



Writing Skills in the Digital Age: Challenges and Opportunities-A Review of Applied Linguistics, Educational Technology, and Composition Studies Literature

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ABSTRACT

Writing today has an entirely different process and product, completely reimagined because of new digital technology. The ability to write on a computer and then save, copy, and share the writing, as well as having access to social media, easier messages and group work with cloud programs, not to mention the newer writing assist programs that employ AI and machine learning to help, writing has become more digital and more differentiated than ever. This paper analyzes and studies both the good and the bad that the digital age has brought to writing. It discusses the diminished focus on grammar and The more this technology is used as a crutch, the more it is used, in turn creating a bigger concern for plagiarism. However, this technology also has given writing the ability to be more multi-media, collaborative and instantly edited, published, and given feedback, all of which extend the scope of digital writing. The paper uses recent studies in Applied Linguistics and Educational Technology and Composition to show how this potentially positive technology can be a more constructive and educational resource in the classroom. The paper presents potential future classroom exercises designed to promote critical digital writing.

Keywords: Writing Skills; Digital Writing; Digital Literacy; Academic Writing; Generative AI Writing Tools; Composition Pedagogy

INTRODUCTION

Writing has always combined with the technologies used to make and share it, from the stylus and papyrus to the printing press and the typewriter. However, we are currently in the era of the most rapid and large-scale changes in technology. The ubiquity of smartphones, social networks, and instant messaging, along with word processors moving to the cloud, has changed writing from a mainly independent, serial activity to one that is frequently collaborative, multi-faceted, and instant. Even more recently, the inventions of generative artificial intelligence writing tools have made prose within seconds, and have made the debate about the nature of 'writing' and the importance of 'writing skills' even more important.

Thus far within education, this revolution has instilled anxiety among teachers, evaluators, and policy makers, while a focused optimism for the teaching potential of digital technology has been present. This essay joins these conversations. It will not characterize the digital age as universally negative or positive for literacy. Instead, it endeavors to describe the troubling and challenging nature of digital innovations that impact the assessment and teaching of writing, especially for students in the school and university systems. The essay has other sections which follow this introduction. The second section will present and analyze the research on digital literacy, digital composition, and writing, while incorporating theories of generative AI. The third section will present the shifting nature of writing in the digital age. The fourth and fifth sections will discuss the challenges and the opportunities which the digital age presents for teaching writing. The

sixth section will present the opportunities for teaching writing, framed within the context presented in the previous sections. The seventh section will present the concluding remarks.

LITERATURE REVIEW

The past two decades have seen significant scholarly effort to understand how digital technologies interact with writing fluency in the domains of applied linguistics, educational technology, and composition studies. This section of the literature review focuses on four interrelated strands: (a) how digital literacy is conceptualized and mapped empirically in educational situations; (b) research on supported academic writing instruction that uses digital technologies; (c) the burgeoning industry of research involving generative AI and student writing; and (d) the research on digital writing that is both collaborative and focused on assessment. Collectively, these strands of literature form the empirical and theoretical base for the analysis presented in the following sections.

Digital Literacy as a Foundation for Writing in Educational Contexts

Research in higher education has attempted to define and analyze the profiling of digital literacy. Gutiérrez-Ángel et al. (2022), in a systematic review of empirical studies between 2010 and 2021, identified the linking of digital competence to components of writing and reading, the managing of information, and the self-efficacy of students in digital tools. They also identified gaps in digital literacy as a function of gender and the disciplinary area. In addition to this, Farias-Gaytan, Aguaded, and Ramírez-Montoya (2023) conducted a systematic literature review of more than 200 studies of digital transformation in higher education, and found that institutions are incorporating digital tools for educational purposes, but there is relatively less focus on promoting the critical and reflective components of digital literacy in the face of a purely technical approach. Their results indicate that digital literacy can no longer be perceived as something that students have or lack, but must be viewed as an informal ability that educational systems must create in a sustained manner along with disciplinary and linguistic knowledge.

Digitally Supported Academic Writing Instruction

A second group of studies looks at how digital technologies shape teaching and learning academic writing. Strobl et al. (2019) studied the integration of technologies and pedagogies and noted tools and services across the spectrum from automated feedback systems to corpus-based reference tools. They argued that the pedagogical value of technologies is more dependent upon how they are integrated in the instructional design of a course rather than how sophisticated the systems are. In another study, Li and Li (2022) argued that evaluative frameworks for second language writing in digital contexts have to be reconceptualized because digitally mediated writing almost always makes use of spell-check, translation, and reference tools during the writing process, as opposed to at the final submission stage. These studies deal with specific tools, and the writing assistant that Nazari, Shabbir, and Setiawan (2021) evaluated in a randomized controlled trial yielded positive results on learning and writing in the field of higher education, which provides additional empirical evidence that digital writing integration frameworks can be designed with the intent of scaffolding writing, as opposed to simply automating it.

Generative AI and the Changing Landscape of Student Writing

The fast-growing segment of the literature focuses on student writing following the public availability of chatbots like ChatGPT starting from late 2022. Some of the empirical studies in this segment paint a mixed picture about student writing, rather than presenting a uniform narrative of student writing deteriorating or improving. First, Liu studied student use of generative AI and showed that students highly rated these assistive tools for constructing outlines, detecting gaps in structure, and correcting grammar. However, students expressed a high degree of uncertainty for where the boundary between legitimate assistance and cheating stands. Similar arguments have been made by Cotton et al. who argue that generative AI assistive technologies and their capacity to assist students in quickly creating passages and paragraphs that appear

sound and coherent have the potential to Circumvent the existing structures of academic integrity. On the contrary, Ai is radically changing the landscape of student prose. One such study based on corpus linguistics analyzed a large collection of undergraduate reports submitted before and after the advent of large language models. The authors of the study found an increased frequency of vocabulary associated with Ai generated text (e.g., 'crucial' in 'intricate' and 'underscore'), as well as a sharp drop in vocabulary in academic writing submitted in 2025. The authors posited that the drop in vocabulary used in 2025 was a result of students avoiding detection. This literature shows that generative AI drives changes in the way students write, the word choices they make, and the style of their writing, all of which will affect how originality and independent writing are assessed in academic contexts.

Collaborative, Multimodal, and Assessment-focused Digital Writing

A related body of literature focuses on the digital landscape's opportunities for collaborative and multimodal composition. Based on empirical research on computer-mediated collaborative writing in second-language contexts, Li (2018) argued that cloud-based writing tools offer the potential to enhance both the collaborative writing process and the final product, but only when specific attention is paid to the grouping and assignment of roles, as well as the scaffolding of collaborative activities; unrestricted access to collaborative tools does not produce these writing benefits. In parallel with the focus on collaboration, Kress (2003) offered an influential theoretical account of the shift from page-based to screen-based communication, making the case that this shift in communication privileges meaning-making through modes of representation (i.e., visual and spatial) over the logic of sequencing associated with the written word. Multimodal composition, of course, continues to be influenced by this line of research. Finally, it is evident that composition tools have the potential to extend access for learners with diverse needs; for example, Bonneton-Botté et al. (2023) summarized empirical research on digital tools to teach and rehabilitate handwriting for children, including those with dysgraphia, and highlighted that the potential that digital writing tools offer is experienced in varied ways by individual learners.

Synthesis and Research Gap

This literature does bring the present paper together on multiple fronts. To begin, while a number of studies recognize the interrelationship between digital literacy and writing, the absence of this interrelatedness in institutional practices is evident in curricular design. Second, while studies on digital writing tools and AI writing assistants have yielded mixed findings, research has noted that the answers to the incorporation of digital tools in the writing process are dependent upon the design of the task, the degree to which the scaffolding of the task is employed, and what type of transparency is conveyed during the integration of the tool. Finally, this body of literature consists of numerous studies on the fragmented aspects of this research. These studies include the digitally-mediated assessment of literacy, collaborative writing environments, or "AI for writing." Far fewer studies attempt to meet the challenge- and opportunity-side literatures at the same time and within the same framework of teaching practice. This gap is the focus of the remaining sections of the paper.

The Changing Nature of Writing in the Digital Age

Writing in a digital age differs significantly from the plain text writing of prior times. Most modern writing incorporates images, links, emojis, and audio and video files. This phenomenon is known as multimodal composing. Kress (2003) argued that the page is not the dominant form of communication, and the writing that heavily relies on linear thinking has been displaced by a communication system that privileges the visual and the spatial. The shift places a burden on the writer to a greater degree than grammar and syntax, as it now requires an understanding of design and layout, audience interactivity, and visual and spatial communication. On the other hand, most writing in digital forms has become writing of high velocity and low formality. Writing in the digital age has popularized the use of brevity, non-systematic spelling, and digital slang in communication. Formal communication has been eroded by informal communication. This is a common concern of researchers studying university students' writing (Gutiérrez-Ángel et al., 2022).

Challenges to Writing Skills in the Digital Age

The Erosion of Formal Register and Grammatical Precision

Digital registers are often informal and result in learners being unable to rely on code-switching to formal registers when required to write academically or in a professional capacity. Educators across the levels have observed the use of various colloquialisms, inconsistent capitalization, and sentence fragments in formal writings. This phenomenon is often the result of learners using text shorthand in casual conversations that have been popularized on social media or messaging platforms.

The Dependency on Autocorrect and AI Writing Assistants

Domain-specific writing assistants are in the form of spell and grammar checkers, and generative AI assistants. These tools have been known to correct or even write a part of the text for the user. These tools reduce the number of visible mistakes, but learners lose the ability to write or even evaluate the mistakes, let alone explain writing rules. A combination of Digital tools with English-medium-Instructions in scholarly writing has shown that students appreciate the tools, but are afraid of losing their own writing skills due to the tools, and worry about crossing the line in terms of legitimate writing assistance and over-usage of tools (Hadizadeh, 2025). This over-dependence on tools has been observed in writing assistants that generate text, and students find it difficult to differentiate between the two (Liu, 2024).

Plagiarism and Academic Integrity

AI that can easily generate text poses some major challenges for plagiarism and academic honesty. Cotton, Cotton, and Shipway (2024) say that generative AI makes the traditional methods of spotting plagiarism inadequate since the AI does not copy text from a single source. This means that the similarity-matching software that many educational organizations use becomes ineffective. The researchers found that many students experience anxiety due to self-doubt about the authenticity of their academic work, as a result of students relying on online text and paraphrasing software. This shows that clearer directions are needed about the responsible use of online digital tools. (Hadizadeh 2025).

Distraction and Reduced Attention Span

Multiple stimuli such as notifications, browser tabs, and social media feeds permeate digital writing environments. This fragmented attention degrades the capacity of learners to sustain their focus and engage in reflective thinking, hindering their ability to plan, draft, and revise in a methodical manner.

The Digital Divide

Equitable access to reliable devices, internet, and digital literacy continues to be uneven, particularly in rural and economically disadvantaged regions. Learners who reside in these regions are at a disadvantage in classes that assume the learners have developed digital fluency. This only serves to create and deepen existing educational inequities (Farias-Gaytan et al., 2023).

Opportunities Provided by the Digital Age

Collaborative and Process-Oriented Writing

Writing has become more collaborative and visible on cloud-based platforms as authors can write, comment on, and revise a document in real-time with their peers. Empirical evidence suggests that digital tools and systems can support and improve the writing process and the product (Li, 2018).

Formative Feedback and Assessment

New digital environments promote diverse and more frequent opportunities for assessment and feedback. These may include computer assisted writing evaluation tools, teacher designed annotation tools, and peer-to-peer platforms. Some studies of second-language writing in digital contexts have shown that exposing the writing process in assessment can promote the writer's learning, as long as the evaluator is flexible in considering the limits and potential of digitally mediated writing (Li & Li, 2022). Other studies have also shown the positive effects of integrating well-developed AI writing assistants as formative feedback tools, as opposed to a substitute for writing practice, on the student's writing performance (Nazari, Shabbir, & Setiawan, 2021).

Multimodal and Creative Expression

With digital writing, one is not constrained to only the traditional forms of literacy such as word processing. Writing can take the form of software and digital media used to create and publish digital narratives. Within the context of writing practice, digital media and technology may be used as a means to create writing across a wider variety of forms and formats. This can be particularly motivating to those who are usually unwilling to write.

Expanded Access to Publication and Audience

The elimination of traditional 'gates' to the publishing industry means that writers have immediate access to, and feedback from, their intended audience. This has also resulted in a greater focus on consistency in writing and motivated authors to revise their work.

Assistive and Inclusive Technologies

Digital writing tools like text-to-speech, predictive text, and AI-based writing assistants can help students with dyslexia and dysgraphia communicate and write in ways that were not previously possible in fully print-based classrooms (Bonneton-Botte et al., 2023).

DISCUSSION: PEDAGOGICAL IMPLICATIONS AND RECOMMENDATIONS

The literature cited in section 2, along with the challenges and opportunities mentioned in sections 4 and 5, points to a broad agreement in one central area; there is little or no evidence to suggest that digital technologies, in and of themselves, either help or hamper the acquisition of writing skills. Instead, the impact of these technologies is related to the design of the task, the degree of control established by the users and the degree to which use of the tools is reflective and not incidental. This is in agreement with Strobl et al. (2019), who argue that one of the key determinants of the pedagogical effect of digital tools is the extent to which tools are integrated with the instructional design. This position is further strengthened by the varied empirical evidence reviewed in section 2.3 on generative AI within controlled and uncontrolled settings, which, when used within defined parameters, could lead to improvements in students' written output, while when used without constraints, could detrimentally affect the authenticity of the lexicon used.

Writing pedagogy of the digital age has the potential to teach the concept of critical digital writing literacy. This helps individuals leverage writing tools while maintaining a strong control of core elements of writing. This framework is built around five interlocking commitments. First, teachers must help learners know about the concept of register and differentiate between informal and formal text. This will help learners at the later stage while formal digital communication is required. Second, a translation of active writing assistance into AI and related checkers must be taken into account to help learners understand the boundaries of the technology and how different elements of the text are best left to the writer. Third, assessments ought to prioritize drafting, revision, and a record of the process over the final draft. This is consistent with a process-writing assessment approach (Li & Li, 2022). Fourth, the need to teach about integrity and citation, and other digital research frameworks, has emerged to help learners understand the boundaries of generative AI and how different elements of text are best left to the writer. Fifth, to ensure that digital tools close the

gap of gaps between the haves and the have nots, teaching institutions must increase investments in system inequities (Farias-Gaytan et al., 2023).

CONCLUSION

Writing is essential in all eras and especially the digital age. Writing now has expanded into more domains and required more diverse skills. The issues associated with writing in a digital age are valid: informal writing, reliance on automatic writing and correction software, plagiarism, internet distractions, and unequal access. The digital age also provides the ability to write across multiple media, create better writing, provide more feedback, and reach a broader audience. Challenges associated with the digital age create opportunities for writers to work together. The reviewed literature suggests that educators should not try to stop the digital age. Instead, educators should be constantly shaping the digital age so that individuals can be writers that use digital technology and have an understanding of written communication that is clear, precise, and ethical. Future research should take a more longitudinal approach and focus specifically on tracking individual writers during the transition to the digital age dominated by generative AI while the existing research takes more of a cross-sectional and perceptive approach.

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