



REVIEW OF *Cognitive Individual Differences in Second Language Acquisition*

XU (JARED) LIU 

xu.liu@xjtlu.edu.cn

Xi'an Jiaotong-Liverpool University, China



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Xu (Jared) Liu



Cognitive Individual Differences in Second Language Acquisition (Theories, Assessment and Pedagogy) by Zhisheng (Edward) Wen, Richard L. Sparks, Adriana Biedroń, Mark Feng Teng, Walter de Gruyter, ISBN 978-1-61451-676-7

Individual differences (IDs) in second language acquisition (SLA) as an important perspective of scholarly inquiry have been researched for more than seven decades. Compared to textual research, the observation and exploration of IDs in SLA tend to be more intricate in terms of the intertwining influence of time, space, personality, and giftedness. IDs in fact are a broad area, embodying heterogeneous variables in SLA. Numerous studies have examined the relationships between variables of IDs such as cognitive factors, attitudinal and motivational factors, affective factors, the learning context, and second language achievement (Genesee & Hamayan, 1980). Specifically, cognitive factors can be exemplified by working memory, metacognition, language aptitude, learning strategies, intelligence, and field independence or dependence (field independence means the ability to identify simple rules in a more complex spoken or written context, while field dependence refers to more attachment to background information), attitudinal and motivational factors include willingness to communicate, positive attitudes and motivation, affective factors entail personality and anxiety, and the learning context includes immersion programmes or conventional grammar training programmes. Additionally, there are also other factors used to categorise some variables of IDs such as social factors including gender. The IDs approach to SLA, integrated with an array of scholarly perspectives of multiple disciplines such as education, psychology,

anthropology, and neuroscience, has incrementally contributed to the theoretical and pedagogical development of L2 classrooms. This interdisciplinary approach never solely defines SLA as an activity by noticing linguistic systems or processing language, but by emphasizing the main role of being self as learners themselves.

The editors and chapter authors of *Cognitive Individual Differences in Second Language Acquisition (Theories, Assessment and Pedagogy)* have made a collective effort to present their professional insights in relation to the cognitive approach in SLA, particularly providing and integrating recent research on it. With an overview chapter standing first alone and a chapter in epilogue, the book is divided into four parts, encompassing fourteen chapters.

The first part consists of four chapters focusing on age, intelligence, aptitude, and affect. Particularly, in Chapters 2 through 5, Biedroń first draws upon heterogeneous research about the relationship between the *Critical Period Hypothesis* and ultimate attainment of a foreign language. Many of the arguments from linguistics and cognitive and neurological science research have proved the difficulty in achieving a consensus on an exact age of onset of language acquisition, but a general belief is that the language learning process can be impacted over time by a decline of memory, attention span, and reasoning ability.

Furthermore, learning mechanisms are discussed looking at issues like the impact of age, citing trends such children opting to rely on implicit learning mechanisms while adults explicit learning mechanisms. This convincing arrangement is a supplement to the effects of age difference on SLA. However, age effects can be affected by learners' aptitude, which can predict both children's and adults' ultimate acquisition outcomes whatever language mechanism is at work. In the pedagogical part, an aptitude-treatment-interaction approach is mentioned to work as a support for post-pubescent foreign language learning, but what needs to be prepared by instructors and learners, and how it can be implemented in a specific classroom are not clearly exemplified.

Biedroń then pivots intelligence as a main subject in relation to the initial theory of intelligence—the two-factor theory (namely “g” factor referring to performance on intelligence tests, and “s” factor meaning abilities on specific tasks) proposed by Charles Spearman in 1904—unfolding the evolution of theories and models surrounding it. Specifically, studies into the relationship between intelligence and SLA are presented by mainly demystifying the relationship among intelligence, foreign language aptitude (FLA) and second language proficiency. Irrespective of the emphasis on the dynamics of intelligence in the pedagogical part, there is not much

mentioned for various SLA classrooms. Additionally, FLA is critically discussed in terms of relevant theories, models, tests, instructional implications, and existing and future research orientations, but there are no explicit explanations or summaries about the intrinsic differences between aptitude and intelligence. The last chapter of this part focuses on the correlations between psychological factors and language aptitude. Biedroń skillfully presents a discussion on the fuzzy distinction between the two main groups of individual differences—cognitive factors and affective factors. When mentioning the four bipolar personality types (extraversion-introversion, sensing-intuiting, thinking-feeling, and judging-perceiving) proposed in one early study that was conducted with the Myers-Briggs Type Indicator (MBTI), Biedroń could have further explained the particular effect of these personality types on the SLA, and importantly the relationship between them and Snow's (1987) Five Factor Model (openness to experience, agreeableness, conscientiousness, extraversion/introversion and neuroticism), which has often been used in personality-related SLA studies.

The second part of the volume is comprised of two chapters related to memory, attention, and noticing. Wen first traces back to heterogeneous theories about memory, introducing the evolution of working memory (WM) models and clarifying the concept of limited capacity, often thought to be the most important characteristic of WM. This brings forth the establishment of a theoretical framework—the integrated Phonological/Executive (P/E) model (Wen, 2019) for conceptualising and measuring WM in SLA research. It is also worth mentioning that two main caveats besetting WM measuring in SLA are provided. One of them is the attribute of being an epiphenomenon in phonological developments, and the other is the parasitic property of being an emergent construct. These are all helpful to researchers who focus on WM studies and make them clearly distinguish WM properties from other memory-related properties. Another fascinating point that Wen proposes is the lack of WM training research, which may direct researchers to look into the maintenance of WM. A table outlining the P/E model (Wen, 2019) is presented without clear explanations, however, thereby leading to some confusion on the part of the reader. It would be much clearer for readers to provide certain specific instructions. For example, how “task-switching numbers/the plus-minus task” is used to measure task-switching, one of the WM executive functions.

Wen then briefly demonstrates the relationship among consciences, attention, and noticing, and expatiates on the theories involved in forming Schmidt's *noticing hypothesis* (i.e., noticing particular elements of L2 input is vital for learning), which are particularly useful for those who want to gain more insights into this area. Wen also critically argued for more empirical research into the six factors (frequency and perceptual salience of input, instruction, task demands,

expectations or readiness of individual learners, and processing capacity of individual learners) influencing noticing. This also shows a direction for future research in this area. Nevertheless, very little has been mentioned on comparisons of Schmidt's *noticing hypothesis*, Skehan's *limited attentional capacity hypothesis*, and Robinson's *cognitive hypothesis*.

Three chapters about learning strategies, metacognition, and self-regulation are included in the third part of the book. From theories and models to assessments and pedagogical instruction, Teng systematically discusses the three aforementioned notions, but more information could be provided in the chapter of metacognition regarding intentional avoidance of metacognitive instruction for improving speaking performance. When discussing strategy-based instruction in Chapter 8 (learning strategies), Teng also only mentions the metacognitive instruction for listening, reading, and writing instead of including the relationship between learning strategies and metacognition. It therefore might be difficult for certain readers to understand the rationale of such instruction. In Chapter 10 (self-regulation), since self-efficacy is mentioned, further clarification on the variance between self-regulation and self-efficacy would clear up some potential confusion of readers who are less familiar with this area or some interested in delving into this area.

Three chapters regarding L2 skills, learning difficulties and anxiety are included in the fourth part. Sparks mainly introduces two models—the Simple View of Reading (SVR) model and the Simple View of Writing (SVW) model—to discuss the cognitive variance in L2 skills, along with a justification of the correlation between oral language (listening) proficiency and the two respective models. However, from lower order processes (decoding/spelling) to higher order processes (comprehension/ideation) in SVR and SVW models, Sparks only presents a general description of such correlation, rather than explaining whether or not there is likewise a speaking or listening model existing in current research, and if there is a speaking or listening model existing in current research, how this model interplays with SVR or SVW. In Chapter 12 (L2 learner disabilities), Sparks proposed the multisensory structured language approach (MSL) as an evidence-based approach to language learning difficulties with many empirical research outcomes, although I personally felt a more holistic and specific MSL could have been adopted to exemplify how a L2 language course (e.g. reading or writing) is specifically taught. This might be more beneficial to early-career teachers in a demanding situation. Finally, Sparks posits the question of whether L2 anxiety is an affective factor or a linguistic factor in order to examine the impact that L2 anxiety brings on L2 learning through a regression analysis of reading comprehension with the Foreign Language Reading

Anxiety Scale (FLRAS). Since one of the essential pedagogical implications is mentioned in this section— L2 educators should be aware that L2 anxiety is language-related—it may be concluded that workable training or guidance for alleviating L2 anxiety could be formulated, especially focusing on reading comprehension.

Despite the critical suggestions mentioned here, the book is informative, well-organised, and enlightening. It is purposefully catalogued by subgroups of topics and is enriched by recommended readings and a synopsis at the end of each chapter. Overall, this book can be seen as a fundamental resource for those who are starting to explore cognitive IDs as well as for readers who already have some knowledge of the concepts and principles in the area.

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