The Routledge Handbook of Second Language Acquisition and Technology. Ziegler, N. & González-Lloret, M. (Eds.) (2022). Routledge, New York and London, 409 pages, ISBN: 978-1-351-11758-6.

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The COVID-19 pandemic has "thrusted both teachers and learners" (p. 16) into a new language learning environment where the relentlessly progressing technology is exerting an increasingly indispensable role, which has stimulated a reevaluation on the relationship between second language acquisition (SLA) and technology. Contributed by a pool of expertise with full scholarly apparatus, *The Routledge Handbook of Second Language Acquisition and Technolog*y offers enlightening insights into this reevaluation.

This handbook begins by introducing technology-mediated language learning (TMLL), with four parts followed. Part One, "Theoretical and Methodological Perspectives", examines different theories and methodologies underlying technology-mediated SLA. It first reviews the five-decade progress of computer-assisted language learning (Chapter 1), and then discusses technology and teacher education (Chapter 2), the integration of TMLL with task-based language teaching (TBLT) (Chapter 3), and with the interactionist approach (Chapter 4). The remaining chapters concern methodological contributions of technology, including the collection of second language (L2) behavioral data (Chapter 5), the investigation of SLA processes during intercultural exchanges (Chapter 6), the analysis of Big Data (Chapter 7), and the assessment of L2 learning (Chapter 8).

Part Two, "Developing Competences", shifts from theories and methodologies to practice. It begins with Chapter 9 on dialogue systems, and then explores the potentials and benefits that technology provides for enhancing different L2 competences, including listening (Chapter 10), speaking (Chapter 11), pronunciation (Chapter 12), reading (Chapter 13), writing (Chapter 14), vocabulary (Chapter 15), and pragmatic competence (Chapter 16). By refining input and output in quantity and quality, providing comprehensible and reliable feedback, and creating learning space anywhere and at any time, etc., technology supports the acquisition process of these competences, either implicitly or explicitly.

Part Three, "Spaces for Learning", directs readers' attention to the L2 learning context by focusing on varied digital spaces, such as online environments (Chapter 17), the spaces
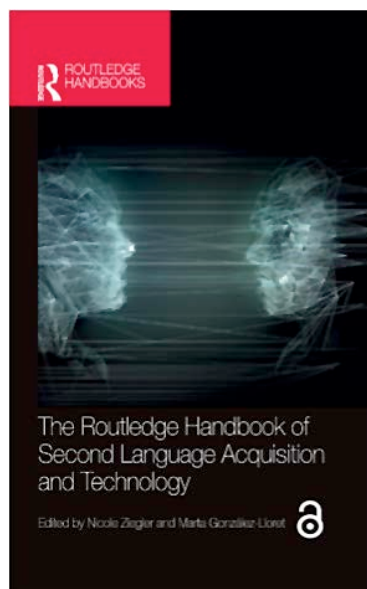
of telecollaboration (Chapter 18), and digital story telling (Chapter 19). The following three chapters collectively build a bridge between digital games and SLA, addressing gameful environments (Chapter 20), multiplayer games (Chapter 21), and place-based games (Chapter 22). Part Three closes with a discussion on the theory-supported potentials of virtual worlds (VWs) (Chapter 23) and on the research and practice of mobile-assisted language learning (Chapter 24).

Part Four, "Focus on the Learner", delves into the learner-related facets of TMLL, covering such issues as L2 learning across the lifespan (Chapter 25), heritage language learners (Chapter 26), and learner autonomy (Chapter 27). The concluding chapter looks into the future of technology-mediated SLA from the perspectives of evolving trends and emerging technologies and proposes that there is no single method "universally applicable" to TMLL (p. 389).

Through a comprehensive discussion on SLA and technology in theory, practice, and research, this handbook provides timely and effective responses to the new challenges posed by the pandemic to language learning, which confers the most value to the book. In theory, apart from Part One systematically paving the theoretical foundation, the underlying SLA theories of technology-related practice are also introduced elsewhere, such as sociocultural theory, situated learning, and immersion for the application of VWs (Chapter 23). Besides, copious explicit suggestions are proposed for pedagogical practice, as in Part Two involving how to develop different L2 competences with technology. Regarding research, recent contributions, research methods, and research gaps are presented in nearly all chapters. All of these infuse flexibility and inspiration into L2 learning and instruction in a changing social context.

The above intensive discussion successfully creates a dialogue between SLA and technology, which is another merit of the book. While technology facilitates SLA practice and research with its capabilities to provide enriching resources and enhance constructs like input, output, and interaction, SLA theories also spur the development and innovation of educational technology. For instance, Chapter 8 lists multiple online language assessment systems for L2 learners' self-evaluation, and in light of the vital role of interaction in SLA, Chapter 16 indicates the prospects of artificial intelligence for L2 communication.

This handbook is well-structured and reader-friendly with similar text organization in all chapters. The sections on "historical perspectives", "critical issues and topics", "current contributions and research" and "future directions" in each chapter clarify the origin, development, and direction of a specific inquiry. Moreover, chapters are closely linked, either being grouped into a part with a larger topic or viewing the same issue from different perspectives, such as digital games mentioned in Chapters 20, 21, and 22.

However, there are minor spelling mistakes and ungrammatical sentences that may hinder comprehension. Besides, this book could be improved by enriching its content. When showcasing the theoretical frameworks within TMLL, Part One only covers TBLT, the interaction approach, and the sociocultural approach, but SLA is a field that "invites a diffusion of theoretical perspectives" (VanPatten & Williams, 2015, p. ix) including usage-based approach, skill acquisition theory, input processing theory, to name but a few, which could also find their ways in TMLL. And in Part Two, it would be better to include the competence of translation considering its "practice and training" has progressed into a "technological paradigm" (Jiménez-Crespo, 2017, p. 181). As for the focus on the learner

in Part Four, attitudes and motivation, language anxiety, learning strategies, etc., could be accounted important factors as well. Finally, this book would have more practical value if it could expound more specifically on how to implement TMLL in different countries and districts, particularly in a foreign language context.

Overall, this handbook presents a new reflection on SLA and technology in a new situation, providing enlightening ideas and suggestions for stakeholders in TMLL including teachers, learners, teacher educators, researchers, and technology developers to improve their practice. The consistently emerging technologies could accelerate "the normalization of technology in language education" (Bax, 2011, p. 1), but what challenges us is how to update technology-related SLA strategies in the face of a changing and unpredictable language learning environment.

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