

Writing Application in English Language Teaching: A Systematic Literature Review From 2013-2024

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ABSTRACT

This article aims to examine the development and application of digital applications in teaching English writing skills, focusing on two main categories: web-based applications and mobile applications. This study uses a literature review approach analyzed through literature mapping from the Connected Papers platform, with publications ranging from 2013 to 2024. The findings indicate that web-based applications such as Google Docs and Canvas significantly enhance students' writing skills through online collaboration, real-time feedback, and structured revision processes. On the other hand, mobile applications such as WhatsApp and Google Slides support writing skills in a more flexible informal context, emphasizing social interaction, collaboration, and out-of-class learning engagement. Both types of applications have their own advantages and challenges and can be used complementarily in hybrid and adaptive English writing instruction. The implications of these findings highlight the importance of technology-responsive instructional design, teacher training in digital literacy, and pedagogical adaptation to students' social and cultural contexts. This article recommends further research on the long-term effectiveness of digital applications in improving students' writing competencies, as well as the development of sustainable and inclusive implementation strategies in ESL and EFL learning environments.

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1 INTRODUCTION

The rapid development of digital technology has brought about major changes in the world of English language education, particularly in the teaching of writing skills. Writing activities, which were previously carried out traditionally—using paper, on an individual basis, and with minimal collaboration—have now transformed into a more interactive, collaborative, and technology-based process. Learners are no longer confined to physical classrooms but can access various digital platforms that enable writing practice to take place flexibly, continuously, and independently. This transformation aligns with the 21st-century educational paradigm shift, which emphasizes digital literacy as an integral part of language learning. In the context of English as a Second Language (ESL) and English as a Foreign Language (EFL) learning, this change is particularly significant as it provides additional support for learners to develop their writing skills more effectively and contextually.

One of the main developments in this transformation is the increased use of web-based tools in writing instruction. Over the past decade, numerous studies have explored the effectiveness of platforms such as Google Docs, Canvas, and Learning Management Systems (LMS) in improving student writing outcomes. According to Kassim et al. (2024), these platforms support the development of writing skills through real-time collaboration, peer feedback, and continuous revision processes. The literature visualization generated through Connected Papers shows that Kassim's article is at the center of a broad research network. Related studies such as Chao et al. (2023), Zhang and Zou (2021), and Sugiarni et al. (2024) confirm that web-based tools can enhance writing motivation, critical thinking skills, and the quality of students' writing. However, most of these studies remain contextual and have not yet provided long-term data or broader cross-contextual educational coverage.

In line with this, another emerging trend gaining attention is the use of mobile applications in writing skill development. Applications such as WhatsApp, Google Slides, and Telegram—which were originally designed for social communication—are now widely used in educational contexts due to their flexibility and ease of access. Research by Mallampalli and Goyal (2021) shows that these applications are practical in supporting collaborative

writing activities, particularly for pre-intermediate learners. The spontaneous and casual nature of conversations on mobile applications allows students to express their ideas more freely and engage in the writing process. However, as pointed out by Hassan and Ahmed (2018) and Azad and Kamarei (2021), the integration of mobile applications into formal learning is not without challenges. Digital distractions, inconsistent feedback, and low digital literacy among teachers and students are obstacles that must be overcome through a clear pedagogical framework.

Given these developments, a significant research gap has emerged that warrants attention. Although many studies have discussed the potential of using web and mobile applications to support writing skills, very few studies have comprehensively compared the two in terms of learning outcomes, contextual implementation, or instructional design. Additionally, studies on how these digital tools can be adapted to the social and cultural backgrounds of learners, as well as how their use can be designed sustainably within the writing curriculum, remain limited. Zhang (2022) and Rumiantasava (2023) argue that digital approaches to writing instruction must consider the diversity of local contexts and student learning experiences to ensure that the technology applied is truly effective and inclusive.

Given these conditions, this article aims to explore the integration of writing applications—both web-based and mobile—in English language teaching by analyzing current trends, their usage practices, and the pedagogical implications they entail. Utilizing the Connected Papers platform as a literature mapping tool, this article conducts a literature review of studies published between 2013 and 2024. The primary focus of this study is on the findings, methodologies, and instructional frameworks employed in each study. Through this approach, this article seeks to bridge the gap between technological innovation and teaching practices and provide concrete recommendations for educators seeking to effectively implement writing applications in diverse ESL and EFL learning contexts.

2 METHOD

This study employed a qualitative approach, utilizing a library research method, to examine and analyze various research results related to the application of digital applications in English writing learning. The main focus of this study is on two main categories of applications, namely web-based applications and mobile applications used in the context of teaching English as a Second Language (ESL) and English as a Foreign Language (EFL). The data sources for this study were obtained from scientific articles mapped using the Connected Papers platform, with two main articles as central references: (1) *A Systematic Literature Review of Web-based Tools Application in ESL and EFL Writing Classes* by Kassim et al. (2024), and (2) *Mobile Applications for Developing Second Language Collaborative Writing* by Mallampalli and Goyal (2021). Articles thematically and bibliometrically linked to these two works were also examined in depth to gain a comprehensive understanding of trends, findings, and research gaps in this field.

The inclusion criteria used in selecting articles include: (1) articles published between 2013 and 2024; (2) articles focusing on the application of digital tools in English writing instruction; (3) articles relevant to the context of second or foreign language learning (ESL/EFL); and (4) articles available in nationally or internationally indexed journals. All data were analyzed descriptively and qualitatively by identifying main themes, patterns of application integration in learning, student learning outcomes, and pedagogical implications. The analysis procedure was conducted in three stages: first, inventorying and categorizing the literature based on the type of application used (web-based and mobile); second, thematic analysis of the article content to identify the benefits, challenges, and implementation strategies of the application in the context of writing instruction; and third, synthesizing the research findings to reveal research gaps and potential for further research development. With this approach, it is hoped that this article can provide theoretical and practical contributions to the development of technology-based writing pedagogy in English language classrooms.

3 RESULTS AND DISCUSSION

In this section, the researcher presents the findings of the study and discusses the results in the context of the research question or problem. They should also compare and contrast the findings with the existing literature and provide interpretations and explanations for the results.

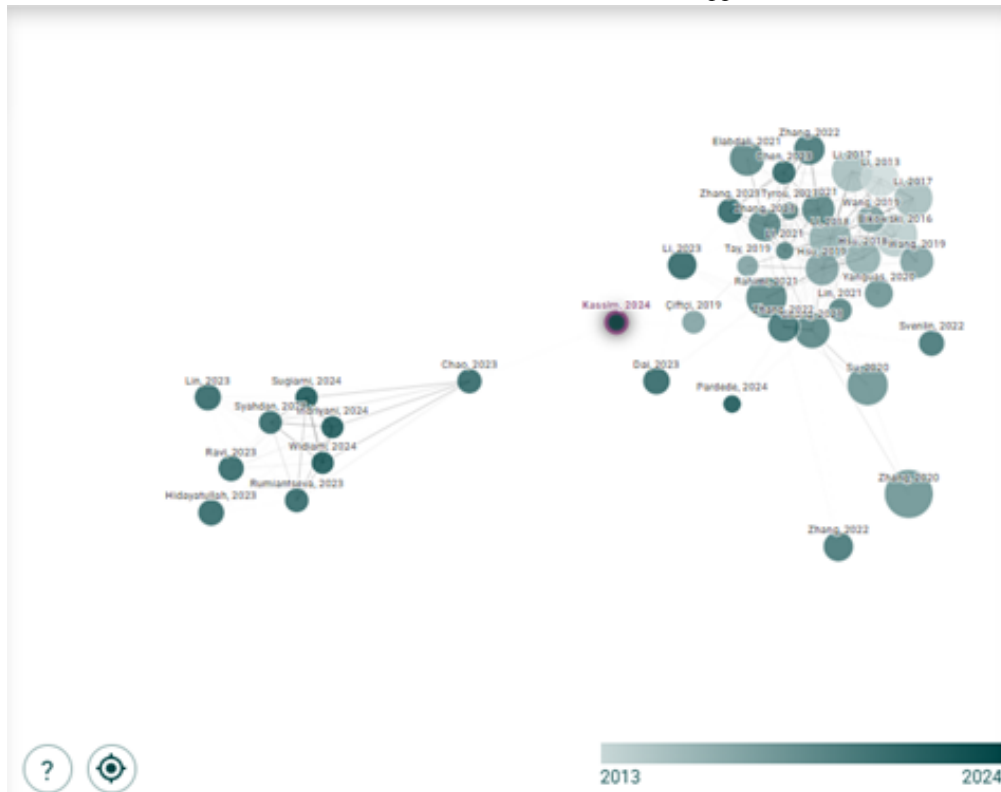
3.1 Results

3.1.1 Web-based Tools Application in Writing

Figure 1 is a visualization of the Connected Papers platform that maps the scholarly literature network based on the lead article titled “A Systematic Literature Review of Web-based Tools Application in ESL and EFL Writing

Classes” by Kassim et al. (2024). This article was published in the International Journal of Language and highlights the growing use of web-based digital tools in English writing instruction. The graphic center shows this article as a key reference in the study of writing technology for ESL and EFL learners. The visualization shows how the main article is connected to various other scientific works through citation relationships or similar topics. Articles such as Chao et al. (2023), Zhang and Zou (2021), and Sugiarni et al. (2024), which also appeared in the network, highlighted technological approaches in improving students' writing skills. These links show that the topic of integrating digital tools in English writing instruction has become an important trend in the last decade (Chao et al., 2023; Zhang & Zou, 2021).

Figure 1
The Connected Research on Web-based Tools Application



Some of the closest research in networking shows a focus on the use of specific technologies such as Canvas, Google Docs, or other collaborative platforms. For example, Sugiarni et al. (2024) examined the effectiveness of Canvas as a learning tool in the context of academic writing, while Chao et al. (2023) highlighted challenges and strategies in the use of technology in digital writing classes. These studies reinforce the findings of Kassim et al. (2024) on the effectiveness of web tools in improving student motivation and learning outcomes. Also visible in the graph are more discrete groups of literature, such as the work of Hidayatullah et al. (2023) and Rumiantava (2023), which show variations in the approach or context of using digital tools. This difference indicates that while all the works relate to the application of technology in writing, each study has a unique focus, in terms of methodology, technology used and target learners. This is in line with Zhang's (2022) findings, which show the importance of adapting digital tools to students' social and cultural contexts.

This figure underscores the importance of literature mapping in understanding the position of a study in the scientific ecosystem. Using this map, researchers can identify research gaps and develop follow-up studies that are more focused on the specific challenges of using writing apps in English language teaching. As suggested by Kassim et al. (2024), technology integration should be tailored to the needs and characteristics of students to create more effective and participatory writing learning.

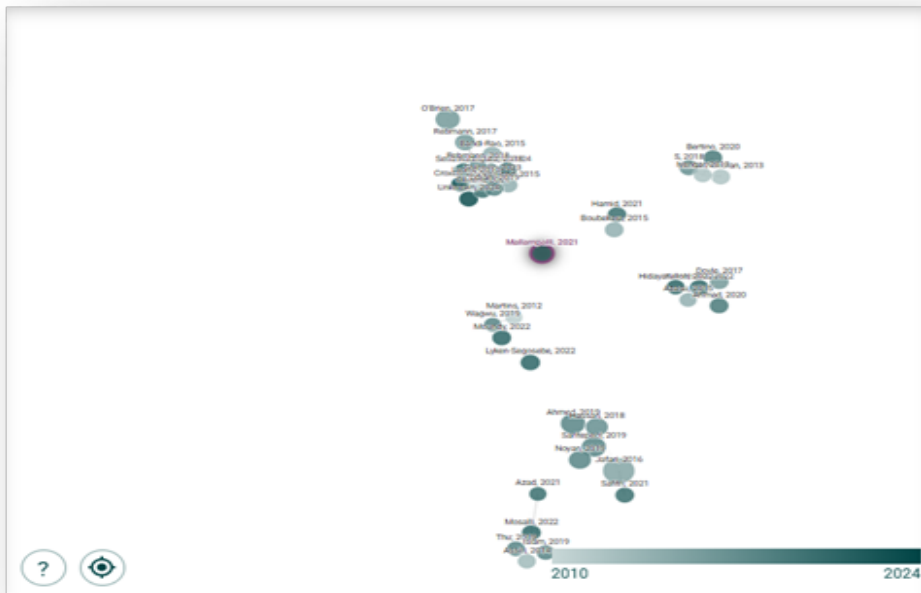
3.1.2 Mobile Application for Writing Skills Development

In today's digital age, the use of digital tools in developing reading and writing skills has become highly significant in the context of second language learning. The image from Connected Papers shows the interconnection between various studies discussing mobile applications and digital tools to support collaboration in writing. The main paper, titled Mobile Applications for Developing Second Language Collaborative Writing by Mallampalli and Goyal (2021), is at the center of this literature network. This study emphasizes the use of

applications such as WhatsApp, Google Docs, and Google Slides in improving students' writing skills at the CEFR pre-intermediate level through collaborative tasks (Mallampalli & Goyal, 2021).

The types of digital tools featured in the network are not limited to collaborative writing tools but also include social networking platforms and communication applications that encourage linguistic interaction. For example, an article by Hassan and Ahmed (2018) examined the impact of WhatsApp on student learning outcomes and found that the use of WhatsApp significantly increased participation and understanding of material in English language teaching (Hassan & Ahmed, 2018). This shows that instant communication tools can also function as digital literacy media in reading and writing.

Figure 2
Related Inventions Mobile App For Writing Skill Development



Some works emerging in the research landscape also highlight the influence of online collaboration on reading comprehension. Azad and Kamarei (2021) examined the effects of telecollaboration via social media on students' reading comprehension and concluded that cross-cultural interactions through digital platforms can enhance students' critical reading skills (Azad & Kamarei, 2021). Digital tools in this context encompass more than just writing software, but also include social networks and digital discussion spaces that enable cross-cultural and cross-linguistic exchange of ideas.

In addition, the quality and model of open educational resources (OER) are also the focus of related research. Oliveira et al. (2021) highlight the importance of quality attributes in OER, which include ease of access, interactivity, and adaptability to user needs (Oliveira et al., 2021). In the context of reading instruction, digital-based OER such as interactive e-books, vocabulary enrichment apps, and articles accompanied by audio-visual content can support students' digital literacy skills more effectively than traditional print materials. Finally, the map from Connected Papers shows that current research trends indicate a strong integration between digital tools and literacy pedagogy, particularly in second language learning. Studies such as those by Martins (2012) to Rehman (2017) and others connected to this map emphasize the importance of active student engagement through digital media as a key strategy in improving reading comprehension and collaborative writing skills (Rehman, 2017; Martins, 2012). Therefore, digital tools in reading instruction serve not only as a medium but also as an instructional strategy that can create more meaningful and interactive learning experiences.

3.2 Discussion

3.2.1 Web-Based Application In Writing Instruction

The integration of web-based applications into writing instruction has dramatically reshaped the landscape of English language teaching over the past decade. These digital tools, including Google Docs, Canvas, Padlet, and various Learning Management System (LMS) platforms such as Moodle or Edmodo, have enabled instructors to move beyond traditional paper-based approaches toward more collaborative, interactive, and

process-oriented writing instruction. According to Kassim et al. (2024), such tools provide students with a flexible environment to plan, draft, receive feedback, revise, and publish their written texts with ease, often in real time. This digital shift has been particularly valuable in ESL and EFL contexts, where learners may benefit from both the language scaffolding and autonomy that technology affords.

A key strength of web-based platforms lies in their support for real-time collaboration and peer feedback, essential components of effective writing pedagogy. In the context of Google Docs, for example, students can engage in co-writing activities, leave comments on one another's work, and discuss revisions within the same digital space. As Zhang and Zou (2021) suggest, this collaborative approach does not merely improve sentence structure and grammar but also fosters a sense of ownership and community among learners. Writing thus transforms from a solitary activity into a socially engaged process, which aligns well with constructivist theories of learning.

In addition, platforms like Padlet enable multimodal expression, allowing students to include images, videos, hyperlinks, and other media into their written work. This supports the development of digital literacy skills and caters to different learning preferences. Learners are no longer limited to text; they can now compose across modes, which is particularly relevant in today's information-rich, visual-digital world. Moreover, Learning Management Systems (LMS) provide structured environments where teachers can organize writing assignments, monitor progress, distribute resources, and facilitate discussion. These features contribute to a more organized and learner-centered writing process. However, despite the many pedagogical affordances of web-based writing tools, several challenges remain. One of the most persistent issues is the digital literacy gap between teachers and students. As noted by Hidayatullah et al. (2023), while students may be comfortable using basic technology for social interaction, they often lack the critical digital skills needed for academic writing tasks—such as formatting citations, using revision history, or interpreting peer comments constructively. On the other hand, some teachers are unfamiliar with the functionalities of these tools and lack the confidence or pedagogical knowledge to integrate them effectively into instruction. This mismatch creates inconsistencies in implementation and can hinder the effectiveness of web-based writing tasks.

Another concern is the lack of sustained professional development for educators. Even when institutions provide access to technology, training often focuses on tool operation rather than on pedagogical strategies for using the tools to teach writing. Teachers need support in designing activities that align writing objectives with digital affordances—for example, how to use comment features for formative assessment, or how to structure peer feedback sessions to promote metacognitive reflection. Without such training, technology use may remain superficial and fail to produce meaningful gains in writing proficiency. Furthermore, equity and access remain significant issues, particularly in low-resource contexts or rural areas. Not all students have reliable internet connections or personal devices, and this digital divide can exacerbate learning inequalities. Even in well-resourced settings, technical problems such as server outages or compatibility issues with certain file formats can disrupt learning. Institutions must therefore invest not only in hardware and software but also in robust IT infrastructure and user support systems to ensure that all learners benefit equally from digital writing tools.

From an instructional design perspective, educators must also address the cognitive load imposed by using multiple web-based platforms. While combining tools like Google Docs, discussion forums, and LMS modules can enrich learning, it may overwhelm students who are unfamiliar with switching between interfaces or managing digital files. Streamlining tool use and offering clear instructions, templates, or video tutorials can help minimize confusion and maximize focus on writing skills. Lastly, assessment in digital writing environments requires careful consideration. The ease of collaboration and editing in web-based tools complicates the evaluation of individual contributions. Teachers must therefore develop transparent rubrics that account for participation, feedback quality, and revision effort, in addition to final written products. Some researchers recommend incorporating process portfolios where students document their writing journey using screenshots, reflection journals, or version histories as evidence of growth and engagement.

Despite these challenges, the trend toward web-based writing instruction is likely to continue as educational institutions adopt more hybrid or fully online learning models. The COVID-19 pandemic accelerated this shift and revealed both the potential and the limitations of digital learning environments. Post-pandemic, many teachers report that students are more receptive to web-based tools and that digital writing activities have helped them become more autonomous, confident, and motivated learners. In conclusion, while web-based writing tools have revolutionized the teaching of writing in ESL and EFL contexts, their successful integration requires more than technological access. Educators must critically align digital tools with pedagogical goals, scaffold students' digital writing skills, and receive ongoing support in instructional design. With thoughtful implementation, these tools can empower learners to engage in meaningful, collaborative, and reflective writing practices that extend beyond the classroom.

3.2.2 Mobile Applications for Writing Skill Development

In addition to web-based applications, mobile applications have played an increasingly important role in supporting the development of writing skills, particularly in informal, flexible, and learner-centered learning

environments. Research conducted by Mallampalli and Goyal (2021) shows that apps such as WhatsApp, Google Slides, and Telegram can effectively facilitate collaborative writing tasks, especially for pre-intermediate level students. Activities such as text-based discussions, shared story writing, and paragraph development with peer feedback are now more accessible outside the classroom, allowing students to engage in the writing process anytime and anywhere.

Communication apps such as WhatsApp, originally designed for social purposes, have now evolved into a functional literacy medium. According to Hassan and Ahmed (2018), WhatsApp helps increase student participation in writing classes and supports the real-time exchange of ideas, making the writing process more interactive and participatory. This direct interaction transforms writing from a solitary academic task to an engaging social activity. Furthermore, Azad and Kamarei (2021) emphasize the importance of cross-cultural communication through mobile apps, which can improve critical thinking as well as reading and writing skills through exposure to diverse perspectives.

In addition to communication, mobile apps also allow for multimodal composition. Students can insert images, voice messages, emojis or videos into their writing, thus encouraging creativity and deeper engagement with the learning content. This is particularly beneficial in ESL/EFL contexts, where learners often have difficulty expressing themselves through written text alone. Mobile apps provide visual and auditory aids that can reduce language anxiety and increase confidence in writing. However, despite these benefits, the use of mobile apps in learning to write still faces a number of pedagogical and technical limitations. Digital distractions, such as social media notifications or the use of entertainment apps, can interfere with students' learning concentration.

In addition, mobile apps tend to offer looser structure and less control for teachers than web-based learning platforms. This makes it difficult for teachers to thoroughly monitor student engagement, track individual contributions, or provide comprehensive feedback in a conversation-based environment. Another important concern is the sustainability and scalability of mobile app-based writing lessons. While small-scale classroom use has been widely researched, long-term implementation at the curriculum level has not been explored. Therefore, more empirical research is needed that examines how mobile apps can be systematically integrated into formal writing syllabi and assessment systems.

To meet this challenge, teachers need to design learning tasks that are structured and in line with mobile learning principles, such as microlearning, mobility, and relevant social contexts. In addition, instructional objectives should be achieved through proper guidance, monitoring and evaluation. In conclusion, mobile apps offer great potential in improving writing instruction, especially in the context of flexible and student-centered learning. However, its pedagogical integration requires careful planning, adequate teacher training, and continuous evaluation to maximize its potential while minimizing its limitations. With careful and purposeful use, mobile tools can be an effective complement to other formal platforms, creating a rich and multifaceted writing learning environment for second language learners.

4 CONCLUSIONS AND SUGGESTIONS

Based on the results of the study, it can be concluded that the application of digital applications, both web-based and mobile, has contributed significantly to the development of writing skills in the context of learning English as a second or foreign language. Web-based applications such as Google Docs, Canvas, and LMS are proven to support collaborative writing learning, provide real-time feedback, and encourage more active student motivation and engagement. On the other hand, mobile apps such as WhatsApp, Google Slides, and Telegram offer great flexibility in informal and context-based learning, and open up opportunities for cross-cultural collaboration and multimodal expression. However, the utilization of these technologies still faces a number of challenges such as digital literacy gaps, lack of pedagogical training, and limitations in effectively controlling and evaluating the learning process.

Therefore, as a suggestion, the integration of digital applications in teaching writing needs to be accompanied by careful instructional planning, continuous teacher training, and curriculum development that is adaptive to technological developments. Educators need to combine the strengths of both types of apps-web and mobile-strategically to create a well-rounded, contextualized, and customized writing experience. In addition, further research is needed to explore the long-term effectiveness of these apps in various educational contexts and how technology can be adapted to learners' social and cultural backgrounds to realize inclusive and sustainable writing learning.

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