

**The Affordances and Contradictions of AI-Generated Text for Writers of English as a
Second or Foreign Language**

Mark Warschauer¹, Waverly Tseng¹, Soobin Yim², Thomas Webster³, Sharin Jacob¹, Qian Du¹,
and Tamara Tate¹


¹University of California, Irvine

²Korea University

³Ewha Womans University

October 31, 2023

Author Note

Mark Warschauer  <https://orcid.org/0000-0002-6817-4416>

Waverly Tseng  <https://orcid.org/0009-0004-5756-3266>

Soobin Yim  <https://orcid.org/0000-0003-2567-1452>

Thomas Webster  <https://orcid.org/0000-0003-1024-3842>

Sharin Jacob  <https://orcid.org/0000-0003-4073-4271>

Qian Du  <https://orcid.org/0000-0002-9437-6935>

Tamara Tate  <https://orcid.org/0000-0002-1753-8435>

We have no known conflict of interest to disclose.

Correspondence concerning this article should be addressed to Mark Warschauer, University of California, Irvine, 3200 Education, Irvine, CA 92697-5500. Email: markw@uci.edu

Abstract

The public release of ChatGPT has provoked much debate as to the potential consequences of artificial intelligence (AI) for writing education. For second language educators and researchers in particular, AI-generated writing poses a major concern for student learning. However, it is also important to recognize the powerful affordances of ChatGPT for second language writers in their studies and careers. We argue that the value of ChatGPT and similar AI-based writing tools for second language learners must be understood through three contradictions: the “imitation” contradiction, the “rich get richer” contradiction, and the “with or without” contradiction. To most effectively address these contradictions, we propose a five-part pedagogical framework focusing on understanding, accessing, prompting, corroborating, and incorporating AI in the writing process. By facilitating conversations about how to use AI in the classroom, we can better support second language learners’ writing development and prepare these students for a world that increasingly values one’s ability to understand and use AI.

Keywords: artificial intelligence, generative AI, second language, foreign language, writing instruction

The Affordances and Contradictions of AI-Generated Text for Writers of English as a Second or Foreign Language

Imagine you are a scientist from a small town in South Korea, or Egypt, or Kazakhstan. You have studied hard for years, even decades, to master your field. But when you seek to publish your work in prestigious journals, submit papers, lead conferences, or simply collaborate with colleagues around the world, you are evaluated not just on your scientific expertise, but on your abilities in a subject which you did not major in—English, and, in particular, English writing. You seek ways to meet this challenge, either through your own study or through paying for translators and editors, but this is a tax on your time and money that you will be paying your entire professional life.

Now imagine a new tool, such as ChatGPT, comes along that can translate or rewrite your documents into grammatically-correct and stylistically-appropriate English. You learn to use the tool to translate or edit your texts, generate email messages, and get feedback on your writing. The “tax” you pay as a second language writer in English has been substantially reduced.

But now picture yourself as a younger version of this same person. While focusing on your STEM courses, you also need to pass your mandatory English class. Your teacher assigns regular discussion posts, essays, or other writing assignments. You have some ideas, but you know that AI can articulate them in English much better than you. So you draft your ideas and ask an AI tool to rewrite them—and, realizing that it has communicated your own ideas much more effectively than you could have, you submit what the AI provided. The teacher becomes suspicious of your suddenly more fluent writing and reports you to the dean for possible academic dishonesty. You fear being kicked out of college, and you don’t know what you have

done wrong, because some of your more affluent peers regularly hire tutors to help edit their work.

The affordances of AI-generated text—a type of writing produced through the use of AI’s functionalities with varying degrees of content control, ranging from translating, editing, paraphrasing, revising, researching, to generating text—are as transformational as was the original transition to digital writing (see, e.g., Su et al., 2023). And, as these examples show, the potential of these affordances for second language writers are enormous, but so are the challenges and risks. In this paper, we highlight three contradictions that L2 writers face when using AI tools and propose an AI literacy framework for effectively integrating ChatGPT and similar AI tools into L2 writing instruction. The proposed framework is intended to be broadly used, including for L2 writing teachers and scholars working in the context of English for academic purposes in ESL/EFL higher education contexts. We define AI literacy as a newly emerged but critical aspect of literacy skills that is necessary for L2 writers to effectively navigate and integrate AI technologies into their writing tasks. In considering AI literacy for second language writers, though, it is first important to consider these three contradictions.

1. The “imitation” contradiction

Influences of post-war colonialism, emigration, and globalization have resulted in the rapid spread of the English language since the late twentieth century at an unprecedented pace. Consequently, research on English learning has also shifted from focusing on the acquisition of linguistic norms as defined by inner-circle English speakers (Kachru, 1985) to studying how learners’ multilingual repertoires, including English, interact with each other and integratively impact their language use and proficiency (Jenkins, 2015). Frameworks such as World Englishes, English as a lingua franca, and translingualism have gained increasing popularity by

writing and composition researchers (Canagarajah, 2006, 2015; . Lee, 2016; Matsuda & Matsuda, 2010; Wu et al., 2020).

Despite these recent research advancements, the communicative reality that many English learners have to navigate can still be challenging and may not always align with what research emphasizes are successful strategies for successful writing (Olson & Land, 2007). This can be seen in many academic and professional contexts (e.g., college classes, academic conferences, scholarly publishing) that still require high levels of linguistic accuracy and clarity based on traditional criteria. This inevitably means that non-inner-circle English speakers still need to shoulder the responsibility of following “norms” and “standards” to meet expectations. A dilemma that many writing instructors face, accordingly, is whether it is in the students’ best interest to not teach “standardized” uses of the English language (Lee, 2016).

It is not surprising, therefore, that English learners often choose to imitate how inner-circle English speakers write, for example, by identifying formulaic sequences in L1 writing samples and integrating them into their own work (see, e.g., Matsumura, 2003; Payne & Whitney, 2002). Yet despite the widely acknowledged role of imitation in learning a new language (De Guerrero & Commander, 2013; Macbeth, 2010), imitating too closely may result in severe consequences for English learners. In fact, plagiarism and textual appropriation have remained a key area of inquiry for second language writing researchers due to the high-stakes nature of academic writing contexts and the common challenges that L2 writers encounter when navigating the sometimes-blurred boundaries of acceptable and unacceptable borrowing (see the *JSLW* special issue on textual borrowing in L2 writing, edited by Polio & Shi, 2012)

As L2 writers practice new ways of writing with sources, e.g., paraphrasing, they often find themselves producing what Howard (1992) calls patchwriting, or “copying from a source

text and then deleting some words, altering grammatical structures, or plugging in one-for-one synonym substitutes” (p. 233). Writing research has largely reached a consensus that patchwriting should be treated differently from plagiarism, as the former is often a result of learners’ efforts to imitate target writing conventions and test boundaries whereas the latter signals a deliberate attempt to cheat (Pecorari, 2003); however, this nuanced understanding is not necessarily reflected in the strict, legalistic, and sometimes inequitable definitions of plagiarism provided by higher education institutions. For example, a survey of definitions of plagiarism at 54 English-speaking universities showed that diction such as “taking credit falsely,” “stealing,” “representing as one’s own,” and “passing off as one’s own” were commonly used, connoting a general view of plagiarism as an intentional and deceptive act (Pecorari, 2001, pp. 234-235).

ChatGPT puts the imitation contradiction on steroids. It allows anyone to generate L1-like text on almost any topic without the user needing to be an expert in that topic. This is a powerful affordance – but it also amplifies the chance that students will be accused of plagiarism in doing so. While any student who uses, or is perceived to be using, AI-generated writing can be accused of academic dishonesty, the threat level to second language writers is heightened. If they are emerging writers, the gap between their own writing in L2 and that of AI-generated text will be most easily noticed and thus most easily subject to discipline. And, in a cruel irony, even those who are the best writers may be subject to accusations because their teachers will suspect that their writing is too good to be true. Many instructors are tempted to deploy AI-generated writing detectors, but not only are these detectors wildly inaccurate (Kirchner et al., 2023), they are particularly biased against second language writers, falsely labeling L2 texts as AI-generated more than half the time (Liang et al., 2023).

2. The “rich get richer” contradiction

Though new technologies are often seen as levelers of inequality, they typically have the opposite effect, especially during the early decades of diffusion, as those with the skills, knowledge, and resources to access and exploit them are the first to benefit (see, e.g., Dittmar, 2011). This has certainly been the case with information technology, the rise of which corresponded to a rapid increase in social and economic inequality around the world (Piketty, 2014).

The digital divide has been a persistent challenge to tackle in language education. Although the concept traditionally focuses on differing access to technology equipment and resources between high and low socioeconomic status students, recent discussions have broadened the scope of the notion to highlight the impact of unequal access to technologies on students' learning outcomes and social development (Warschauer, 2004). Increasing physical access to technologies alone does not necessarily result in more learning opportunities or better learning outcomes. Teachers who are trained to teach English may not be equipped with the needed knowledge and skills to fully and purposefully integrate different technologies in support of learning (Andrei, 2017). "Humanware" is a critical element to achieve teaching and learning effectiveness through the "hardware" and "software" of technology (Warschauer, 2002, p. 472). On the other hand, English learners may also have differing preferences for whether to use technology to assist language learning. Even among learners who generally have a positive attitude towards technology, there may still be large discrepancies between perceived usefulness and actual implementation (C. Lee et al., 2019).

On the face of things, AI-generated writing is a great leveler of linguistic inequality, as AI writing tools can give people around the world access to communication in English that is difficult to distinguish in grammar, style, or usage from that written by an educated L1 writer.

But it takes a certain amount of privilege to fully exploit AI-generated writing. This includes access to digital media, living in a country in which AI tools are available, and, if they fall behind paywalls, being able to afford them. For many English learners, any one of these requirements may be a deterrent to using these tools. AI-generated writing thus runs the risk of becoming yet another contributor to the same inequality that it has the potential to address. The more powerful AI tools get, the wider the “language divide” (Pearce & Rice, 2014, p. 26) may become for English learners. The key question—“is technology a tool for language learning, or is language learning a tool with which people can access technology?” (Warschauer, 2002, p. 453)—may become even more complex with the rapid development of advanced AI tools.

3. The “with or without” contradiction

A central requirement to be able to use technologies for English writing development is, ironically, a good grasp of the language and the ability to write effectively already. For example, English learners with higher proficiency levels have been shown to demonstrate deeper engagement with automated feedback provided by tools such as Grammarly and are more selective about whether to incorporate the feedback, whereas lower-proficiency students overly trust and rely on the feedback (Barrot, 2023; Koltovskaia, 2020). In addition, English learners’ proficiency levels have also been found to play a mediating role in their perceptions and use of corpus-based tools to assist with writing (Yoon, 2008; Yoon & Hirvela, 2004).

To use AI-generated writing to its fullest potential, writers need to give the right prompts, understand its limitations, and edit and incorporate AI-generated text effectively. Second language writers may struggle with constructing “good” prompts to generate useful content and with revising the text to meaningfully add to their own writing. In contrast, those who have a strong foundation in English writing will be better positioned to exploit AI tools, while also

making their own work—whether completely original or AI-assisted—stand out in a world of bland, computer-generated writing. In other words, the better students can write without AI, the better they will be prepared to write with it. This has potentially harmful consequences for second language writers—in the age of AI writing, those who can already write very well without AI may become more and more valued, whereas those who have lower writing proficiency, with or without AI, may be increasingly excluded.

However, just as second language writers' development of traditional literacy skills are necessary to write without AI, so too do they need to learn how to write with it. Writing with AI involves separate digital literacy skills of being able to communicate with AI, in both senses of the word “with”: Students communicate with AI through learning how the tools work, and they communicate with AI in the same way they communicate with a paper or pen, as a tool to interact with others. While digital literacy is a broader term that encompasses the ability to communicate, interact, and make meaning through various digital modes and formats (Dobson & Willinsky, 2009; Warschauer, 1999), AI literacy is a more specialized subset of skills to use AI technology to actively and creatively understand, access, prompt, corroborate, and incorporate it into their writing. As such, learning how to engage with AI tools as not only grammar checkers or summarizing machines, but also thinking partners, can be pivotal for students who seek to use these AI tools to expand their writing potential.

Unfortunately, the foundational writing skills required to use AI effectively and the actual use of AI-assisted writing can be in contradiction to each other. Premature exposure to AI writing tools can inadvertently teach students to extensively and exclusively rely on these tools, robbing students of opportunities to develop the foundational writing skills that they will need to best use them in the future. For second language writers, for example, early introduction to AI

writing tools like ChatGPT can present students with an all-too-tempting opportunity for easy assignment completion, rather than effortful learning. But failure to also learn how to effectively leverage AI tools in their writing could leave them ill-prepared for a future that requires the sophisticated use of AI tools.

This final note is related to an additional, important contradiction that undergirds all three of the principles that we have discussed so far: **the “school-work” contradiction**. In this contradiction, the learner steps from the classroom, in which the use of AI tools is prohibited and punished, into the workplace, in which the use of those tools is not only encouraged, but expected (Gurchiek, 2023). The same second language writers who may be accused of academic dishonesty for using AI tools in their classroom can face disadvantages in the workforce if they cannot use these tools proficiently, as employers value efficiency and productivity over authenticity. The net effect of this punitive approach? The student who enters the workplace with the notion that AI-assisted writing is without merit (a stance that could very well result from a lack of exposure to these tools) is forced to start behind their peers who have experience with using AI tools to support their workflows.

The contradictions described here are clearly complicated, and there are no clear answers for how to address each of these. However, we must grapple with each of these contradictions, as these are the challenges second language writers face as ChatGPT and other AI-generated writing tools become more and more ubiquitous. With this in mind, we propose a pedagogical model that seeks to address these contradictions through AI literacy.

A Path Forward – An AI Literacy Framework

To overcome these contradictions, teachers need to adapt to the advent of AI-generated writing in both immediate and long-term contexts. To do so, we proposed an AI literacy

framework, including five elements: understand, access, prompt, corroborate, incorporate (see Tseng & Warschauer, 2023).

Our perspective on this is shaped by sociocultural theory, which views the significance of tools not in their abstract properties, but rather in how they transform human activity (Vygotsky, 1981; cf. Warschauer, 2005). From this perspective, the incorporation of tools does not simply facilitate action that could have occurred without them, but rather, by being included in the process of behavior, alters the entire flow and structure of mental functions. Thus, in the 1990s, applied linguists came to realize that computers were not simply tools to teach the exact same thing through a new medium, but were instead reshaping the entire terrain of language use and learning (see, e.g., Warschauer, 1999). This suggests that the ability to write well is, to a certain extent, tool dependent. Writing well with and without computers are distinct, if overlapping competencies, as seen for example in our analysis of writing exams (Tate et al., 2016, 2019; Tate & Warschauer, 2019).

Language educators started to grapple with how they could teach students to communicate in this environment, including skills of finding and analyzing online information and producing multimodal texts (e.g., Shetzer & Warschauer, 2000). More recently, second language educators have pursued a similar direction with Google Translate, recognizing and exploiting its role in the language learning process rather than seeking to ban it (Knowles, 2022). When integrated effectively, the tool served as a resource for composing bilingual text, contributing to fostering a classroom culture that appreciates multilingualism (Rowe, 2022).

A similar approach is needed with AI-generated text: recognizing how it is transforming language use and writing and integrating it into instruction in ways appropriate to students' learning goals and proficiency levels so that students learn to write well both with and without it.

By applying an AI literacy framework, writing instructors can help L2 students effectively leverage the power of AI tools to improve their English writing skills.

First, students need to **understand** the basics of AI writing tools' functions, strengths, weaknesses, and biases (Ng et al., 2021, "Know and Understand"). Effective and balanced use of these tools should start with understanding the big questions: why AI is beneficial, what it can and cannot do, and how to use it. If integrated with sound second language pedagogy, AI-generated writing can offer significant learning affordances. AI tools can facilitate the writing ideation process by adjusting the difficulty level of reading passages, as well as teach macro-level issues of writing by modifying texts to different genres or styles. Additionally, AI can support the integration of writing and other language skills by converting essays to dialogues, speeches, and plays, or vice versa. Finally, AI-based feedback, which can combine revisions of writing with explanations driven by the specific concerns of the writer, has the potential to consolidate learning when used with reflection activities. These follow-up activities can facilitate students' noticing (Schmidt, 1990) of possible gaps between writing that they output (Swain, 2005) and AI-generated writing, in addition to fostering the development of metacognitive skills involved in students' writing development (Hacker, 2018).

Second, students need to be able to **access and navigate** AI-writing tools across specific communication tasks, such as writing papers or emails, or gathering background information (Ng et al., 2021, "Use and Apply"). Students need to carefully consider the contextual factors of their writing, such as writing purpose, audience, or genre demands, and learn how to align AI functionalities (see Table 1 for a list) with their specific needs. For example, students engaging in science writing may want to use ChatGPT to retrieve example sentences from a specific corpus, such as journals or disciplinary texts, or to summarize the key results from previous

literature. On the other hand, students seeking to write professional emails may use the tool to easily obtain sentence frames or templates that help them understand the genre norms. In all cases, it is crucial for second language writers to be able to navigate AI functionalities to most effectively scaffold and fulfill their specific writing needs.

Table 1

A Sample List of ChatGPT Functionalities

ChatGPT Functionalities	Examples
Content development	<ul style="list-style-type: none"> • Suggestions for potential topics, outlines, or resources • Collection and summarization of related information • Facilitation of brainstorming through conversation
Corpus search	<ul style="list-style-type: none"> • Retrieval of example sentences using the given vocabulary or grammar structure from a specific disciplinary corpus
Text modification	<ul style="list-style-type: none"> • Adjustment of difficulty level • Adjustment of genre, tone, voice, or formality
Feedback and revision	<ul style="list-style-type: none"> • Editing and proofreading with explanations • Revision for specific aspects of writing (content, organization, clarity, etc.) with explanations • Analysis of learner errors and mistakes
Response to questions	<ul style="list-style-type: none"> • Providing answers to specific questions (appropriateness, confusing synonyms, etc.)
Support for sentence generation	<ul style="list-style-type: none"> • Translation or articulation of a given sentence • Generation of templates or sentence starters
Vocabulary / Grammar support	<ul style="list-style-type: none"> • Providing definitions or explanations for unknown vocabulary or grammar items
Paraphrasing / Summary	<ul style="list-style-type: none"> • Paraphrasing and summarizing to meet specific requirements (length, style, etc.)

Third, students need to expertly **prompt** AI to generate content that is relevant and helpful for their writing goals. In that sense, AI writing tools are like search engines: garbage in,

garbage out. Much like old-school computer database queries using Boolean search terms, AI tools require good prompting – which, in turn, requires knowledge of how the tool works, what they want the text output to look like, and the subject matter of the desired output. Best practices for scaffolding this process by providing students with explicit and sustained guidance on constructing and refining their prompts will be an important topic of investigation. One approach that may be effective is to explore different prompt types and examples (see Table 2 for some suggestions) with students to orient their questions and iteratively refine their prompts to achieve their writing goals.

Table 2*Prompt Types and Examples*

Prompt Type	Sample Prompts
Research-oriented	<ul style="list-style-type: none"> · What are the important facts / statistics / current issues related to the following topic? Provide references. · Suggest references for the following topic and summarize each source with references.
Learning-oriented	<ul style="list-style-type: none"> · What are the different types of paraphrasing? Provide examples for each type. · Explain if ‘the’ is necessary in the following sentence and explain why. Give me 10 more examples that demonstrate the same usage.
Interaction-oriented	<ul style="list-style-type: none"> · I need help with brainstorming. Can you ask me questions on the following topic one at a time and edit my answers?
Feedback-oriented	<ul style="list-style-type: none"> · Revise my essay and provide explanations for each change. · What are the most common mistakes in my text? List them in order of frequency and explain each one.

Fourth, students will need to **corroborate** the accuracy of AI-generated content throughout the writing and revision process. Much of AI-generated writing is based on large language models that are expert text predictors but hold no interpretation of truth. Current AI

tools can thus be fluent liars; they make up studies, facts, and citations with little regard for the reader's ability to parse out pieces of truth. As such, instructors need to ensure students know that AI tools may exhibit the underlying biases of their training corpus and help students with building an understanding of how to verify and evaluate the generated text. This skill is critical for L2 writers to make informed decisions about whether and how to use AI tools to assist in their writing. By teaching students how to navigate the potential inaccuracies and biases of AI-generated text, instructors can help L2 writers become more effective and flexible writers capable of harnessing the power of AI tools without compromising the integrity of their writing.

And, finally, students need to learn how to **incorporate** AI-generated texts in their own writing ethically and effectively, noting and citing their use of AI in the authoring process. The standards for how to do so have not yet emerged, but will certainly do so over time, and we as educational researchers will have an important say in what they are. OpenAI's policy (OpenAI, n.d.) that all written content created in part with text from ChatGPT should be "clearly disclosed in a way that no reader could possibly miss, and that a typical reader would find sufficiently easy to understand," is a good starting point. Research on textual borrowing has consistently demonstrated that the concept of plagiarism, and relatedly what constitutes appropriate and ethical intertextuality, is often defined in such a vague and obscure way that discrepancies exist even among experienced academic writers as to how to draw the line between appropriate and inappropriate borrowing (Pecorari, 2022). It is therefore important to engage in open discussions with L2 writers on how to make sense of the boundaries for using AI tools within institutional plagiarism policies. Such discussions provide meaningful learning opportunities for students to develop a deeper understanding of the complexity of plagiarism and textual borrowing. Instructors will need to teach and emphasize the importance of ethical and transparent use of AI-

generated text, and be wary of the false allure of highly flawed detection tools. Such discussions may take time to develop; however, these are essential in understanding how AI-based tools can provide pivotal support for L2 writers' processes while still preserving their unique agency and voice (e.g., Jacob et al., 2023).

These five elements of our framework are essential to building second language students' understanding of how to navigate the contradictions involved in using AI to support their learning. We should note that any use of AI-based tools in writing instruction should be introduced in a balanced and age- and level-appropriate manner. Just as a young child should first learn arithmetic before being introduced to the graphing calculator, L2 writing instructors should introduce AI tools or partial functions of such tools in ways that align with students' learning goals and proficiency levels. The key is to ensure that students have developed foundational writing skills before incorporating AI tools to explore how to further improve their learning with the tools. How to effectively evaluate when to introduce what functions of AI tools, however, requires more research and time to determine. As we continue to explore the ways in which we can effectively integrate AI tools into second language instruction, this will be an important conversation to have and continue having.

Conclusion

The sudden release of ChatGPT to the public has provoked schools and administrators to rapidly improvise instructional policies of varying severities in an effort to deal with the rapid diffusion of AI-generated text. The natural instinct of many writing instructors, including second language writing teachers, is to ban it, both to prevent academic dishonesty and to give students the opportunity to learn to write independently without it.

But AI-generated writing cannot be banned from instruction. First, it is rapidly becoming

ubiquitous. ChatGPT is just the best-known AI-text generation tool, but the underlying models are already being integrated into search engines, word processors, and browser plug-ins. They will be everywhere and will no doubt significantly impact students' individual pathways to learning—both formally and informally.

Secondly, even if we could ban it, we shouldn't. The possible affordances these tools pose for students and, in particular, second language learners cannot be ignored. While it is important for us to consider the contradictions inherent in using these tools, we argue that these contradictions do not outweigh the capability AI-based writing tools have for supporting writing development in the second language classroom. Rather than threatening the development of traditional literacy, AI tools, when integrated within a pedagogical framework, can expand the traditional notion of literacy from mastering the discrete skill sets to include the ability to skillfully scaffold their own writing using multiple digital functionalities and resources, to promote their participatory engagement in online settings, and to critically evaluate the impact of emerging technologies on literacy processes and outcomes (cf. Darvin & Hafner, 2022).

Furthermore, if we are to exclude our students from the global conversation revolving around AI and its use in education, we only serve to perpetuate and exacerbate the equity gaps that already exist and penalize second language learners. By facilitating and encouraging honest classroom discussions with students, we can instead help build the foundation for students and teachers to understand and use AI tools effectively, supporting the development of long-term policies that support—rather than punish—students' use of these tools to support their own writing.

Many worry about AI becoming more intelligent and separate from our concerns. Others predict a more benign process whereby humans enhance their potential through AI. In fact,

learning to incorporate AI generators in ethically and pedagogically sound ways may be evidence of exactly how this can happen. We all want a future based on our humanity and shared values, not dictated by algorithms—so the more involved we are in the process, the more likely this will occur. An AI-literacy framework will provide just such a starting point in considering how to do so for L2 English writers, who may have the most to lose or gain from this powerful new tool.

References

- Andrei, E. (2017). Technology in teaching English language learners: The case of three middle school teachers. *TESOL Journal*, 8(2), 409-431. <https://doi.org/10.1002/tesj.280>
- Barrot, J. S. (2023). Using automated written corrective feedback in the writing classrooms: Effects on L2 writing accuracy. *Computer Assisted Language Learning*, 36(4), 584-607. <https://doi.org/10.1080/09588221.2021.1936071>
- Canagarajah, A. S. (2006). The place of World Englishes in composition: Pluralization continued. *College Composition and Communication*, 57(4), 586-619. <https://www.jstor.org/stable/20456910>
- Canagarajah, S. (2015). Clarifying the relationship between translingual practice and L2 writing: Addressing learner identities. *Applied Linguistics Review*, 6(4), 415-440. <https://doi.org/10.1515/applirev-2015-0020>
- Darvin, R., & Hafner, C. A. (2022). Digital literacies in TESOL: Mapping out the terrain. *TESOL Quarterly*, 56(3), 865-882. <https://doi.org/10.1002/tesq.3161>
- De Guerrero, M. C., & Commander, M. (2013). Shadow-reading: Affordances for imitation in the language classroom. *Language Teaching Research*, 17(4), 433-453. <https://doi.org/10.1177/136216881349412>
- Dittmar, J. (2011). *Information technology and economic change: The impact of the printing press*. The Centre for Economic Policy Research. <https://cepr.org/voxeu/columns/information-technology-and-economic-change-impact-printing-press>.
- Dobson, T. M., & Willinsky, J. (2009). Digital literacy. In D. Olson & N. Torrance (Eds.), *Cambridge handbook of literacy* (pp. 286-312). Cambridge University Press.

Gurchiek, K. (2023, August 18). *AI is changing the skills that employers want from workers*.

SHRM. <https://www.shrm.org/>

Hacker, D. J. (2018). A metacognitive model of writing: An update from a developmental perspective. *Educational Psychologist*, 53(4), 220-237.

<https://doi.org/10.1080/00461520.2018.1480373>

Howard, R. M. (1992). A plagiarism pentimento. *Journal of Teaching Writing*, 11, 233-245.

Jacob, S., Tate, T., Warschauer, M. (2023). Emergent AI-assisted discourse: Case study of a second language writer authoring with ChatGPT. arXiv preprint. arXiv:2310.10903.

Jenkins, J. (2015). Repositioning English and multilingualism in English as a lingua franca. *Englishes in Practice*, 2(3), 49-85.

Kachru, B. B. (1985). Standards, codification and sociolinguistic realism: The English language in the outer circle. In R. Quirk & H. G. Widdowson (Eds.), *English in the world: Teaching and learning the language and literatures* (pp. 11-30). Cambridge University Press.

Kirchner, J. H., Ahmad, L., Aaronson, S., & Leike, J. (2023, January 31). *New AI classifier for indicating AI-written text*. OpenAI. <https://openai.com/blog/new-ai-classifier-for-indicating-ai-written-text/>

Knowles, C. L. (2022). Using an ADAPT approach to integrate Google Translate into the second language classroom. *L2 Journal*, 14(1), 195-236. <https://doi.org/10.5070/L214151690>

Koltovskaia, S. (2020). Student engagement with automated written corrective feedback (AWCF) provided by Grammarly: A multiple case study. *Assessing Writing*, 44, 100450.

Lee, C., Yeung, A. S., & Cheung, K. W. (2019). Learner perceptions versus technology usage: A study of adolescent English learners in Hong Kong secondary schools. *Computers &*

- Education*, 133, 13-26. <https://doi.org/10.1016/j.compedu.2019.01.005>
- Lee, J. W. (2016). Beyond translingual writing. *College English*, 79(2), 174-195.
<https://doi.org/10.1016/j.asw.2020.100450>
- Liang, W., Yuksekgonul, M., Mao, Y., Wu, E., & Zou, J. (2023). GPT detectors are biased against non-native English writers. *Patterns*, 4(7).
<https://doi.org/10.1016/j.patter.2023.100779>
- Macbeth, K. P. (2010). Deliberate false provisions: The use and usefulness of models in learning academic writing. *Journal of Second Language Writing*, 19(1), 33-48.
<https://doi.org/10.1016/j.jslw.2009.08.002>
- Matsuda, A., & Matsuda, P. K. (2010). World Englishes and the teaching of writing. *TESOL Quarterly*, 44(2), 369-374. <https://doi.org/10.5054/tq.2010.222222>
- Matsumura, S. (2003). Modelling the relationships among interlanguage pragmatic development, L2 proficiency, and exposure to L2. *Applied Linguistics*, 24(4), 465-491.
<https://doi.org/10.1093/applin/24.4.465>
- Ng, D. T. K., Leung, J. K. L., Chu, S. K. W., & Qiao, M. S. (2021). Conceptualizing AI literacy: An exploratory review. *Computers and Education: Artificial Intelligence*, 2, 100041.
<https://doi.org/10.1016/j.caeai.2021.100041>
- Olson, C. B., & Land, R. (2007). A cognitive strategies approach to reading and writing instruction for English language learners in secondary school. *Research in the Teaching of English*, 41(3), 269-303.
- Payne, J. S., & Whitney, P. J. (2002). Developing L2 oral proficiency through synchronous CMC: Output, working memory, and interlanguage development. *CALICO Journal*, 20(1), 7-32. <https://doi.org/10.1558/cj.v20i1.7-32>

- Pearce, K. E., & Rice, R. E. (2014). The language divide—The persistence of English proficiency as a gateway to the Internet: The cases of Armenia, Azerbaijan, and Georgia. *International Journal of Communication*, 8, 26.
- Pecorari, D. (2001). Plagiarism and international students: How the English-speaking university responds. In D. Belcher & A. Hirvela (Eds.), *Linking literacies: Perspectives on L2 reading-writing connections* (pp. 229–245). University of Michigan Press.
<https://doi.org/10.3998/mpub.11496>
- Pecorari, D. (2003). Good and original: Plagiarism and patchwriting in academic second-language writing. *Journal of Second Language Writing*, 12(4), 317-345.
<https://doi.org/10.1016/j.jslw.2003.08.004>
- Pecorari, D. (2022). Plagiarism and English for academic purposes: A research agenda. *Language Teaching*, 56(3), 1-15. <https://doi.org/10.1017/S0261444821000495>
- Piketty, T. (2014). *Capital in the twenty-first century*. Harvard University Press.
- Polio, C., & Shi, L. (2012). Perceptions and beliefs about textual appropriation and source use in second language writing. *Journal of Second Language Writing*, 21(2), 95-101.
<https://doi.org/10.1016/j.jslw.2012.03.001>
- Rowe, L. W. (2022). Google Translate and biliterate composing: Second-graders' use of digital translation tools to support bilingual writing. *TESOL Quarterly*, 56(3), 883-906.
<https://doi.org/10.1002/tesq.3143>
- Schmidt, R. W. (1990). The role of consciousness in second language learning. *Applied Linguistics*, 11(2), 129-158. <https://doi.org/10.1093/applin/11.2.129>
- Shetzer, H., & Warschauer, M. (2000). An electronic literacy approach to network-based language teaching. In M. Warschauer & R. Kern (Eds.), *Network-based language*

- teaching: Concepts and practice* (pp. 171-185). Cambridge University Press.
<https://doi.org/10.1017/CBO9781139524735>
- Su, Y., Lin, Y., & Lai, C. (2023). Collaborating with ChatGPT in argumentative writing classrooms. *Assessing Writing*, 57, 100752. <https://doi.org/10.1016/j.asw.2023.100752>
- Swain, M. (2005). The output hypothesis: Theory and research. In E. Hinkel (Ed.), *Handbook of research in second language teaching and learning* (pp. 471-483). Taylor & Francis Group.
- Tate, T., & Warschauer, M. (2019). Keypresses and mouse clicks: Analysis of the first national computer-based writing assessment. *Technology, Knowledge, and Learning*, 24(4), 523-543. <https://doi.org/10.1007/s10758-019-09412-x>
- Tate, T., Warschauer, M., & Abedi, J. (2016). The effects of prior computer use on computer-based writing: The 2011 NAEP writing assessment. *Computers & Education*, 101, 115-131. <https://doi.org/10.1016/j.compedu.2016.06.001>
- Tate, T., Warschauer, M., & Kim, Y. S. (2019). Learning to compose digitally: The effect of prior computer use and keyboard activity on NAEP writing. *Reading and Writing*, 32(8), 2059-2082. <https://doi.org/10.1007/s11145-019-09940-z>
- Tseng, W., & Warschauer, M. (2023). AI-writing tools in education: If you can't beat them, join them. *Journal of China Computer-Assisted Language Learning*.
<https://doi.org/10.1515/jccall-2023-0008>
- Vygotsky, L. S. (1981). The genesis of higher mental functions. In J. V. Wertsch (Ed.), *The concept of activity in Soviet psychology* (pp. 144-188). M.E. Sharpe.
- Warschauer, M. (1999). *Electronic literacies: Language, culture, and power in online education*. Lawrence Erlbaum Associates.

Warschauer, M. (2002). A developmental perspective on technology in language education.

TESOL Quarterly, 36(3), 453-475. <https://doi.org/10.2307/3588421>

Warschauer, M. (2004). *Technology and social inclusion: Rethinking the digital divide*. MIT Press.

Warschauer, M. (2005). Sociocultural perspectives on CALL. In J. Egbert & G. M. Petrie (Eds.), *CALL research perspectives* (pp. 41-51). Lawrence Erlbaum.

Wu, X., Mauranen, A., & Lei, L. (2020). Syntactic complexity in English as a lingua franca academic writing. *Journal of English for Academic Purposes*, 43, 100798.

<https://doi.org/10.1016/j.jeap.2019.100798>

Yoon, H. (2008). More than a linguistic reference: The influence of corpus technology on L2 academic writing. *Language Learning & Technology*, 12(2), 31-48.

Yoon, H., & Hirvela, A. (2004). ESL student attitudes toward corpus use in L2 writing. *Journal of Second Language Writing*, 13(4), 257-283. <https://doi.org/10.1016/j.jslw.2004.06.002>