

Book Review

Individual differences in computer-assisted language learning research

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Publisher:

Routledge, 2022

ISBN:

9781003240051

Pages:

153

In the era of rapid technological expansion, the integration of various technologies into the process of second and foreign language (L2) learning and teaching has become pervasive, making computer-assisted language learning (CALL) a well-established field (Golonka et al., 2014). There is now a consensus that individual differences (IDs) significantly influence the process and product of L2 learning (Pawlak, 2020). With a plethora of technology-based options and functionalities, CALL provides learners with a high degree of autonomy (Pawlak et al., 2016), making it an environment that is ripe for capitalizing on learners' individuality (p. 17). However, despite their critical role, IDs have not garnered the attention they genuinely merit in this context (Pawlak, 2022). To address this issue, Mirośław Pawlak and Mariusz Kruk put together the volume *Individual Differences in Computer-Assisted Language Learning Research*, providing timely and insightful guidelines for the exploration of IDs in CALL and the broader realm of second language acquisition (SLA) research.

The book starts with the *Introduction*, which lays the foundation for the rest of the volume by presenting its rationale, motivation and aims, thus providing a

roadmap for the subsequent chapters. This is followed by five chapters which constitute the core of the book. Chapter 1 offers an overview of innovative and promising CALL technologies, including interactive whiteboards, social networking platforms, corpora, mobile devices, virtual worlds, digital games, computer-mediated communication, and extended reality, mirroring the evolution of CALL technologies. The authors elucidate how each of these resources/types of software supports L2 learning based on research findings, establishing a context for understanding the complex relationship between technology, IDs, and L2 learning outcomes.

Chapter 2 includes a comprehensive overview of pivotal developments in ID research in SLA. It begins by discussing current trends in this area, highlighting the shift in how ID variables are perceived, from a classic perspective that considered them as clearly definable, stable, monolithic and internal, to a more contemporary view that acknowledges their malleability, non-monolithic nature, context dependency and dynamism. This shift is largely driven by two theoretical positions: complex dynamic systems theory (Hiver et al., 2022) and sociocultural theory (Lantolf et al., 2018). Methodologies in investigating IDs have also transformed from a reliance on the macro-perspective to including a more nuanced micro-perspective. Other evident trends are also discussed, such as abandonment of efforts to divide ID factors into distinct categories in favor of comprehensive coverage of different variables (e.g., Griffiths & Soruç, 2020). Subsequently, the chapter embarks on a systematic exploration of various factors encompassing age, gender/sex, aptitude and working memory, personality, grit, learning styles, learning strategies and self-regulation, beliefs, motivation, willingness to communicate, engagement, and emotions. These factors are sequenced according to their malleability. For each factor, the authors meticulously overview their definitions, measures and theoretical models, highlighting distinct research strands and presenting contemporary, representative empirical evidence. In this way, they offer a robust theoretical framework for understanding ID factors within the context of CALL.

Chapter 3 shifts the focus to methodological issues when investigating ID factors in SLA. It first outlines typical data collection instruments, their application in conventional and CALL settings, and their potential for data analysis. It then discusses the distinction between the macro- and micro-perspective in ID research (Pawlak, 2013). The macro-perspective gathers data from large samples to establish general patterns, typically using valid and reliable questionnaires. The micro-perspective provides situated insights into ID factors and their interactions, also emphasizing the dynamic nature of these factors across varying time scales (e.g., single classes, minutes or even seconds) often with the help of mixed methods and diverse research tools. The chapter also introduces a third category of research involving ID factors, that is, intervention-based studies,

which often employ experimental or quasi-experimental designs. By showcasing empirical investigations adopting different perspectives, the chapter highlights the array of research approaches within each perspective and shows how they can contribute to a comprehensive understanding of ID factors in SLA.

Drawing upon insights from Chapter 2 and 3, Chapter 4 presents a critical overview of empirical studies concerning IDs within CALL settings aligning with the factors explored in Chapter 2. For each factor, the authors spotlight research gaps, scrutinize methodological choices, and examine the incorporation of recent developments from ID research in SLA into CALL. These empirical investigations are categorized into distinct research strands, featuring the latest and most representative empirical evidence. This meticulous overview reveals discernible trends within CALL research juxtaposed against parallel SLA studies. Importantly, research on IDs in CALL has at times lagged behind SLA research, as evidenced by the limited emphasis on some contemporary conceptualizations or theoretical paradigms (e.g., the theory of L2 motivational self system for motivation; Dörnyei, 2009), more sophisticated research tools (e.g., measuring working memory in terms of phonological short-term and executive working memory; Wen, 2015) and innovative research directions (e.g., directed motivational currents; Henry, 2019). Moreover, except for a handful of studies (e.g., Kruk, 2021), CALL research has inadequately addressed the dynamic nature of IDs and their intricate interplay. This said, the authors underscore the significant contributions of CALL research for innovative empirical investigations, particularly in the realm of emotions or engagement as well as the inclusion of numerous interventionist studies.

The last chapter, *Conclusions and Future Directions*, offers a nuanced perspective on the relationship between SLA and CALL with respect to research on IDs. Through critical evaluation, Mirosław Pawlak and Mariusz Kruk assess the strengths and limitations inherent in existing studies. This introspective assessment paves the way for suggestions for new lines of inquiry in ID research in CALL. One interesting research direction involves exploring individual variation with a focus on specific target language skills and subsystems (e.g., grammar learning strategies; Pawlak, 2020). Another concerns the need to recognize temporal variability intrinsic to most IDs, leveraging new technologies' capability to trace such fluctuations. The authors underscore the paramount importance of collaboration and knowledge exchange between ID researchers in CALL and SLA. Through such collaborative interaction, both fields can benefit from each other's expertise, which can contribute to better understanding of ID factors and consequent development of efficacious instructional practices across diverse language learning contexts.

Individual Differences in Computer Assisted Language Learning Research stands out as the first comprehensive endeavor to review ID research in CALL alongside key developments in SLA. Its merits are worth highlighting, starting

with its impressive comprehensiveness, covering 12 diverse ID factors and introducing 8 potential and innovative technologies in CALL. This panoramic review equips readers with a deep understanding of the context and key areas for exploration. Moreover, the book's depth in analyzing general trends and providing in-depth overviews of each ID's conceptual and theoretical development in SLA offers profound insights as well as solid research foundations. For instance, in the section on language learning strategies (LLS) and self-regulation, the authors skillfully trace the conceptual evolution of LLS, addressing existing criticisms, but also underscoring the link between LLS and self-regulation. They further explore LLS research foci, providing critical evaluations and valuable future directions. This meticulous overview showcases the authors' arduous work and expertise in analyzing, organizing and presenting the intricacies of this field, offering profound insights into LLS and self-regulation and thus inspiring readers to undertake research endeavors in this dynamic domain. Additionally, the book stimulates thought-provoking discussions on the problems afflicting research on IDs in CALL settings (Chapter 4). A notable example is that many ID studies suffer from a lack of relevance to practitioners, a problem that applies in equal measure to SLA research. Furthermore, the volume provides insightful advice for both novice and experienced ID researchers in both domains. For example, CALL researchers are encouraged to incorporate innovative tools and procedures used in SLA, such as the idiodynamic method. At the same time, SLA researchers are urged to exploit the potential of technologies to trace the dynamicity of ID factors, as exemplified by Aubrey's (2022) study of engagement in collaborative writing tasks.

While the volume excels in many aspects, it is essential to acknowledge some areas that could benefit from further exploration. The thought-provoking suggestions in the concluding section offer valuable insights, but a critical evaluation of research gaps and methodological issues for each ID in CALL compared to SLA could enhance the book's depth. For instance, in the section dedicated to emotions in Chapter 4, the inclusion of future research directions for specific emotions like anxiety, boredom or enjoyment could guide scholars exploring the complexities of these IDs and their interplay in CALL settings. Such detailed analysis would undoubtedly greatly benefit graduate students and novice researchers in both CALL and SLA.

Secondly, the book covers an impressively extensive range of ID factors, but the absence of a section devoted to the concept of flow is worth mentioning. This concept has recently gained traction among ID researchers in both traditional classrooms (e.g., Aubrey, 2017) and CALL settings (e.g., Liu & Song, 2021). The characteristics of digital games outlined in Chapter 1 align closely with the conditions conducive to experiencing flow. By fostering interest, a clear set of goals, immediate feedback and a balanced challenge-to-skill ratio (Csikszentmihalyi, 1990), the application of digital games or similar interactive tools could

profoundly enhance L2 learners' experience of flow. Stressing such issues could shed light on creating learning environments and tasks that would be conducive to promoting L2 learners' flow experience in the classroom. Thus, a critical review of flow as an ID factor would offer important insights for both researchers and teaching practitioners.

In conclusion, the book *Individual Differences in Computer-Assisted Language Learning Research* represents an indispensable addition to the ever-evolving landscape of ID research in CALL. The volume offers a comprehensive overview of innovative technologies, outlines key developments in research on individual variation in SLA, offers thorough methodological considerations, and provides a critical synthesis of empirical investigations of IDs in CALL together with future research directions. All of this makes it an essential and thought-provoking resource for both graduate students and researchers dedicated to exploring various IDs in CALL, as well as those engaged in L2 learning and teaching research.

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References

- Aubrey, S. (2017). Measuring flow in the EFL classroom: Learners' perceptions of inter-and intra-cultural task-based interactions. *TESOL Quarterly*, 51(3), 661-692. <https://doi.org/10.1002/tesq.387>
- Csikszentmihalyi, M. (1990). *Flow: The psychology of optimal experience*. Harper & Row.
- Dörnyei, Z. (2009). The L2 motivational self system. In Z. Dörnyei & E. Ushioda (Eds.), *Motivation, language identity and the L2 self* (pp. 9-42). Multilingual Matters.
- Golonka, E. M., Bowles, A. R., Frank, V. M., Richardson, D. L., & Freynik, S. (2014). Technologies for foreign language learning: A review of technology types and their effectiveness. *Computer Assisted Language Learning*, 27(1), 70-105. <https://doi.org/10.1080/09588221.2012.700315>
- Griffiths, C., & Soruç, A. (2020). *Individual differences in language learning: A complex systems theory perspective*. Palgrave Macmillan.
- Henry, A. (2019). Directed motivational currents: Extending the theory of L2 vision. In M. Lamb, K. Csizér, A. Henry, & S. Ryan (Eds.), *The Palgrave handbook of motivation for language learning* (pp. 139-162). Palgrave Macmillan.
- Hiver, P., Al-Hoorie. A. H., & Evans, R. (2022). Complex dynamic systems theory in language learning: A scoping review of 25 years of research. *Studies in Second Language Acquisition*. 44(4), 913-941. <https://doi.org/10.1017/S0272263121000553>
- Kruk, M. (2021). *Investigating dynamic relationships among individual difference variables in learning English as a foreign language in a virtual world*. Springer. <https://doi.org/10.1007/978-3-030-65269-2>
- Lantolf, J. P., Poehner, M. E., & Swain, M. (2018). Introduction. In J. P. Lantolf, M. E. Poehner, & M. Swain (Eds.), *The Routledge handbook of sociocultural theory and second language development* (pp. 1-20). Routledge.
- Liu, H., & Song, X. (2021). Exploring "Flow" in young Chinese EFL learners' online English learning activities. *System*, 96, 102425. <https://doi.org/10.1016/j.system.2020.102425>
- Pawlak, M. (2013). Researching grammar learning strategies: Combining the macro-and micro-perspective. In Ł. Salski, W. Szubko-Sitarek, & J. Majer (Eds.), *Perspectives on foreign language learning* (pp. 191-210). Łódź University Press.
- Pawlak, M. (2020). Individual differences and good language teachers. In C. Griffiths, & Z. Tajeddin (Eds.), *Lessons from good language teachers* (pp. 121-132). Cambridge University Press. <https://doi.org/10.1017/9781108774390.013>
- Pawlak, M. (2022). Research into individual differences in SLA and CALL: Looking for intersections. *Language Teaching Research Quarterly*, 31, 200-233.
- Pawlak, M., Mystkowska-Wiertelak, A., & Bielak, J. (Eds.). (2016). *Autonomy in second language learning: Managing the resources*. Springer Nature.

Wen, Z. (2015). Working memory in second language acquisition and processing: The phonological/executive model. In Z. Wen, M. B. Mota, & A. McNeill (Eds.), *Working memory in second language acquisition and processing* (pp. 41-62). Multilingual Matters.