

BOOK REVIEW



Review of *The Routledge handbook of second language acquisition and technology*

Ursula Stickler, The Open University

The Routledge handbook of second language acquisition and technology

Nicole Ziegler and Marta González-Lloret (Eds.)

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In *The Routledge Handbook of Second Language Acquisition and Technology*, Ziegler and González-Lloret (2022) bring together state-of-the-art overviews from experts who are united by their interest in using technology to investigate second language learning and development. The 28 chapters in the volume are grouped into four threads and then ordered according to a logical structure. The first thread is “Theoretical and Methodological Perspectives”, which is followed by Part II, a set of eight chapters focused on different language skills, such as listening, reading, and writing. Part III covers “Spaces for Learning”, and the final section shifts the focus to learners, their backgrounds, and learner autonomy.

In line with the organization of the volume, every chapter is structured tightly. All chapters begin with a brief introduction to the main topic, followed by a historical account of major research trends. Next, the contributing authors present a discussion of critical issues and current research, recommendations for practice, and potential future directions. Suggested readings are also provided for each topic. The coherent structure of the chapters makes it easy to engage with individual topics, and two sections from each chapter, namely the recommendations for practice and the ideas for future investigations, are of particular interest to developing researchers. At the same time, a short introduction to each section could have helped to link the various topics together. A concluding chapter written by the editors would have also been welcome, as a way of providing an overall outlook on the future of technology in second language acquisition (SLA).

Although it is impossible to pay tribute to each of the 28 chapters in a single review, some highlights should not be neglected. Thus, in this review, I have chosen to focus on four chapters that caught my eye due to either the novelty and importance of the topic or my current research interests. These four chapters cover diverse material, including the historical foundations of technology in SLA (Chapter 1), tasks in technology-mediated contexts (Chapter 3), advances and challenges in research methods (Chapter 5), and language learning in online environments (Chapter 17). My treatment of each chapter mixes both a summary and an evaluation of the chapter’s content.

In Chapter 1, Stockwell gives the volume a solid foundation by presenting a historical overview of technology in SLA. Although Stockwell acknowledges that *technology* can reference numerous tools (e.g., tape recorders, projectors, and video), for Stockwell, computer-based technologies have had the greatest impact on language learning. With this understanding, the author traces the impact of evolutions in information and communication technology (ICT) on SLA research and practice. Stockwell begins by mentioning some of the earliest studies in the field, which were typically unfocused, brief reports whose authors sought to make the case that computer-assisted language learning (CALL) was a viable option. Next, the author draws an arc that passes through the 1970s and 80s—decades marked by fear of the unknown and by inflated expectations—to the 1990s, which witnessed the emergence of the Internet, and with it, various kinds of computer-mediated communication (CMC). For Stockwell, the historical arc ends in the 2000s, and the introduction of mobile technologies (e.g., phones and podcasting), learning management systems (e.g., Blackboard and Canvas), and virtual worlds. According to the author, in more recent years, a shift has taken place from institution- to learner-initiated technology use, and increasing numbers of researchers have grounded their CALL investigations in theory.

Particularly useful information comes from Stockwell's thoughts on future directions. First, the author suggests that researchers go beyond investigations of learner perceptions to consider the ways in which technology can foster learners' self-expression, and through it, language development. Stockwell also signals a need for research that considers the social component of language learning in different technology-mediated environments. Overall, this chapter provides a meaningful start to the volume, supplying a historically-based perspective on directions that future research on technology in SLA is likely to take.

In Chapter 3, González-Lloret and Rock address research on task-based language teaching (TBLT) involving the use of technology. An important part of this chapter is the authors' problematization of the nature of a task. For example, although there are several expert-provided definitions of a task (e.g., Van den Branden, 2006; Willis, 1996), tasks vary widely in research and in practice. Not only do conceptualizations of task vary across TBLT-based research, but also tasks have been used in diverse technology-mediated learning environments, from text-based CMC to online collaborative games. González-Lloret and Rock point out that few studies have reported on fully realized TBLT curricula, and in turn, the authors sound the alarm for more research on implementing TBLT curricula in technology-mediated contexts. Should readers be interested in building a successful TBLT curriculum using technology, González-Lloret and Rock provide pragmatic recommendations for developing one. The first recommendation involves conducting a needs analysis expanded to account for the availability and limitations of context-specific technological resources. A second recommendation directs teachers and curriculum developers to begin by introducing technology-mediated second-language tasks "that have already been normalized in the learners' first language" (p. 43). The authors also advise the inclusion of tasks *and* technology in a curriculum's corresponding assessment program. A nuanced follow-up to that recommendation is that the way in which learners are assessed on tasks may differ according to the learners' language proficiency. Ultimately, the authors are well informed to consider that in view of such rapid technological development, new tasks will have to incorporate both new tools and new ways of communicating online.

In Chapter 5, Isbell et al. provide an overview of technology-based SLA research methods. In the historical section, the authors trace the development of CALL research methods from the 1970s through the first decade of the twenty-first century. Isbell et al. acknowledge that at the beginning, researchers often adopted methods from other disciplines, which enabled comparisons of data obtained from distinct environments. However, along with improvements in technology, CALL research methods have increased in sophistication. Of particular note is the expansion in the number of modalities available for research; modalities that were "initially constrained to the text, static images, and limited audio of 'structural CALL' programs" (p. 66). As the authors document, from audio to video to synchronous, audio-visual online communication, methods for researching second language learning have become even more innovative.

In terms of the current contributions of technology-based SLA research, Isbell et al. manage to address several important advances in less than six pages. Many of these advances concern the collection and analysis of copious amounts of rich data. For example, user metrics enable the precise tracking of learner online activity as well as the compilation of longitudinal data. Keystroke logging allows researchers to investigate in detail the complex nature of writing in a second language. Additional methods of digital data collection include eye tracking, collecting data remotely, and web scraping. Surprisingly, the authors do not address key ethical considerations in collecting user data without their consent. In particular, web scraping and the way in which it is described in the chapter raise questions about the protection of privacy, especially if “there is great promise to not only examine environments but also to examine the language of individual L2 users” (p. 69). Nevertheless, developments in corpus linguistics research and web-based tests of different language-related abilities have permitted the collection of wide-ranging—and more diverse—data samples. In other words, whereas in the past, data were often provided primarily by white, middle-class, college-aged participants, current technology-based research methods allow investigators to recruit participants from under-represented backgrounds. Although big data gets only a brief mention, an entire chapter of the handbook (Alexopoulou et al., Chapter 7) is devoted to this topic. Finally, Isbell et al. highlight the role of syntheses and meta-analyses for aggregating the findings of multiple studies and pin-pointing knowledge gaps. Although the authors reference an impressive amount of research, perhaps due to limitations of space, the responsibility for learning more about the outcomes of individual studies falls on the reader.

The first chapter in the section of the handbook dedicated to “Spaces for learning” covers language learning in online environments. In this chapter (Chapter 17), Nielson counterposes the rapid shift to online learning occasioned by the COVID-19 pandemic with the decades of prior research and development on online language courses. This juxtaposition serves the purpose of highlighting the large body of work that had already provided insights on the characteristics of productive online learning environments. Despite the difficulty of spotting historic trends within this line of research (especially given the plethora of tools and systems available for online language learning), Nielson achieves this feat by documenting an impressive number of studies. By weaving together research on different types of blended environments, self-study applications, learning management systems, and social messaging tools, the author provides a coherent account of the history of online language learning.

One critical issue identified by Nielson is the almost complete lack of literature on methods for systematically evaluating online language learning courses. Despite the existence of large amounts of data concerning user metrics, Nielson posits that in fact, the sheer volume of information may itself be an impediment to evaluating learning in online language courses. However, by returning to research-backed principles from the field of SLA, the author identifies four requirements for a successful, online learning experience: “input, output, interaction, and feedback” (p. 236). Outside of emergencies, Nielson argues that the role of online environments is to enhance the learning experience, as opposed to serving as a substitute for face-to-face classes. Specific areas in which online learning environments can actually improve upon traditional classrooms include providing opportunities for language practice untethered to space and time, connecting learners to advanced speakers of the language for conversation practice, supplying individualized feedback (e.g., through speech recognition software), and structuring personalized learning pathways.

Nielson concludes the chapter with six recommendations for promoting language learning in online learning environments. First, program developers and instructors need to create online spaces that supply learners with target-language input, opportunities to produce the target language, and feedback on that output. Second, course designers should think beyond simply replicating the face-to-face learning environment. Third, instructors and administrators should exploit technological capabilities to tackle difficult issues such as content differentiation and individualized feedback. Fourth, teachers should monitor learner activity. Fifth, instructors need to offer encouragement to increase learner engagement, and sixth, learning outcomes should be measured. Taking these recommendations seriously would be a sensible way to enhance online language learning environments.

In sum, this handbook has much to offer its readers, including language teachers, researchers, or budding researchers. The authors of each chapter provide easily accessible overviews of topic-specific research trends, guidelines for best practice, and thoughtful considerations of avenues for future research. Ultimately, the volume will encourage practitioners and researchers to engage with research on technology and second language learning. No longer is it possible to envisage language learning or SLA without reference to technology. Therefore, this timely, systematic overview of the state of diverse research trends in the field serves as a highly relevant and useful contribution.

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About the Author

Ursula Stickler is Senior Lecturer (Associate Professor) at the Open University, U.K., a distance teaching institution. Her research deals with technology enhanced language learning, teacher training, and qualitative research design. She is co-editor of the Castledown book series *Developing online language pedagogies* and the *Bloomsbury Handbook of Language Learning and Technology*.

E-mail: ursula.stickler@open.ac.uk