iran	Quasi-experimental, quantitative 1 EGR, 1 CGR Tasks: Essay writing using Telegram (EGR) or pen and paper (CGR).	EGR outperformed CGR in content, organization, and vocabulary. Students had positive attitudes toward using Telegram.
Andujar and Salaberri-Ramiro (2019)	64 EFL university students in Spain	Quasi-experimental, mixed methods 2 EGR, no CGR Task: Discussion threads on mobile environment (EGR1, WhatsApp; EGR2, Facebook)	EGR1 outperformed EGR2 in affective engagement, but not cognitive engagement. No difference was found in behavioural engagement in both groups.
Awada (2016)	52 EFL university students (no country specified)	Quasi-experimental, mixed methods 1 EGR, 1 CGR Task: Critiquing essay writing on WhatsApp (EGR) or with pen and paper (CGR)	EGR outperformed CGR in critique writing proficiency and motivation for learning.
Azodi and Lotfi (2020)	74 EFL university students in Iran	Quasi-experimental, quantitative 1 EGR, 1 CGR Tasks: Essay writing using Telegram (EGR) or conventional instruction (CGR)	EGR outperformed CGR in writing accuracy and complexity.
Heidari et al. (2018)	60 EFL university students in Iran	Quasi-experimental, quantitative 1 EGR, 1 CGR Task: Narrative essays using Telegram instructions (EGR) or face-to-face instructions (CGR)	There was an improvement in EGR's English narrative writing performance.
Li, L. et al. (2019).	79 ESL language institute students in China	Quasi-experimental, quantitative 2 EGR, no CGR Task: Argumentative essays (EGR, wikis; EGR1, small messaging group [SMG], EGR2, big messaging group [BMC])	SMG students significantly outperformed BMC students in essay quality.
Pourdana et al. (2021)	42 EFL language institute students in Iran	Quasi-experimental, mixed methods 1 EGR, no CGR Task: Revision of writing assignment in WhatsApp	There was no significant long-term improvement in discourse markers after receiving instructor written corrective feedback.
Rostami and Khodabandeh (2019)	30 EFL university students in Iran	Quasi-experimental, mixed methods 2 EGR, no CGR Task: Essay writing using e-mail (EGR 1) or Telegram (EGR2)	Essays from Telegram were significantly more informal than essays sent by e-mail.
Villafuerte and Romero Andonegi (2017)	40 EFL university students in Spain and 80 EFL university students in Ecuador	Questionnaire, quantitative 2 EGR, no CGR Task: Questionnaire	Spanish learners showed a preference for WhatsApp, whereas Ecuadorian learners preferred Facebook.
Yan (2019)	88 EFL university students in China	Quasi-experimental, mixed methods 1 EGR, no CGR. Task: Collaborative essay writing using WeChat	WeChat was found to improve students' efficiency of writing practice, frequency of interaction, and critical thinking.

Source: Author's own elaboration (2021).

Smartphones and tablets. Four studies honed in on the use of smartphone applications. Three found positive outcomes (2 in terms of improvement of

writing skills and 2 in terms of students' perceptions), while 1 noted no improvement in students' writing achievement in the experimental setting (see Table 4).

Table 4. Smartphones and tablets

Studies	Participants and setting	Methods	Results
Klimova and Polakova (2020)	28 EFL university students in the Czech Republic	Survey questionnaire, quantitative 1 EGR, no cgr Tasks: Word/phrase translation from L1 to English using an EFL vocabulary-learning mobile application	Students found the corrective feedback provided through the app useful.
Lin et al. (2020)	34 EFL university students in Taiwan	Case study, mixed methods 2 EGR, no cgr Task: Essay writing using augmented-reality context-aware ubiquitous writing (ARCAUW) and mobile-assisted classroom-based writing	Both groups improved in essay writing. ARCAUW led to the development of task schema in long-term memory, motivation, and self-regulation in writing.
Lin (2019)	57 EFL college students in Taiwan	Quasi-experimental, mixed methods 1 EGR, 1 cgr. Task: Face-to-face using pen and paper (cgr) and online using tablets (EGR) for peer feedback	No significant difference in writing achievement was found.
Siddique (2017)	90 ESL college students in Pakistan	Quasi-experimental, mixed methods 1 EGR, 1 cgr. Tasks: Descriptive essay writing using mobile phone instructions (EGR) or PowerPoint instructions (cgr)	EGR outperformed cgr in the post-tests. EGR students reported being more motivated to write essays than those in cgr.

Source: Author's own elaboration (2021).

Twitter. Three studies focused on using Twitter, with all reporting positive findings—two regarding writing performance and one regarding students' perceptions (see Table 5).

Table 5. Twitter

Studies	Participants and setting	Methods	Results
Ahmed (2015)	60 female university EFL students in Saudi Arabia	Quasi-experimental, quantitative 1 EGR, 1 cgr Tasks: Essay writing using Twitter (EGR) or pen and paper (cgr)	EGR outperformed cgr on the development of ideas, content, organization, voice, and style.
Cabrer and Castillo (2017)	15 EFL university students in Ecuador	Quasi-experimental, mixed methods 1 EGR, no cgr Task: Using Socrative, Padlet, and Twitter to prepare for writing activities	Significant progress was achieved in the organizational structure of the text, correct usage of language, punctuation, coherence, and cohesion.
Taskiran et al. (2018)	90 EFL university students in Turkey	Questionnaire survey 1 EGR, no cgr Tasks: Writing Tweets	Students held positive perceptions toward Twitter activity in language learning.

Source: Author's own elaboration (2021).

Instagram. Five studies investigated the use of Instagram and its effects on students' writing skills. Four reported positive perceptions stemming from the use of Instagram and one reported that while

students agreed Instagram helped improve their language proficiency, they preferred in-class instruction (see Table 6).

Table 6. Instagram

Studies	Participants and setting	Methods	Results
Akhiar et al. (2017)	101 EFL university students in Malaysia	Questionnaire, focus groups, mixed methods 1 EGR, no CGR. Tasks: Writing on Instagram	Although students had positive perceptions toward using Instagram to improve their writing skills, most (67%) reported a preference for class instruction over Instagram.
Gonulal (2019)	97 EFL/ESL participants from various countries	Mixed methods 1 EGR, no CGR Task: Self-report survey	Participants perceived Instagram as a good platform for language learning. Negative perceptions were marginal.
Handayani et al. (2018)	34 EFL university students in Indonesia	Pre-experimental, quantitative 1 EGR, no CGR Tasks: Opinion essays, peer feedback on Instagram	Students improved their scores on the post-tests. They held positive perceptions toward the use of Instagram in writing classes.
Mustain et al. (2019)	100 EFL university students in Indonesia	Quasi-experimental, mixed-methods 1 EGR, no CGR. Tasks: Writing assignments on Instagram	Students held positive perceptions toward the use of Instagram in writing classes, feeling more engaged in meaningful interaction.
Rinda et al. (2018)	70 EFL adult students (no country specified)	Case study, mixed methods 1 EGR, no CGR. Task: Writing on Instagram	Students believed that peer feedback and Instagram helped them correct their spelling, learn new vocabulary, and find ideas.

Source: Author's own elaboration (2021).

Edmodo. Three studies used Edmodo, all noting that the experimental groups outperformed the control groups and students' perceptions were positive (see Table 7).

Table 7. Edmodo

Studies	Participants and setting	Methods	Results
Alsmari (2019)	80 EFL university students in Saudi Arabia	Experimental 1 EGR, 1 CGR Task: Paragraph writing using Edmodo (EGR) or pen and paper (CGR)	EGR group outperformed CGR in the post-test. The use of Edmodo increased EGR's motivation to learn.
Hosseinpour et al. (2019)	53 EFL university students in Iran	Quasi experimental, mixed methods 1 EGR, 1 CGR Task: Essay writing using Edmodo (EGR) or pen and paper (CGR)	EGR outperformed CGR in the post-test on organization, vocabulary, and mechanics. EGR had positive perceptions of using Edmodo.
Ma'azi and Janfeshan (2018)	40 EFL adult learners in Iran	Experimental, quantitative 1 EGR., 1 CGR Task: Writing compositions using Edmodo (EGR) or pen and paper (CGR)	EGR outperformed CGR in the post-test. Participants had positive attitudes toward Edmodo.

Source: Author's own elaboration (2021).

Storytelling websites or apps. As can be seen in Table 8, 2 studies focused on storytelling websites and both found positive effects on learning and student perceptions.

Table 8. Storytelling websites or apps

Studies	Participants and setting	Methods	Results
Chiang (2020)	18 EFL university students in Taiwan	Exploratory case study, mixed methods 1 EGR, no CGR Tasks: Academic essays using Storybird	Students self-rated digital literacy improved after the treatment. They held positive perceptions towards integrating Storybird with L2 writing classes.
Li, K. L. et al. (2019)	6 ESL university students in Malaysia	Quasi-experimental, qualitative 1 EGR, no CGR. Tasks: Narrative essays using iSpring Pro 6.2	Using e-book writing software for process-based writing enhanced students' motivation and writing outcomes.

Source: Author's own elaboration (2021).

Word processors. Twenty studies concentrated on the use of word processors. Fifteen studies noted positive effects on writing skills including: students' engagement in feedback writing through the use of Google Docs (Alharbi, 2020; Alsubaie & Ashuraidah, 2017; Jeong, 2016; Lin, 2019; Sherafati et al., 2020; Yang, 2018), writing motivation (Alvira, 2016; Liu & Lan, 2016; Yilmaz, 2018), use and awareness of learning strategies (Bailey & Cassidy, 2019), writing accuracy (Ebadi & Rahimi, 2017; Pham et al., 2020; Seyyedrezaie et al., 2016; Wang, 2017), and writing apprehension lessening (Marandi & Seyyedrezaie, 2017). However, 1 study (Cequeña, 2020) reported that no significant difference was found in students' writing performance.

Five studies found positive perceptions towards the use of Google Docs in L2 writing (Aqiera et al., 2017; Bikowski & Vithanage, 2016; Ebadi & Rahimi, 2019; Sevilla-Pavón, 2015; Vakili and Ebadi, 2019).

Conclusion

While multiliteracies and related pedagogies have been established as a priority within general pedagogy for some time, there remains a lack of consensus as to how this fact interfaces with established practice in second and foreign language education (concerning teacher education, teaching methodology and curricular development), particularly considering rapid developments in digital

technologies in the past decades (Lütge, 2022). The findings of this literature review provide a portrait of the scope of media and literacies for second and foreign language education in the digital age and provide examples of best practices for working with media in formal language learning contexts.

In second and foreign language classrooms writing assessment traditionally uses paper-based writing tasks. However, as the studies reported in this literature review show, students can employ digital media to produce their writing; they can write with the computer using word process instead of handwriting their essays (e.g., Lin, 2019; Wang, 2017) and compose their writing online on blogs (e.g., Asoodar et al., 2016; Tan, 2017), wikis (e.g., Hsu, 2019). Moreover, students can produce digital compositions that allow them entering into relationships with new kinds of audiences in different platforms such as Twitter (e.g., Ahmed, 2015) or Instagram (e.g., Mustain et al., 2019). This shows that "technology-enhanced writing tasks involve both technical and social elements —the former mainly using Web 2.0 and the latter involving a broader understanding of the role of audience in writing" (Lee, 2017, p. 123).

In addition, ESL/EFL teachers should consider that integrating technologies in writing classes not only promote student collaboration, but also allow students to comment on their peers' writings and

receive feedback in return (e.g., Amin et al., 2016; Castillo et al., 2017). This finding is particularly important since although second and foreign language learners tend to be reliant on teacher feedback the teacher feedback alone is inadequate to help students develop independence and self-editing skills (Lee, 2017). Peer feedback allows that by temporarily taking on the role of the teacher through peer review, students actively engage in their own learning and assume responsibility of their learning (Liu & Hansen, 2002). At the same time, students can identify strengths and weaknesses in their writing, hence improving writing proficiency and driving them further toward autonomy (Hansen & Liu, 2005).

The findings of this literature review show that students hold positive perceptions of social networking and online publishing which provide a powerful source of incentives for writing; and yielded positive outcomes stemming from the use of these technologies to improve student writing performance. However, as mentioned in Lira-Gonzales and Grégoire (2022), this may create an impression that Web 2.0 technologies are more effective than they truly are, as studies with negative or neutral outcomes may be less disseminated. Furthermore, studies with positive outcomes often looked at multiple aspects of writing, making it harder to attribute students' success to the use of digital technologies specifically.

Finally, in this systematic review, we identified certain recurring experimental weaknesses, such as lack of control groups, experimental periods of insufficient length, and low participant numbers. Further research avoiding such design flaws is required.

References

AbuSa'aleek, A. O. (2015). Students' perceptions of English language learning in the Facebook context. *Teaching English with Technology*, 15(4), 60-75. <https://www.scopus.com/inward/record.uri?eid=2-s2.0-84949659196&partnerID=40&md5=adc-f7e1dd2b604c60458621998183525>.

- Aghajani, M. & Adloo, M. (2018). The effect of online cooperative learning on students' writing skills and attitudes through Telegram application. *International Journal of Instruction*, 11(3), 433-448. <https://doi.org/10.12973/iji.2018.11330a>.
- Ahmed, M. A. E. A. S. (2015). The effect of Twitter on developing writing skill in English as a foreign language. *Arab World English Journal (AWE) Special Issue on CALL*, 2(1), 134-149.
- Akbari, F. & Erfani, S. S. (2018). The effect of Wiki and e-portfolio on writing skill of Iranian intermediate EFL learners. *International Journal of Applied Linguistics and English Literature*, 7(3), 170-180. <http://dx.doi.org/10.7575/aiac.ijael.v.7n.3p.170>.
- Akhbari, A., Mydin, A. A. & Kasuma, S. A. A. (2017). Students' perceptions and attitudes towards the use of Instagram in English language writing. *Malaysian Journal of Learning and Instruction, Special issue on Graduate Students Research on Education*, 47-72. <https://www.scopus.com/inward/record.uri?eid=2-s2.0-85041138422&partnerID=40&md5=595be18e7b4a977e29ef4f5f4a38b534>.
- Alam, M. Z. & Mizan, F. B. (2019). Facebook as a formal instructional environment in facilitating L2 writing: Impacts and Challenges. *International Journal of Language Education*, 3(2), 41-48. <https://search.ebscohost.com/login.aspx?direct=true&db=eric&AN=EJ1244361&lang=fr&site=ehost-live>.
- Alberth. (2019). Use of Facebook, students' intrinsic motivation to study writing, writing self-efficacy and writing performance. *Technology, Pedagogy and Education*, 28(1), 21-36. <https://doi.org/10.1080/1475939X.2018.1552892>.
- Alharbi, M. (2015). Effects of Blackboard's discussion boards, blogs and wikis on effective integration and development of literacy skills in EFL Students. *English Language Teaching*, 8(6), 111-132. <https://doi.org/10.5539/elt.v8n6p111>.
- Alharbi, M. A. (2020). Exploring the potential of Google Doc in facilitating innovative teaching and learning practices in an EFL writing course. *Innovation in Language Learning and Teaching*, 14(3), 227-242. <https://doi.org/10.1080/17501229.2019.1572157>.
- Alkurdi, I. H. A., Rashid, R. A. & Mohamed, A. F. (2019). The perception of TEFL students on the use of Facebook groups in teaching EFL writing. *International Journal of Innovation, Creativity and Change*, 7(7), 291-304. <https://www.scopus.com/>

- inward/record.uri?eid=2-s2.0-85075291590&partnerID=40&md5=477bff3b3d12f84a7a27d1fcfd51d3550.
- Alsmari, N. A. (2019). Fostering EFL students' paragraph writing using Edmodo. *English Language Teaching*, 12(10), 44-54. <https://doi.org/10.5539/elt.v12n10p44>.
- Alsubaie, J. & Ashuraiddah, A. (2017). Exploring writing individually and collaboratively using Google Docs in EFL contexts. *English Language Teaching*, 10(10), 10-30. <https://doi.org/10.5539/elt.v10n10p10>.
- Altakhineh, A. R. M. & Al-Jallad, M. Z. (2018). The use of Twitter and Facebook in teaching mechanics of writing to Arabic-Speaking EFL learners. *International Journal of Emerging Technologies in Learning (iJET)*, 13(09), 4-14. <https://doi.org/10.3991/ijet.v13i09.8457>.
- Alvira, R. (2016). The impact of oral and written feedback on EFL writers with the use of screencasts. *Profile Issues in Teachers' Professional Development*, 18(2), 79-92. <http://dx.doi.org/10.15446/profile.v18n2.53397>
- Amin, N. M., Rahman, A., Azam, N., Sharipudin, M.-N., Bakar, A. & Saifulnizam, M. (2016). The practice of "grammar naziness" on Facebook in relation to generating grammar learning: A motivation or demotivation in updating statuses in English on Facebook. *Pasaa: Journal of Language Teaching and Learning in Thailand*, 52, 83-104.
- Andujar, A. & Salaberri-Ramiro, M. S. (2019). Exploring chat-based communication in the EFL class: Computer and mobile environments. *Computer Assisted Language Learning*. <https://doi.org/10.1080/09588221.2019.1614632>.
- Aqiera, N. S., Clement, F. S. & Abd Ghani, K. (2017). Exploring learners contribution and experience in web-based collaborative report writing. *Journal of Cognitive Sciences and Human Development*, 2(2). <https://doi.org/10.33736/jcshd.511.2017>.
- Asoodar, M., Atai, M. R. & Vaezi, S. (2016). Blog-integrated writing with Blog-Buddies: EAP Learners' Writing Performance. *Journal of Educational Computing Research*, 54(2), 225-252. <https://doi.org/10.1177/0735633115615588>.
- Awada, G. (2016). Effect of WhatsApp on critique writing proficiency and perceptions toward learning. *Cogent Education*, 3(1). <https://doi.org/10.1080/2331186X.2016.1264173>.
- Azodi, N. & Lotfi, A. (2020). E-collaborative tasks and the enhancement of writing performance among Iranian university-level EFL learners. *Turkish Online Journal of Distance Education*, 21(1), 165-180. <https://search.ebscohost.com/login.aspx?direct=true&db=eric&AN=EJ1239120&lang=-fr&site=ehost-live>.
- Bailey, D. & Cassidy, R. (2019). Online peer feedback tasks: Training for improved L2 writing proficiency, anxiety reduction, and language learning strategies. *CALL-EJ*, 20(2), 70-88. <https://www.scopus.com/inward/record.uri?eid=2-s2.0-85071043625&partnerID=40&md5=4f88cf607fa4b4a629371996b-6bef6c9>.
- Bailey, D., Park, I. & Haji, S. A. (2017). An investigation of Facebook for language learning: Better understanding perceptions and participation. *CALL-EJ*, 18(2), 14-30. <https://www.scopus.com/inward/record.uri?eid=2-s2.0-85028934926&partnerID=40&md5=25d4c44479c2146b38d7744543a12fc7>.
- Bailey, D. R. & Judd, C. (2018). The effects of online collaborative writing and TOEIC writing test-preparation on L2 writing performance. *Journal of Asia TEFL*, 15(2), 383-397. <https://doi.org/10.18823/asiatefl.2018.15.2.1.383>.
- Barrot, J. (2016). Using Facebook-based e-portfolio in ESL writing classrooms: Impact and challenges. *Language, Culture and Curriculum*, 29(3), 286-301. <https://doi.org/10.1080/07908318.2016.1143481>.
- Bikowski, D. & Vithanage, R. (2016). Effects of web-based collaborative writing on individual L2 writing development. *Language Learning and Technology*, 20(1), 79-99. <http://llt.msu.edu/issues/february2016/bikowskivithanage.pdf>.
- Cabrera, P. & Castillo, L. (2017). Flipping the classroom through the use of Socrative, Padlet, and Twitter in an academic writing course: A case of pre-service EFL teachers in Ecuador. *Turkish Online Journal of Educational Technology, Special Issue IETC*, 331-336. <https://www.scopus.com/inward/record.uri?eid=2-s2.0-85045200366&partnerID=40&md5=97ce2b7e0ffd46822fcf47c3ba3533c4>.
- Castillo, L., Ochoa, C., Cabrera, P., & Vargas, A. (2017). The use of wikis to enhance collaborative reading and writing skills in a pre-service EFL teacher training program in an Ecuadorian academic context. *Turkish Online Journal of Educational Technology, Special Issue INTE*, 652-659. <https://www.scopus.com/inward/record.uri?eid=2-s2.0-85057640954&partnerID=40&md5=1bb9b8078840b999490f64af-c8722bd8>.

- Cequeña, M. B. (2020). Correlations of self-perception in reading and in writing, reading and writing performance in web-mediated and conventional writing instruction. *Education and Information Technologies*, 25(2), 1067-1083. <https://search.ebscohost.com/login.aspx?direct=true&db=eric&AN=EJ1247123&lang=fr&site=ehost-live>.
- Chen, C. J., Chuah, K. M., Tho, J. & Teh, C. S. (2015). Attitudinal factors affecting wiki group collaboration for English writing. *European Journal of Open, Distance and E-Learning*, 18(2), 22-36. <https://search.ebscohost.com/login.aspx?direct=true&db=eric&AN=EJ1078387&lang=fr&site=ehost-live>.
- Chen, P.-J. (2016). Learners' metalinguistic and affective performance in blogging to write. *Computer Assisted Language Learning*, 29(4), 811-835. <http://dx.doi.org/10.1080/09588221.2015.1068813>.
- Chen, R. (2015). L2 blogging: Who thrives and who does not? *Language, Learning & Technology*, 19(2), 177-196. <http://llt.msu.edu/issues/june2015/chen.pdf>.
- Chen, W.-C., Shih, Y.-C. D., & Liu, G.-Z. (2015). Task Design and Its Induced Learning Effects in a Cross-Institutional Blog-Mediated Telecollaboration. *Computer Assisted Language Learning*, 28(4), 285-305. <https://doi.org/10.1080/09588221.2013.818557>.
- Chiang, M. H. (2020). Exploring the effects of digital storytelling: A case study of adult L2 writers in Taiwan. *IAFOR Journal of Education*, 8(1), 65-82. <https://doi.org/10.22492/ije.8.1.04>.
- Dizon, G. (2016). A comparative study of Facebook vs. paper-and-pencil writing to improve L2 writing skills. *Computer Assisted Language Learning*, 29, 1-10. <https://doi.org/10.1080/09588221.2016.1266369>.
- Dizon, G. & Thanyawatpokin, B. (2018). Web 2.0 tools in the EFL classroom: Comparing the effects of Facebook and blogs on L2 writing and interaction. *The Eurocall Review*, 26(1).
- Ebadí, S. & Rahimi, M. (2017). Exploring the impact of online peer-editing using Google Docs on EFL learners' academic writing skills: A mixed methods study. *Computer Assisted Language Learning*, 30(8), 787-815. <https://doi.org/10.1080/09588221.2017.1363056>.
- Ebadí, S. & Rahimi, M. (2019). Mediating EFL learners' academic writing skills in online dynamic assessment using Google Docs. *Computer Assisted Language Learning*, 32(5-6), 527-555. <https://doi.org/10.1080/09588221.2018.1527362>.
- Elfatah, M. A. & Ahmed, A. S. (2016). Using Facebook to develop grammar discussion and writing skills in English as a foreign language for university students. *Sino-US English Teaching*, 13(12), 932-952. <https://doi.org/10.17265/1539-8072/2016.12.004>.
- Estaji, M. & Salimi, H. (2018). The application of wiki-mediated collaborative writing as a pedagogical tool to promote ESP learners' writing performance. *Asian ESP Journal*, 14(1), 112-141. <https://www.scopus.com/inward/record.uri?eid=2-s2.0-85050210693&partnerID=40&md5=12a5c3f47e4770571204ae35d7863f21>.
- Fathi, J., Ahmadnejad, M. & Yousofi, N. (2019). Effects of blog-mediated writing instruction on L2 writing motivation, self-efficacy, and self-regulation: A mixed methods study. *Journal of Research in Applied Linguistics*, 10(2), 159-181. <https://doi.org/10.22055/rals.2019.14722>.
- Franco-Camargo, L. F. & Camacho-Vásquez, G. (2018). The impact of wikis & videos integration through cooperative writing tasks processes. *English Language Teaching*, 11(5), 116-129. <https://doi.org/10.5539/elt.v11n5p116>.
- Gharehbagh, M. J., Stapa, S. H. & Darus, S. (2019). The effects of written corrective feedback using wikis among ESL learners. *3L: Language, Linguistics, Literature*, 25(1), 1-10. <https://doi.org/10.17576/3L-2019-2501-04>.
- Gonulal, T. (2019). The use of Instagram as a mobile-assisted language learning tool. *Contemporary Educational Technology*, 10(3), 309-323. <https://doi.org/10.30935/cet.590108>.
- Gunduz, M. (2016). Promoting interaction through blogging in language classrooms. *International Journal of Research in Education and Science*, 2(2), 438-443.
- Handayani, A. D., Cahyono, B. Y. & Widiati, U. (2018). The use of Instagram in the Teaching of EFL Writing: Effect on writing ability and students' perceptions. *Studies in English Language Teaching*, 6(2), 112-126. <https://doi.org/10.22158/selt.v6n2p112>.
- Hansen, J. G. & Liu, J. (2005). Guiding principles for effective peer response. *ELT Journal*, 59(1), 31-38.
- Heidari, J., Khodabandeh, F. & Soleimani, H. (2018). A comparative analysis of face to face instruction vs. Telegram mobile instruction in terms of narrative writing. *JALT CALL Journal*, 14(2), 143-156.
- Ho, P. V. P., Phung, L. T. K., Oanh, T. T. T. & Giao, N. Q. (2020). Should peer e-comments replace traditional peer comments? *International Journal of*

- Instruction*, 13(1), 295-314. <https://doi.org/10.29333/iji.2020.13120a>.
- Hosseinpour, N., Biria, R. & Rezvani, E. (2019). Promoting academic writing proficiency of Iranian EFL learners through blended learning. *Turkish Online Journal of Distance Education*, 20(4), 99-116. <https://search.ebscohost.com/login.aspx?direct=true&db=eric&AN=EJ1231392&lang=fr&site=ehost-live>.
- Hsu, H. C. & Lo, Y. F. (2018). Using wiki-mediated collaboration to foster L2 writing performance. *Language Learning and Technology*, 22(3), 103-123. <https://doi.org/10.1257/44659>.
- Hsu, H.-C. (2019). Wiki-mediated collaboration and its association with L2 writing development: An exploratory study. *Computer Assisted Language Learning*, 32(8), 945-967. <https://doi.org/10.1080/09588221.2018.1542407>.
- Huang, H.-Y. C. (2016). Students and the teacher's perceptions on incorporating the blog task and peer feedback into EFL writing classes through blogs. *English Language Teaching*, 9(11), 38-47. <https://doi.org/10.5539/elt.v9n11p38>.
- Hudson, J. (2018). Using Wikis for collaborative writing in the ELT classroom. *International Journal of Pedagogy and Teacher Education*, 2(2), 413-426. <https://doi.org/10.20961/ijpte.v2i2.22906>.
- Iksan, H. & Halim, H. A. (2018). The effect of e-feedback via wikis on ESL students' L2 writing anxiety level. *Malaysian Online Journal of Educational Sciences*, 6(3), 30-48.
- Jayaron, J. & Abidin, M. J. Z. (2016). A pedagogical perspective on promoting English as a foreign language writing through online forum discussions. *English Language Teaching*, 9(2), 84-101. <https://doi.org/10.5539/elt.v9n2p84>.
- Jeong, K.-O. (2016). A study on the integration of Google Docs as a web-based collaborative learning platform in EFL writing instruction. *Indian Journal of Science and Technology*, 9(39), 1-7.
- Kassem, M. A. M. (2017). Developing business writing skills and reducing writing anxiety of EFL learners through wikis. *English Language Teaching*, 10(3), 151-163. <https://doi.org/10.5539/elt.v10n3p151>.
- Kathpalia, S. S. & See, E. K. (2016). Improving argumentation through student blogs. *System*, 58, 25-36. <https://doi.org/10.1016/j.system.2016.03.002>.
- Kergel, D. & Heidkamp, B. (Eds.). (2022). *Perspectives on education in the digital age*. Routledge.
- Kioumarsi, H., Shalmani, H. B. & Meymeh, M. H. (2018). Wikis and wiki-based activities: On peer collaboration in wikispaces and its implications for the development of the L2 writing ability. *CALL-EJ*, 19(2), 139-165. <https://www.scopus.com/inward/record.uri?eid=2-s2.0-85051293984&partnerID=40&m-d5=d23bb6ab45ecf3a5974e90f8c5cca0b4>.
- Kitchakarn, O. (2016). How students perceived social media as a learning tool in enhancing their language learning performance. *TOJET: The Turkish Online Journal of Educational Technology*, 15(4), 53-60.
- Klimova, B. & Polakova, P. (2020). Students' perceptions of an EFL vocabulary learning mobile application. *Education Sciences*, 10(2). <https://doi.org/10.3390/educsci10020037>.
- Lee. (2017). Technology in classroom L2 writing assessment and feedback. In *Classroom Writing Assessment and Feedback in L2 School Contexts* (pp. 123–146). Springer Singapore. https://doi.org/10.1007/978-981-10-3924-9_9.
- Li, K. L., Razali, A. B. & Baki, R. (2019). Writing narrative essays using e-book writing software: Analyses of students' digital written works. *Journal of Asia TEFL*, 16(4), 1289-1304. <https://doi.org/10.18823/asiatefl.2019.16.4.14.1289>.
- Li, L., Gao, F. & Guo, S. (2019). The effects of social messaging on students' learning and intrinsic motivation in peer assessment. *Journal of Computer Assisted Learning*. <https://doi.org/10.1111/jcal.12409>.
- Li, M. & Zhu, W. (2017). Good or bad collaborative wiki writing: Exploring links between group interactions and writing products. *Journal of Second Language Writing*, 35, 38-53. <http://dx.doi.org/10.1016/j.jslw.2017.01.003>.
- Lin, C. J. (2019). An online peer assessment approach to supporting mind-mapping flipped learning activities for college English writing courses. *Journal of Computers in Education*, 6(3), 385-415. <https://doi.org/10.1007/s40692-019-00144-6>.
- Lin, M. H. (2015). Learner-centered blogging: A preliminary investigation of EFL student writers' experience. *Educational Technology & Society*, 18(4), 446-458. <https://search.ebscohost.com/login.aspx?direct=true&db=eric&AN=EJ1078241&lang=fr&site=ehost-live>.

- Lin, V., Liu, G.-Z. & Chen, N.-S. (2020). The effects of an augmented-reality ubiquitous writing application: A comparative pilot project for enhancing EFL writing instruction. *Computer Assisted Language Learning*, 1-42. <https://doi.org/10.1080/09588221.2020.1770291>.
- Lira-Gonzales, M.-L. & Grégoire P. (2022). Technologies in second language classes: Knowledge synthesis of digital writing skills acquisition. In C. Lütge (Ed), *Foreign Language Learning in the Digital Age: Theory and Pedagogy for Developing Literacies* (pp. 189-205). Routledge.
- Lira-Gonzales, M.-L. & Nassaji, H. (2019). The provision and efficacy of peer feedback in blogs versus paper-based writing. *ITL-International Journal of Applied Linguistics*, 170(2), 228-250.
- Liu, J., & Hansen, J. G. (2002). *Peer response in second language writing classrooms*. The University of Michigan Press. <https://doi.org/10.3998/mpub.8952>.
- Liu, S. H. J. & Lan, Y. J. (2016). Social Constructivist approach to web-based EFL learning: Collaboration, motivation, and perception on the use of Google Docs. *Educational Technology and Society*, 19(1), 171-186. <https://www.scopus.com/inward/record.uri?eid=2-s2.0-84957714704&partnerID=40&md5=b9c25047305b538ca74cd9cdaa9067a6>.
- Lütge, C. (2022). Introduction. In C. Lütge (Ed), *foreign language learning in the digital age: Theory and pedagogy for developing literacies* (pp. 2-5). Routledge.
- Ma'azi, H. & Janfeshan, K. (2018). The effect of Edmodo social learning network on Iranian EFL learners writing skill. *Cogent Education*, 5(1), 1-17. <https://doi.org/10.1080/2331186X.2018.1536312>.
- Marandi, S. S. & Seyyedrezaie, M. S. (2017). The multi-course comparison of the effectiveness of two EFL writing environments: Google Drive versus face-to-face on Iranian EFL learners' writing performance and writing apprehension. *CALL-EJ*, 18(1), 9-21. <https://www.scopus.com/inward/record.uri?eid=2-s2.0-85012120089&partnerID=40&md5=c10936fdf10e1dd892ad74e7850faaa5>.
- Mustain, K., Husniyah, A. & Zubaidi. (2019). Instaclass: Incorporating Instagram as a mobile learning tool in language classroom. *ELT Echo: The Journal of English Language Teaching in Foreign Language Context*, 4(2), 93-101.
- Özdemir, E. & Aydin, S. (2017). Blogging effect on EFL writing motivation. *International Journal of Computer-Assisted Language Learning and Teaching*, 7(2), 40-57. <https://doi.org/10.4018/IJCALLT.2017040103>.
- Pham, T. N., Lin, M., Trinh, V. Q. & Bui, L. T. P. (2020). Electronic peer feedback, EFL academic writing and reflective thinking: Evidence from a Confucian context. *SAGE Open*, 10(1), 1-20. <https://doi.org/10.1177/2158244020914554>.
- Pham, V. P. H. & Usaha, S. (2016). Blog-based peer response for L2 writing revision. *Computer Assisted Language Learning*, 29(4), 724-748. <https://doi.org/10.1080/09588221.2015.1026355>.
- Pollard, A. (2015). Web-based journals in the classroom: Motivation and autonomous learning. *Indonesian Journal of Applied Linguistics*, 4(2), 20-31. <https://doi.org/10.17509/ijal.v4i2.680>.
- Pourdana, N., Nour, P. & Yousefi, F. (2021). Investigating metalinguistic written corrective feedback focused on EFL learners' discourse markers accuracy in mobile-mediated context. *Asian-Pacific Journal of Second and Foreign Language Education*, 6(7), 1-18. <https://doi.org/10.1186/s40862-021-00111-8>.
- Ramanair, J., Rethinasamy, S. & Misieng, J. (2017). Collaborative writing using wiki: Tertiary students' perspectives. *Electronic Journal of Foreign Language Teaching*, 14(1), 84-101. <https://www.scopus.com/inward/record.uri?eid=2-s2.0-85021343543&partnerID=40&md5=33c15804dcac692890be09b-1fb48fe72>.
- Rashid, S., Cunningham, U. & Watson, K. (2017). Task-based language teaching with smartphones: A case study in Pakistan. *Teachers and Curriculum*, 17(2), 33-40. <http://dx.doi.org/10.15663/tandc.v17i2.167>.
- Razak, N. A. & Saeed, M. A. (2015). EFL Arab Learners' peer revision of writing in a Facebook group: Contributions to written texts and sense of online community. *English Language Teaching*, 8(12), 11-26. <https://doi.org/10.5539/elt.v8n12p11>.
- Rinda, R. K., Novawan, A. & Miqawati, A. H. (2018). Students' perspectives on social media-based learning of writing through Instagram. *Journal of English in Academic and Professional Communication*, 5(1), 23-33.
- Rodliyah, R. S. (2016). Using a Facebook closed group to improve EFL students' writing. *TEFLIN Journal: A publication on the teaching and learning of English*, 27(1), 82-100. <http://dx.doi.org/10.15639/teflinjournal.v27i1/82-100>.

- Rostami, F. & Khodabandeh, F. (2019). A comparative study of language style variations in e-mail and "Telegram" messages by non-native intermediate learners of English. *Teaching English with Technology*, 19(4), 69-89. <https://search.ebscohost.com/login.aspx?direct=true&db=eric&AN=EJ1233485&lang=fr&site=ehost-live>.
- Roy, C. K. (2016). Be creative and collaborative: Strategies and implications of blogging in EFL classes. *English Language Teaching*, 9(7), 129-145. <https://doi.org/10.5539/elt.v9n7p129>.
- Saeed, M. A. & Ghazali, K. (2017). Asynchronous group review of EFL writing: Interactions and text revisions. *Language Learning and Technology*, 21(2), 200-226. <http://llt.msu.edu/issues/june2017/saeedghazali.pdf>.
- Sakamoto, M. (2017). How effective is interactive learning? Investigating Japanese university students' language patterns in a collaborative writing task. *IAFOR Journal of Language Learning*, 3(2), 115-139. <https://search.ebscohost.com/login.aspx?direct=true&db=eric&AN=EJ1167258&lang=fr&site=ehost-live>.
- Sauro, S. & Sundmark, B. (2016). Report from middle-earth: Fan fiction tasks in the EFL classroom. *ELT Journal*, 70(4), 414-423. <https://search.ebscohost.com/login.aspx?direct=true&db=eric&AN=EJ1117173&lang=fr&site=ehost-live>.
- Sevilla-Pavón, A. (2015). Examining collective authorship in collaborative writing tasks through digital storytelling. *European Journal of Open, Distance and E-Learning*, 18(1). <https://search.ebscohost.com/login.aspx?direct=true&db=eric&AN=EJ1065157&lang=fr&site=ehost-live>.
- Seyyedrezaie, Z. S., Ghonsooly, B., Shahriari, H. & Fatemi, A. H. (2016). A mixed methods analysis of the effect of Google Docs Environment on EFL Learners' writing performance and causal attributions for success and failure. *Turkish Online Journal of Distance Education*, 17(3), 90-110. <https://doi.org/10.17718/toje.34418>.
- Sherafati, N., Largani, F. M. & Amini, S. (2020). Exploring the effect of computer-mediated teacher feedback on the writing achievement of Iranian EFL learners: Does motivation count? *Education and Information Technologies*, 25, 4591-4613. <https://doi.org/10.1007/s10639-020-10177-5>.
- Siddique, M. (2017). The effects of Utilizing smartphone in enhancing students' English writing skills in Pakistan [Doctoral dissertation]. Universiti Utara Malaysia.
- Tan, K. E. (2017). Using online discussion forums to support learning of paraphrasing. *British Journal of Educational Technology*, 48(6), 1239-1249. <https://doi.org/10.1111/bjet.12491>.
- Taskiran, A., Gumusoglu, E. K. & Aydin, B. (2018). Fostering foreign language learning with Twitter: Reflections from English learners. *Turkish Online Journal of Distance Education*, 19(1), 100-116. <https://doi.org/10.17718/tojde.382734>.
- Termsinsuk, S. (2015). Development of a blended instructional model via weblog to enhance English summary writing ability of Thai undergraduate students. *IAFOR Journal of Education*, 123-138. <https://search.ebscohost.com/login.aspx?direct=true&db=eric&AN=EJ1100642&lang=fr&site=ehost-live>.
- Thomas, S. (2017). Journalogue: Voicing student challenges in writing through a classroom blog. *Educational Technology & Society*, 20(1), 112-122. <https://search.ebscohost.com/login.aspx?direct=true&db=eric&AN=EJ1125876&lang=fr&site=ehost-live>.
- Vahedipour, Z. & Rezvani, E. (2017). Impact of wiki-based feedback on grammatical accuracy of Iranian EFL learners' writing skill. *International Journal of Foreign Language Teaching and Research*, 5(20), 111-124.
- Vakili, S. & Ebadi, S. (2019). Exploring EFL learners' developmental errors in academic writing through face-to-face and computer-mediated dynamic assessment. *Computer Assisted Language Learning*, 35(3), 345-380. <https://doi.org/10.1080/09588221.2019.1698616>.
- Villafuerte, J. & Romero Andonegi, A. (2017). Learners' attitudes toward foreign language practice on social network sites. *Journal of Education and Learning*, 6(4), 145-158. <https://doi.org/10.5539/jel.v6n4p145>.
- Wang, J. (2017). Cloud computing technologies in writing class: Factors influencing students' learning experience. *Turkish Online Journal of Distance Education*, 18(3), 197-213. <https://www.scopus.com/inward/record.uri?eid=2-s2.0-85021733659&partnerID=40&md5=234a8ba229e4c5d96161e7353753fa55>.
- Wang, Y.-C. (2015). Promoting collaborative writing through wikis: A new approach for advancing innovative and active learning in an ESP context.

- Computer Assisted Language Learning*, 28(6), 499-512. <https://doi.org/10.1080/09588221.2014.881386>.
- Wu, S.-K. (2016). Strategy use, writing performance, and students' perceptions of wiki-based collaborative summary writing in an EFL context. *International Journal of Science Arts and Commerce*, 1(4), 78-87.
- Xu, Q. & Yu, S. (2018). An action research on computer-mediated communication (CMC) peer feedback in EFL writing context. *Asia-Pacific Education Researcher*, 27(3), 207-216. <https://doi.org/10.1007/s40299-018-0379-0>.
- Yan, L. (2019). A study on WeChat-based collaborative learning in college English writing. *English Language Teaching*, 12(6), 1-9. <https://doi.org/10.5539/elt.v12n6p1>.
- Yang, Y.-F. (2018). New language knowledge construction through indirect feedback in web-based collaborative writing. *Computer Assisted Language Learning*, 31(4), 459-480. <https://doi.org/10.1080/09588221.2017.1414852>.
- Yen, Y.-C., Hou, H.-T. & Chang, K.E. (2015). Applying role-playing strategy to enhance learners' writing and speaking skills in EFL courses using Facebook and Skype as learning tools: A case study in Taiwan. *Computer Assisted Language Learning*, 28(5), 383-406. <http://dx.doi.org/10.1080/09588221.2013.839568>.
- Yilmaz, A. (2018). Computers in reading and writing skills through the motivational lens: Snagit™, screen-cast and e-mail services. *Contemporary Educational Technology*, 9(3), 264-283. <https://doi.org/10.30935/cet.414>.
- Yu, L. T. (2018). Incorporating Facebook into an EFL writing course: Student perception and participation in online discussion. *CALL-EJ*, 19, 1-22. <https://www.scopus.com/inward/record.uri?eid=2-s2.0-85042662587&partnerID=40&md5=b017ecfd6856a961c6d054054b590a5a>.
- Zenouzaghi, Z. M. (2018). Multidimensional analysis of efficacy of multimedia learning in development and sustained development of textuality in EFL writing performances. *Education and Information Technologies*, 23(6), 2969-2989. <https://doi.org/10.1007/s10639-018-9754-y>.
- Zou, B., Wang, D., & Xing, M. (2016). Collaborative tasks in Wiki-based environment in EFL learning. *Computer Assisted Language Learning*, 29(5), 1001-1018. <https://doi.org/10.1080/09588221.2015.1121878>.