Book Review: Individual differences in computer assisted language learning research, Miroslaw Pawlak and Mariusz Kruk (2023), 176 pp., $180.00, Hardback, ISBN: 978-1-032-14590-7, Routledge.

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In today's increasingly globalized world, second language acquisition (SLA) is not only an important research area for the academic community, but is also standard practice for international language learners. The process of SLA is not linear, and it has been found that individual differences can influence SLA. Some of these differences are learners' cognitive abilities, learning strategies, motivation, affective states, cultural backgrounds, and prior language experiences, which have a profound impact on the speed, quality, and effectiveness of language learning. At the same time, the rapid development of computer-assisted language learning (CALL) technology has resulted in dramatic changes in the process of language teaching and learning, as it provides unprecedented learning opportunities that have unique advantages, such as individualized learning paths, feedback mechanisms, extensive multimedia resources, and experiential learning.

At the intersection of individual differences (IDs) in SLA and CALL, the theoretical and empirical approaches presented in Miroslaw Pawlak and Mariusz Kruk's book, *Individual Differences in Computer-Assisted Language Learning Research*, enable

us to connect the research on ID factors in the general SLA context and in CALL settings.

This book presents a systematic review of current studies of IDs in SLA and CALL. It addresses essential theoretical and methodological issues, provides empirical evidence, and suggests implications for future research. Pawlak and Kruk present a critical analysis of the recent theoretical developments in ID research in the context of SLA while highlighting the main methodological issues and the most frequently applied data collection techniques in CALL. The comprehensiveness of the empirical evidence incorporated into the book reveals research themes in relation to ID factors in CALL, remaining gaps in the knowledge base, methodological concerns, and directions for further research. The authors then provide suggestions for improving research on IDs in CALL by incorporating advances in the wider SLA field.

The first chapter provides a brief introduction to CALL technologies, ranging from interactive whiteboards, social network platforms, and computer-mediated communication to extended reality, highlighting how these technologies are developing and changing to support SLA education. It highlights the diversity and dynamic nature of CALL applications and tools, the increased roles and affordances of the latter, and how they impact on educators and learners. The authors are careful to explain that the situations observed in one technology-enhanced learning context cannot be generalized to others due to the diverse and versatile nature of CALL environments. The authors conclude by emphasizing the importance of understanding IDs in SLA when conducting empirical research and making pedagogical recommendations.

Chapter 2 presents a state-of-the-art overview of current theories and research on ID factors in SLA and instruction. While authors acknowledge the partial and brief nature of the review, they also note important shifts in the field over the past few decades. The chapter describes how certain ID factors, such as motivation, have been redefined while simultaneously demonstrating how new approaches in the field of educational psychology, which have highlighted issues such as boredom, curiosity, and grit, have motivated further research. The authors also emphasize a methodological shift toward a micro-perspective, influenced by Complex Dynamic Systems Theory, focusing on the situated dynamics of ID factors without abandoning the macro-perspective.

The third chapter addresses key methodological challenges when studying ID factors in SLA, both in traditional classroom settings and in CALL environments. The authors advocate for the complementary use of macro- and micro-perspectives to reveal the complexities of individual variations in language learning. The chapter highlights the scarcity of intervention-based studies exploring the effects of pedagogical treatments on IDs and their moderating roles in instructional contexts. The authors point out the suitability of certain data collection methods for CALL-based learning, such as

questionnaires and electronic journals, while noting the challenges that others, such as observations, present in these settings.

Chapter 4 provides an overview of research on ID factors in CALL settings with a focus on the previously discussed variables. The authors acknowledge the selective nature of the review due to space limitations, but identify several trends by comparing the present research to broader SLA studies. They note that CALL researchers have focused more on factors such as beliefs, learning strategies, motivation, and willingness to communicate, while studies of personality, grit, aptitude, and learning styles are less common. The chapter also suggests that CALL research on emotions, engagement, and intervention studies has sometimes led the way, aligning with or even pioneering new directions in SLA research.

The book makes significant contributions to the fields of SLA and CALL by providing a detailed synthesis of recent research on IDs. It is important for advancing key theoretical concepts and for responding to significant methodological issues in ID research, thus providing a systematic framework for investigating multiple factors that influence IDs in language learning. By providing a careful investigation of a vast array of empirical data, the authors highlight the existing research gaps and methodological concerns, and outline a roadmap for future studies. The authors also emphasize the need to include research findings from the wider SLA literature in CALL research to promote a more nuanced and research-informed analysis of IDs in technology-based learning environments.

Pawlak and Kruk's contribution not only increases the knowledge about the processes that take place in the course of interacting with languages, but also provides clear instructions concerning how to conduct efficient empirical research. This focus on the variation in ID factors and the context of the given methodologies paves the way for more specific and efficient teaching strategies, enhancing not only the theoretical literature, but also the practical applications in the field.

While this book makes significant contributions to the study of IDs in SLA, it has some limitations that should be considered. One obvious drawback is that some of the reviewed studies focus on the effectiveness of the approach in particular learning contexts or with specific types of learners, potentially limiting the transferability of the results. For example, studies conducted in narrow and structured academic environments could potentially fail to adequately address the issues observed in other learning contexts. Furthermore, since new technologies are emerging extremely rapidly, some of the findings may become insignificant over time, which may require the results to be updated and re-established. This is particularly applicable to CALL, as new technologies and strategies are emerging regularly. Therefore, while the book provides a clear and informative survey, it also outlines the need to consider future developments in education and technology.

With regard to research in the field of SLA, a recurring theme in the review of research on IDs in second language learning is the need for an overarching theory that explains how these factors affect the rate/success of learning and the processes involved (Ellis, 2004). Drawing on the ideas in this book, future research on IDs in CALL environments could explore several promising directions. A key area is the integration of emerging technologies, such as artificial intelligence and machine learning, which provide new opportunities to create more adaptive and personalized learning environments. More sophisticated tools can be developed via these technologies, enabling us to track and analyze the behavior, preferences, and progress of individual learners, leading to a deeper understanding of how different ID factors affect language acquisition.

In addition, learners' demographic and socioeconomic backgrounds, self-rated and standardized CALL test proficiency levels have an influence on the informal digital learning of English (Zhang & Liu, 2023). Therefore, there is a strong need for longitudinal studies to assess the long-term effects of personalized CALL interventions on language proficiency and motivation to learn in order to explore the role of affective factors, such as learners' emotions and attitudes toward technology, and the interaction of these affective factors with cognitive and social variables in the CALL environment. These future research directions could significantly enhance the field by providing more comprehensive and nuanced insights to better meet the diverse needs and behaviors of language learners. Another important area to investigate is the impact of cross-cultural differences on the use and effectiveness of CALL tools, as learners from different cultural backgrounds may have different attitudes and responses to technology-enhanced language learning (Webb & Doman, 2020).

The book *Individual Differences in Computer-Assisted Language Learning Research* is a valuable monograph for researchers and practitioners in the fields of CALL and SLA. Not only does it provide insights into the factors that underlie IDs, it also presents strategies concerning how best to address these factors in language learning. The book will be of interest to language education researchers, CALL professionals, teachers and educators who are seeking ways to implement personalized language instruction, applied linguists, and even computer scientists.

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