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Editorial

<https://doi.org/10.1515/dsll-2024-2001>

The past decade has witnessed a rapid development of digital technologies, among which Artificial Intelligence (AI), big data, cloud computing, and augmented and virtual reality are profoundly reshaping the scholarship in language, literature, and translation studies. They open unprecedented possibilities: large-scale text analysis, distant reading in literary studies, adaptive language learning systems, and sophisticated and AI-assisted translation techniques. These developments are transforming traditional methodologies and expanding the scope of inquiry and application in these academic areas. As digital technologies continue to permeate all facets of human life, a dedicated academic forum becomes imperative for nurturing innovation, generating profound insights, and facilitating global dialogue in language, literature, and translation studies. *Digital Studies in Language and Literature* (hereafter, DSLL) was thus founded as a focused venue for pioneering research that integrates digital methodologies with these disciplines.

Our scope spans a wide range of topics, ranging from multimodal and computer-assisted linguistic studies, to digital and distant reading approaches in literary scholarship, and to the cutting-edge advancements in AI-driven translation technologies. Through this comprehensive approach, DSLL aims to forge a profound nexus between digital technology and humanistic inquiry, offering a venue for empirical research, theoretical explorations, case studies, and methodological discussions that enrich our comprehension of how technology is redefining the domains of language, literature, and translation studies. The journal also actively seeks to amplify voices and perspectives from diverse regions, particularly those that have been historically underrepresented in mainstream academic discourse, thereby fostering a vibrant and global scholarly dialogue.

It is with great anticipation that we present the inaugural issue of DSLL, featuring innovative studies that exemplify the journal's mission to advance digital scholarship in language, literature, and translation, which is not only at the academic forefront but also aligns with an increasing scholarly and practical interest in how

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digital tools can expand, refine, and even redefine traditional methods and theories in these disciplines. In the field of applied linguistics, a major focus of research is the application of digital technology in language learning and teaching. Technology-based studies have always been classified based on the type of technology involved, such as computer-assisted language learning (CALL), mobile-assisted language learning (MALL), virtual reality, and generative AI (GenAI), a new addition to the traditional repertoire that has attracted much attention since ChatGPT was launched in November 2022. According to several research syntheses (e.g., Choubasaz, Jalilifar, and Routon 2024; Mohsen et al. 2024), within the traditional domains of technology, commonly examined topics include second language writing, vocabulary learning, speaking, computer-mediated communication (CMC), multimodality, data-driven learning, project-based learning, and blended learning. Meta-analyses aggregating all empirical evidence on examined topics show that overall technology is facilitative of language learning. For example Grgurovic et al. (2013), reported that CALL instruction had a significant, albeit small, effect on learning outcomes compared with non-CALL instruction, with the mean effect sizes being 0.23 and 0.35 for studies reporting group differences (post-test scores only) and studies based on gain scores (both pretest and posttest scores), respectively Lin and Lin (2019). meta-analysis found a large effect for MALL on vocabulary learning. The effect of the use of digital devices on vocabulary learning was confirmed by Li et al.'s (2024) study published in this issue. In another meta-analysis on MALL, Peng, Jager, and Lowie (2021) reported that MALL had a large effect on language learning in general, and that its effects varied between specific aspects of learning: writing > listening > reading > speaking. Further moderator analyses demonstrated that individual work was more effective than synchronous communication, which was less effective than asynchronous communication, and that single modality outperformed double modality, which in turn outperformed multimodality. In addition to the effects of technological use on learning outcomes, other perspectives that emerged in the research include the impact of technological use on learners' emotions (e.g., anxiety) (Chen 2024) and motivation (Li et al. 2024), the effects of training on teachers' use and perceptions of technology (MALL in this case) (Hafour 2022), and factors contributing to the implementation of CALL (Arani et al. 2024).

Despite the abundance of research, research on technology in language learning is subject to substantive and methodological limitations. A major issue is the focus on technology instead of on variables, constructs, concepts, and processes related to language learning. Technology is a tool that may expedite or facilitate learning, but the starting point for empirical investigation cannot be technology per se and must be the learning processes and the contributing factors to learning. For example, both "CALL and non-CALL conditions can be realized in many different ways" (Grgurovic et al. 2013, p. 191), and examining the use or non-use of computer as an independent

variable is not meaningful. Aside from research foci, methodological limitations have been identified that undermine the rigor of the research and robustness of findings, such as the lack of a control group; the ambiguous operationalization of “traditional (or regular) instruction”, which serves as comparison or baseline learning condition (Burston, Athanasiou, and Giannakou 2024). The research has focused on ESL populations, while other L2 populations are underrepresented. Studies conducted in and involving learners in Africa and South America are lacking, which may be partly due to the lack of infrastructure in the two regions (Choubasaz et al. 2024). While these limitations have been identified for traditional technologies, GenAI, a new technological tool, must guard against similar pitfalls.

Since its debut at the end of 2022, GenAI has rapidly attracted interest in second language research. To date, the research has explored its affordances as a tool for research, such as asking ChatGPT to generate the code for a statistical analysis (Pack and Maloney 2023); teachers’ (Derakhshan and Ghiasvand 2024) and students’ (Wang and Sun 2024, this issue) perceptions and attitudes; ways that can be leveraged to assist with teaching such as test development (Shin and Lee 2023) and writing assessment (Mizumoto and Eguchi 2023; Yamashita 2024); and the predictive power of students’ use of GenAI on their writing performance (Dong 2024). In addition to these areas, there is an urgent need for research on various other aspects of GenAI, including evaluating the quality of the output, such as whether its feedback on students’ writing is accurate and/or consistent with teachers’ feedback; the discourse features of its output, such as information about organization/structure and linguistic (lexical and syntactic) features; ethics, such as whether it is possible to distinguish human and GenAI writing (Casal and Kessler 2023). As with other streams of technology-based research, research on the impact of GenAI needs to be problem-driven rather than technology-driven; that is, the effects of GenAI or lack thereof on learning outcomes must be examined from the perspective of theories and concepts of language learning instead of the technological tool. It is also important to be aware of the rapid change of GenAI and make adjustments accordingly in research focus, design, and methods. Finally, to prevent methodological flaws, researchers are advised to consider criteria for quality control relating to the internal, external, construct, and statistical validity of empirical research (Li 2022; Li and Prior 2022).

Then, in the field of literary studies, we also observe a similar transformative impact of digital technologies on research methodologies and scholarly inquiry. Although the use of literature as a source of data for other, more quantitatively focused disciplines, including sociology, can be traced back to the final decade of the nineteenth century, and the quantitative study of textual objects and corpora to the middle of the twentieth century – in the meticulous work of critical bibliographers and the computational work that followed Robert Busa’s punch-card encoding of the *Index Thomesticus* – it was not until the last decade of the twentieth and now into the

twenty-first century that literature per se began to receive widespread attention from those trained in newly-available digital methods.¹ To cite only one example, Franco Moretti's pioneering *Graphs, Maps, Trees: Abstract Models for a Literary History* (2005) proposed digitally-enabled alternatives for analyzing and representing literary periodicity and the interanimating development of literary genres. At the same time, the widespread availability of digital editions of previously printed books, and of born-digital texts composed and disseminated online, makes activities such as distant reading, data mining, textual visualization, topic modeling, stylometry, character mapping, and multi-modal studies of all aspects of literary production, dissemination, and interpretation possible for more researchers working in more languages studying more national literatures than ever before.

This inaugural issue of DSLL begins to highlight the interpretive possibilities now afforded by the contemporary intersection of literature and the digital. Nigerian literature produced, distributed, consumed, and critiqued within the Twitterverse – now perhaps the Xverse – is the focus of co-authors Yohanna Joseph Waliya, Angela Awhobiwom Ajimase, and Franklin Ubo David. In “From Literature 2.0 to Twitterature or Xerature,” they reconstruct the history, describe the multi-modal practices, and offer Hafsat Dauda's *Las, las Nigeria is Home* (2020) as a case study of this burgeoning new form of West African nano-literature. Often politically and/or socially activist, Nigerian Xerature includes stories, poems, plays, proverbs, and riddles, with authors supplementing the platform's 280-character limit with a wide range of visual and audio content, along with digital links.

From twenty-first century Nigeria, Estelle Guéville and David Joseph Wrisley shift focus to thirteenth-century France, more specifically to the manuscript Paris, Bnf français 24428 in the French National Library. Their article, “Everyone Leaves a Trace,” documents their efforts to disentangle the anonymous contributors to this medieval codex using a combination of digital tools (principally Tesseract and Transkribus), computational textual analysis (using Python and R), digitally-enabled crowd-sourced transcription, and established literary methods for authorial attribution and scribal detection. In addition to confirming the identity of their individual manuscript's scribe and testing the efficacy of their mixed methodology with respect to a larger corpus of 47 similar medieval manuscripts, Guéville and Wrisley also offer a timely reminder of the traces left in or excised from such texts by the original mode of transcription.

Positioned both chronologically and geographically between “From Literature 2.0 to Twitterature or Xerature” and “Everyone Leaves a Trace” is “OCR Approaches for Humanities,” submitted by a multinational team of faculty and student researchers

¹ For the use of literature as data in late-nineteenth and early-twentieth-century sociology, see Bachman and Pionke (2020), esp. pp. 7–13. For critical biography, see Bowers (1952). On the “canonical Robert Busa story of origin” for the digital humanities, see Rockwell (n.d.), and Sula and Hill (2019).

led by Xavier Granja Ibarreche and Sergei Gleyzer. Participants in the 2024 Google Summer of Code, they tested four different applications of machine learning (ML) algorithms for Optical Character Recognition (OCR) of early modern Spanish printed texts with framed prose layouts and other nonstandard features, beginning with Luisa de Padilla's *Nobleza Virtuosa* (1637). With a dataset eventually expanded to include three dozen predominantly judicial documents printed between 1561 and 1740, their research identified strengths and weaknesses in all four ML approaches to OCR, allowing the authors to suggest best practices for improving future integrations of artificial intelligence into the study of historical texts.

Another significant addition in this issue is Massimo Leone's "The Semiotics of Latency: Deciphering the Invisible Patterns of the New Digital World", which ventures into the realm of digital semiotics to investigate the latent structures within digital culture. Leone reveals how data-driven patterns subtly influence narrative forms and socio-cultural perceptions, shedding light on the often-hidden semiotic dimensions that emerge within digital texts. His research aligns closely with DSL's mission by illustrating how digital tools can bring forth implicit cultural and symbolic meanings, enriching our understanding of literature's socio-cultural functions in the digital age.

Lastly, Defeng Li's "Applying Topic Modeling to Literary Analysis: A Review" explores the application of topic modeling in understanding thematic trends across large literary corpora. This article emphasizes the potential for computational approaches to expand the boundaries of traditional literary analysis, providing insights into recurring themes and stylistic trends across extensive collections. This exemplifies DSL's vision of integrating digital methods to uncover latent patterns within textual analysis. The research by A., A., Robledo, S., and Zuluaga, M. indicates that topic modeling is a versatile technique that complements systematic literature reviews and has been well-received in various academic and research contexts (Gri-sales et al. 2023).²

Shifting focus to the realm of translation studies, we recognize that digital technologies are not only transforming translation practices but are also driving innovative research in translation. The evolution from computer-assisted translation (CAT) and rule-based machine translation (RMT) to today's neural machine translation (NMT) has profoundly reshaped how translation is studied

2 According to recent research by Yingying Chen et al. (2023), topic modeling offers a powerful method for identifying the most prevalent themes across diverse text corpora, effectively broadening the scope of traditional literary analysis. Their study provides a comprehensive examination of the method's capabilities and limitations, demonstrating how topic modeling can reveal patterns and underlying thematic structures that may elude conventional approaches to text analysis. Their work underscores the methodological advancements topic modeling brings to the study of literature, while also addressing critical challenges inherent to its application in humanities research.

and understood. This technological progress has opened new avenues for researchers to explore the implications of digital tools on translation theory, methodology, and pedagogy. As Rouhullah Nemati Parsa asserts, “More recently, translation technology – ranging from translation-specific technologies such as MT to more general-purpose speech technologies and cloud computing – calls into question some of the assumptions about how, by whom, and to what level of quality translation should be done” (Parsa 2021). Current research increasingly focuses on how AI, ML, and big data analytics enhance translation processes. Pilar Sánchez-Gijón further posits that post-editing (PE), increasingly adopted in translation workflows, enhances translation efficiency while adapting practices to meet digital communication demands (Sánchez-Gijón 2022). PE has thus become a core area of study, reflecting the evolving nature of translation as technology enables new methodologies and techniques. Scholars are investigating the customization and contextual adaptability of NMT, optimizing machine translation for specific cultural and linguistic contexts. As Sánchez-Gijón observes, the application of NMT and AI has redefined translation technologies and their role within the language industry, thereby driving further advancements in translation studies (Sánchez-Gijón 2022). Multimodal translation research is also advancing, aiming to achieve cross-language conversion across diverse formats – text, images, audio – that enrich multimedia content’s cultural resonance. We welcome research that explores these cutting-edge developments in translation studies driven by digital technologies, big data, and AI. We encourage contributions that offer new insights into how these technologies are reshaping translation theory and practice, and that address the methodological and ethical challenges involved.

As we have seen across these disciplines, digital technologies are not merely tools but catalysts that challenge and expand the boundaries of language, literature, and translation studies. The articles featured in this inaugural issue of DSLL reflect the dynamic interplay between technology and humanistic inquiry, offering fresh perspectives and methodologies that are reshaping these fields. We are excited to contribute to this evolving dialogue and look forward to more innovative research that will continue to emerge at this intersection.

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