Reviewed work:

The Use of L1 Cognitive Resources in L2 Reading by Chinese EFL Learners. (2016). Shiyu Wu. London, UK: Routledge. Pp. 162. ISBN 9781138847033. $160.00

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The use of first language (L1) resources in second language (L2) reading has long been discussed in the field of second language reading as part of the compensatory process of comprehending a text (Bernhardt, 2011; Grabe, 2009; Koda, 2005). While the relationship between L1 reading and L2 reading appears to be consistent across many studies that examine a variety of languages and contexts (Bernhardt, 2011), the underlying mechanisms of such a relationship remain unknown, particularly as this relationship differs over varied pairs of L1 and L2 and contexts of learning. At present, therefore, there is a need to clarify controversies of L1 use while reading in an L2, particularly in mainland China where many learners are taking up English as a serious language of study (Guo, 2001). *The Use of L1 Cognitive Resources in L2 Reading by Chinese EFL Learners* investigates this area of study by examining the use of L1 cognitive processes such as L1 reading ability, L1 mental structure building, L1 use in L2 reading, and other such mechanisms through both product and process-oriented methodologies. Findings are examined through the lens of both Linguistic Threshold Hypothesis (Clarke, 1980) and the Reading Universal Hypothesis (Alderson, 1984). This book reports theoretically and empirically-driven results of multiple experiments, synthesizing the results of these experiments to argue a deeper, more comprehensive understanding of L1 cognitive resource use in L2 reading with Chinese EFL students. As such, this volume is written for researchers and practitioners who seek to understand these important and interwoven skills.

In 132 pages, eight figures, and twenty-seven tables across eight chapters, this volume reports the results of a single line of inquiry through a series of studies interrogating the role of L1 cognitive resources in L2 reading. With this multimodal approach which incorporates qualitative and quantitative research methodologies including multivariate approaches, the author illuminates findings which further the understanding of the compensatory nature of L2 reading (Bernhardt, 2011) and the relevance of L1 in the context of L2 reading (Grabe, 2009; Koda, 2005). Overall the author of this volume (a) summarizes and synthesizes the vast fields of theories of linguistic transfer in language acquisition, L1 cognitive resources, and L2 reading, (b) establishes multiple hypotheses and research questions which emerge from prior work, (c) presents data and analysis succinctly, and (d) clearly reports and contextualizes findings both into the context of Chinese EFL students in mainland China and the broader literature of the field, ending with pedagogical implications and recommendations for future research.

The first chapter of this book is a succinct description of the series of studies, outlining the purpose, significance, key concepts, and the book itself. As such, this chapter situates the reader in the context of the studies, highlighting the significance of L2 reading in China, particularly of English, and the dearth of research conducted within mainland China on this topic. Further, Wu clarifies the lens through which this series of investigations approaches the topic, stating that this is an investigation of psycho-cognitive aspects. Further, Wu outlines two separate techniques used within this series of studies, the product-oriented and the process-oriented. In both testing situations, Wu endeavors to understand the role of L1 mental structures and L1 language use in L2 reading, additionally examining the possible compensatory nature of L2 proficiency comparative to L1 reading skill. This introduction also operationalizes key variables such as L1 cognitive resources which include L1 reading ability, mental representations of meaning, working memory capacity, and L1 use during L2 reading.

Chapter 2 provides a research background which succinctly describes theories relevant to the study. The author describes the top-down, bottom-up, and interactive approaches to L2 reading, providing a strong knowledge base before delving into and focusing on studies of L1 influence in terms of threshold effects and general research on cognitive resources used in L2 reading and writing. Following this review, this second chapter highlights the need for the current study.

Chapter 3 provides clear summation and synthesis of key theories relevant to this study, including Structure Building Theory (Gernsbacher, 1990), Sociocultural Theory (Vygotsky, 1978), and Transfer theories (Alderson, 1984; Clarke, 1980). These theories are explained clearly, allowing novices to understand both the theories and their present validity in shaping the studies reported in this book. Through these theoretical frameworks, the author argues that language learners' use of L1 scaffolds or supports their L2 use, making them their own "expert" in the Vygotskian framework. Thus, the ability to build mental representations from the text in a L1 should allow them to be experts in their L1. Through this capability, they are able to scaffold such knowledge in their L2 experiences. Linguistic threshold and transfer are discussed from this frame as well.

Chapter 4 outlines sophisticated research design and methodology for two separate procedures which investigate the roles of L1 reading abilities and L1 structure building. After presenting the 221 Chinese EFL participants living in mainland China who have studied English for seven to

eight years and are majoring in areas other than English or translation, the chapter outlines instruments used for the first procedure. The researcher used a researcher-developed L1 and L2 reading test of six passages each with both cloze and multiple choice (MC) assessment of reading for L2, but only MC for L1. The instrument measuring L2 proficiency is a combination of Nation's Vocabulary Levels Test (Nation, 1990) and TOEFL Section 2, which focuses on grammar. Together these instruments were reasonably reliable and valid for capturing an overall picture of proficiency for the L2 as conceptualized in these studies, focusing on the key constructs of vocabulary and grammar. The second procedure involved sampling 60 individuals from within the 221 participants who achieved high scores on Chinese reading but differed in terms of L2 proficiency, having either high or low L2 knowledge (30 per group). These learners completed a process first conducted by Walter (2004) wherein students were tested on their structure building, or students' ability to create a clear mental representation of a concept from reading a text (Gersbacher, 1990). Students' samples were coded using pro-form codes which were then used to establish students' ability to create a mental representation of the concepts explained within the given text.

Chapter 5 then explains another research design and methodology, justifying and outlining the process-oriented approach of Verbal Protocol Analysis (VPA). With another sample of 21 Chinese EFL university students from two universities, divided by varied English language proficiency, a verbal-protocol was developed. Students were first trained extensively and then asked to complete a think-aloud protocol of an English text published as an EFL resource in China. After the individual think-aloud process participants completed an immediate cued response based on the recording of their think-aloud. The chapter outlines the detailed coding system which provided insight into the participants' approaches to comprehending the text. Translation, thinking about the argument, and other such uses of English or Chinese were separated in this coding scheme in order to understand when and where students were using English and Chinese as they read in English. For example, many students who were less proficient in English used their native tongue to process and reason through the text, at times translating what they had read in order to better understand it. Other such examples are explained in detail in the text, and a summary of the findings from these codes is located in Chapter 7.

Chapters 6 and 7 report all results in detail through tables and prose, situating findings within a discussion of relevant prior literature. In Chapter 6, the results of the product-oriented procedure outlined in Chapter 4 are explained in great detail. The author found that L1 (Chinese) is indeed transferable to L2 (English) reading, despite the linguistic and orthographic distance between these two languages. Further, through a 2x2 ANOVA and correlational analysis, findings indicate that those with higher L2 proficiency seemed to transfer the skills of good structure building while those with lower L2 proficiency failed to do so, indicating a particular challenge in L2 structure building with lower L2 proficiency participants when they encountered more complex structures. In addition, as anticipated, reading ability correlated with structure building ability. In regards to the investigation of the threshold effect, these data indicate that such an effect does exist such that, after having achieved a certain level of L2 proficiency, reading skills such as structure building are better able to transfer across languages. Therefore, the correlation between L1 and L2 reading abilities is only significant when L2 proficiency is higher. The author argues that such findings arise from the way that linguistic factors interact with mechanisms of suppression and working memory capacity (although working memory was not directly

measured within any of these studies). Through sophisticated statistical analyses, including multiple regression and logarithmic functions, the author additionally finds that there is a compensatory effect of high L1 reading ability for those with low L2 proficiency and that L2 proficiency can likewise compensate for poor L1 reading ability; however, such effects are much stronger for L2 proficiency than for high L1 reading ability, meaning that while those with strong L1 reading skills are able to overcome a lack of L2 proficiency, individuals with greater L2 proficiency are more able to overcome a lack of L1 reading ability.

In Chapter 7, the author discloses the findings of the procedures discussed in Chapter 5. As the author sought to better understand the use of L1 (Chinese) in L2 (English) reading, protocols indicated that all levels of proficiency do rely on some use of L1 to complete L2 reading. Further, as the L2 proficiency level increases, subjects' reliance on L1 as the main means of understanding a text decreases because more proficient learners use a wider range of approaches to understand the text. In addition, when looking specifically at the purpose of L1 use during L2 reading, the author indicates that L1 use did increase reading comprehension and that the use of L1 was increasingly precise and supportive of understanding as L2 proficiency increased. Thus, the author argues that L1 is a key avenue of support for learners reading in a L2. Finally, the eighth chapter concludes the series of studies and addresses pedagogical and theoretical implications, limitations and directions for future research.

As a researcher in the field of applied linguistics with a particular focus in L2 reading and applied linguistics research methodology, it was a pleasure to witness such a well-designed response to a line of inquiry which sought to uncover a comprehensive understanding of the role of L1 in L2 reading. This book had clear strengths such as a strong foundation in prior literature and theory of the fields of both L2 reading and cognition and a clear focus on taking a multifaceted approach to understanding the complex processes which make up L2 reading. Through advanced design, univariate, and multivariate approaches to data analyses, the author was able to present a clear picture with evident validity in a growing context of language learning. There were a few shortcomings in this text such as examples which were untranslated, making it impossible for readers who do not read Mandarin Chinese to understand. In addition, there was a slight lack in graphical representation of statistical results which could have made the complex statistics easier to digest for practitioners and researchers who utilize different techniques. However, all statistics are presented clearly and described in detail, providing rich understanding through both qualitative and quantitative metrics. In the end, this volume clearly demonstrates the realities of the threshold effect and compensatory processes of reading for Chinese EFL students in mainland China.

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