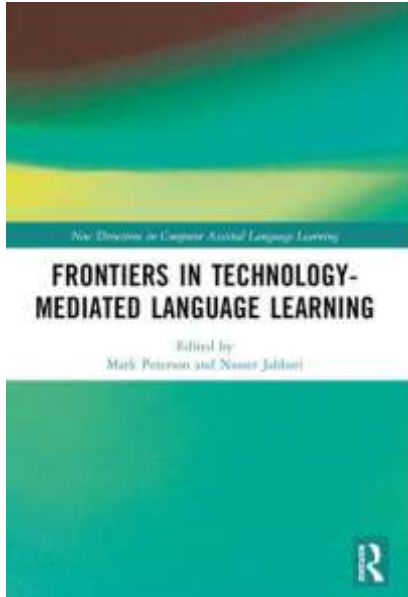


## BOOK REVIEW

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### FRONTIERS OF CALL: RETHINKING TECHNOLOGIES, PEDAGOGIES, AND THEORIES

**Mark Peterson and Nasser Jabbari (Eds.).**  
FRONTIERS IN TECHNOLOGY-MEDIATED  
LANGUAGE LEARNING (2025), Routledge.  
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Over the past few decades, rapid developments in digital technologies have increasingly reshaped second language acquisition (SLA), contributing to the growth of computer-assisted language learning (CALL) as an interdisciplinary field. This expansion intensified during the COVID-19 pandemic, with research emerging across diverse global and educational contexts. Despite this growth, much CALL research has largely concentrated on established areas, such as basic language proficiency and widely used Web 1.0/2.0 tools, while paying comparatively less attention to newer and more advanced technologies, including virtual reality (VR) and generative artificial intelligence (Colpaert, 2012; Shadiev & Yu, 2024). These gaps point to an ongoing need for more innovative and theoretically informed inquiry (Gillespie, 2020). Against this background, *Frontiers in technology-mediated language learning*, edited by Mark Peterson and Nasser Jabbari, offers a timely contribution to the field. The volume extends existing CALL scholarship by examining the pedagogical potential and broader implications of emerging digital tools. It is intended for a wide audience, including researchers, practitioners, and postgraduate students working across academic and professional domains. In addition to presenting empirical perspectives on pedagogy, genre-oriented instruction, and curriculum design, the book also demonstrates how interactions with new technologies can be further explored through theoretical lenses in SLA.

This book is divided into eight chapters, each one highlighting a specific domain in CALL. It begins with an overview of the rapid development and current state of

research in the field. In Chapter 1, editors Mark Peterson and Nasser Jabbari briefly introduce how this field has expanded significantly in language learning contexts, and they also critically discuss the challenges and limitations in contemporary CALL research. The following chapters explore the use of virtual reality and artificial intelligence (AI) tools in second language (L2) genre writing, speaking, cross-cultural competence, and how novel semiotic affordances can initiate actions and interactions in digital spaces. The final two chapters are systematic reviews which present future research agendas, theoretical and methodological implications. Overall, this book contributes to the field by providing invaluable insights into the challenges and innovation in CALL research and practices.

VR has emerged as a promising educational tool, attracting increasing scholarly attention and giving rise to a growing area of research in CALL (Parmaxi, 2023; Peterson et al., 2019). Despite rapid advancements and various benefits of VR-based instruction, the integration of innovative VR technologies into language education remains limited in practice. The hesitation among teachers and language practitioners can be attributed to various factors such as insufficient technological expertise (Parmaxi & Demetriou, 2020), teacher confidence, and their uncertainty regarding learning outcomes and challenges (Bower et al., 2020). Chapters 2 and 3 in this volume address these concerns and contribute to the field by demonstrating how immersive VR-mediated environments can facilitate meaningful language learning experiences that engage learners both socioculturally and cognitively, thereby expanding the pedagogical potential of VR tools in English language teaching contexts.

Chapter 2 introduces an innovative approach to genre-based writing pedagogy through the development of an immersive virtual reality environment (VRE) designed to support L2 graduate students' academic writing. The co-authors Tan, Cotos, and Dorneich highlight several shortcomings in current CALL research and practice. In particular, instructional approaches often emphasize linguistic accuracy in decontextualized settings, overlooking the broader sociocultural and cognitive aspects of academic writing. In addition, although genre-oriented technologies such as corpus tools and automated systems have advanced considerably, research has largely focused on analyzing written outputs rather than examining how learners construct meaning through interaction and participation in discourse communities. This chapter addresses these limitations by proposing a virtual, avatar-mediated environment that simulates an academic conference setting, allowing learners to engage in more contextually grounded writing practices. Drawing on genre theory, sociocultural perspectives on SLA, and the concept of affordances, the design combines explicit instruction in rhetorical structures with a sequence of experiential tasks. These tasks encourage learners to observe, interact, critically reflect on, and actively apply their sociocultural awareness and language practices within the simulated environment. By interacting with avatar experts, peers, and advisors, students are given opportunities to develop awareness of conventional norms and to practice, achieving their communicative purposes in simulated poster presentation. Overall, the chapter offers a theoretically and empirically grounded,

pedagogically meaningful case that shifts scholarly focus from product to process, emphasizing the effectiveness of VR in assisting L2 academic writing.

Chapter 3, co-authored by Satake, Yamamoto, and Obari, employs a mixed method design to examine learners' emotional responses and attitudes toward the use of immersive VR for English-speaking instruction within the Japanese EFL context. The findings suggest that although VR-mediated learning environment does not lead to statistically significant gains in learners' speaking proficiency, it plays a notable role in enhancing their confidence and alleviating their anxiety in learning foreign language. Importantly, perceived growth in their language proficiency is higher among low-proficiency learners than intermediate and advanced learners. This chapter offers important empirical insights into the role of immersive VR technologies in shaping learners' affective engagement, especially in speaking skills. Authors reflect that the insignificant improvement in learners' speaking performance may be attributed to their insufficient attendance throughout the study. This research makes a valuable contribution by foregrounding EFL learners' emotional dimensions in relation to VR-assisted language learning. It also suggests that future research should further explore the effectiveness of VR technologies among learners with higher proficiency levels.

Chapter 4 by John, Cardoso, and Johnson explores the effectiveness of automatic speech recognition (ASR) as a tool for producing immediate corrective feedback on L2 pronunciation, while also exploring the potential gender bias embedded in the system. Using the Google Translate (GT) ASR system, the study analyzes how accurately it can transcribe the target pronunciations produced by Quebec francophone learners of English, with a focus on frequent segmental errors. Through a rigorous experimental design, the co-authors compare transcription outcomes across several dimensions, including correct and incorrect pronunciation, real-word vs. nonword output, and male vs. female speech. The results show that this tool is generally reliable in providing accurate corrective feedback, with minimal misleading feedback. However, its ability to identify pronunciation errors is different. It is found that this tool can effectively identify mispronunciations learners produced in real-word forms and provide accurate and responsive corrective feedback, while nonword forms are often not detected. Regarding gender, authors report that no evidence of systematic bias is observed. Rather, higher transcription accuracy is found in female speech. This chapter provides a careful and empirically grounded discussion of the strength and constraints of ASR as a tool for speech corrective feedback. It demonstrates the potential of AI technologies as a pedagogical tool for speech, providing implications for teachers and app developers to better harness such tools in language learning.

While numerous studies have extensively examined the role of new technologies in language learning, considerably less attention has been paid to how social networking mediates intercultural communicative competence in CALL (Shadiev & Yu, 2024). Chapter 5 by Lina Lee addresses this gap by exploring how collaborative online international learning (COIL), as a form of virtual exchange (VE),

enables learners to engage with peers from diverse cultural contexts and develop intercultural competence through various tasks in digitally mediated spaces during the pandemic. The study adopts a longitudinal design involving both asynchronous (e.g., Padlet, Flip, and WhatsApp) and synchronous computer-mediated communication (e.g., Zoom) interactions between students from the United States and Bolivia. The findings of the analysis show that learners' cross-cultural competence and socio-pragmatic awareness significantly increase through virtual exchanges. The author argues that these platforms afford learners access to various multilingual and multimodal repertoires for communicative exchanges and identity negotiation, thereby enhancing learners' agency, sociocultural engagement, and language learning outcomes. This study sheds light on the importance of incorporating digital and multimodal critical literacy into pedagogical design for language practitioners and educators.

Moving beyond the conventional practices of studying how language learning is mediated by computer technologies, Chapter 6 by Janine Knight presents an innovative and conceptually rich contribution to CALL research by exploring digital affordances as agentive digital agents that unfold multimodal turn-taking and shape learners' online interaction and communicative practices. Rather than viewing technological affordances as neutral tools, the chapter positions screen-based resources as inherent elements within the processes of meaning making in digitally mediated environment. Drawing on a social semiotic approach (Kress & van Leeuwen, 2020) and conversation analysis, this chapter analyzes secondary data from three case studies across diverse digital platforms, including Google online translation tools, online search engines, and multiplayer gaming context, through in-depth analysis of how screen-based resources initiate actions and interactional sequences between learners, teachers and the technologies themselves. The findings report that meaning making is co-constructed and negotiated through the interplay between users and the semiotic technologies embedded in the interfaces. This study provides a nuanced understanding of human-technology interactions in language learning settings. It thus increases teachers' and developers' awareness of how to effectively use or design these various semiotic and technological affordances for educational purposes.

The last two chapters offer a timely and systematic synthesis of current research trajectories in CALL, while also critically identifying key limitations and proposing directions for future research. Chapter 7 by Fatemeh Nami presents a comprehensive systematic review of 34 empirical studies on the use of augmented reality (AR) in language classroom contexts published between 2010 and 2023. It provides a well-structured overview of major research dimensions, including geographical distribution, theoretical and methodological orientations, targeted language skills, types of AR technologies, and the reported learning outcomes in the reviewed studies. One of the key contributions of this chapter lies in its critical identification of significant gaps in the field. Notably, a large proportion of studies lack explicit theoretical grounding (over half of the reviewed studies) and fail to

incorporate instructional design models to guide AR-based pedagogical implementation. This absence raises important concerns regarding the pedagogical validity and generalizability of existing findings, echoing broader critiques in CALL research about technology-driven rather than pedagogy- or theoretically-driven innovation. The chapter also offers valuable insights into prevailing research tendencies, such as the dominance of experimental designs and the concentration of studies in East Asian contexts, alongside a strong focus on vocabulary learning and L2 writing. While these trends demonstrate the growing interest in AR applications, they simultaneously reveal a narrow scope in both methodological diversity and linguistic focus. Importantly, the author advances the field by outlining concrete directions for future research. These include the need for more theoretically informed studies, greater attention to learners' proficiency differences, and the adoption of longitudinal designs to better capture sustained learning effects. Furthermore, the chapter calls for moving beyond the use of basic or free authoring tools toward more sophisticated AR platforms capable of supporting richer interaction and more meaningful pedagogical engagement. Overall, this chapter makes a significant contribution not only by mapping the current landscape of AR-enhanced language learning but also by offering a critical and forward-looking agenda that can guide more rigorous, theory-driven, and pedagogically grounded research in CALL.

Chapter 8, co-authored by Mehdipour-Kolour and Cardoso, reviews 79 articles related to the use of automatic speech recognition (ASR) in L2 education published between 1990 and 2021, with particular attention to a relatively under-researched area of L2 writing. This chapter highlights a wide range of pedagogical advantages of ASR, including its role in supporting pronunciation development, fostering learner autonomy, reducing instructional time, and creating increased opportunities for language production. A notable finding is that ASR can facilitate a more process-oriented approach to L2 writing by allowing learners to produce and revise text in real-time, thereby encouraging iterative planning and self-monitored writing. On the whole, this chapter offers a concise yet insightful synthesis of existing research, while acknowledging both the pedagogical potential and the practical challenges of ASR and providing useful suggestions for future research.

In conclusion, this book offers a comprehensive and forward-looking contribution to the evolving field of CALL by critically examining the pedagogical and theoretical dimensions of emerging technologies, particularly virtual reality-assisted language learning (VRALL). It provides valuable guidance for researchers and educators by foregrounding the need for rigorous research and instructional design, context-sensitive practices, and stronger engagement with theoretical frameworks. Overall, the volume serves as an insightful and timely resource for advancing understanding of both the affordances and limitations of emerging technologies in language learning and teaching.

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