外语故事理解加工的语言及认知因素

英文版

The Linguistic and Cognitive Factors Involved in L2 Narrative Comprehension

马 拯 著

上海交通大学出版社
SHANGHAI JIAO TONG UNIVERSITY PRESS

上海市哲学社会科学规划青年课题（编号2015EYY002）阶段性成果
上海海事大学“英汉对比与翻译”学术创新团队项目资助
上海海事大学校基金项目（编号20130478）资助

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内容提要

本书从语言学和认知心理学的角度，采用实验心理学的方法研究了外语故事理解加工过程中语言及认知因素及其影响和作用，包括外语水平、外语理解水平、抑制机制及工作记忆等。结论表明，外语水平、外语理解水平、抑制机制和工作记忆在外语故事理解加工中表现出一定程度的优劣互补效应，发挥“协调配合”的作用，管理着外语读者的心理表征建构过程。

本书可作为英语教学教材，也可作为英语学习者的辅导读物。

图书在版编目（CIP）数据

外语故事理解加工的语言及认知因素：英文 / 马拯著. —上海：上海交通大学出版社，2015
ISBN 978-7-313-14220-7

Ⅰ. ①外… Ⅱ. ①马… Ⅲ. ①英语—阅读教学—教学研究 Ⅳ. ①H319.4

中国版本图书馆CIP数据核字（2015）第309097号

外语故事理解加工的语言及认知因素（英文版）

著　　者：马　拯
出版发行：上海交通大学出版社
邮政编码：200030
出 版 人：韩建民
印　　制：当纳利（上海）信息技术有限公司
开　　本：710mm × 1000mm　1/16
字　　数：181千字
版　　次：2015年12月第1版
书　　号：ISBN 978-7-313-14220-7/H
定　　价：45.00元

地　　址：上海市番禺路951号
电　　话：021-64071208
经　　销：全国新华书店
印　　张：11.25
印　　次：2015年12月第1次印刷

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ABSTRACT

Based on Gernsbacher's Structure Building Framework (1990), the present book is aimed at investigating how Chinese EFL (English as a Foreign Language) learners manage their mental representations during L2 (Second Language) narrative comprehension. We shall demonstrate how the three general cognitive processes (*laying a foundation, mapping,* and *shifting*) and two cognitive mechanisms (*suppression* and *enhancement*) as formulated in the Structure Building Framework work to allow comprehenders to keep track of the "causal path" existing in an L2 narrative story when comprehending it. Several other important cognitive and linguistic factors closely related to the management of Chinese EFL learners' mental representations of L2 narratives are also taken into account, including their L2 working memory (WM), L2 proficiency, and L2 comprehension skills.

In order to answer the research questions, we altogether conducted two sets of experiments, Experiment One and Experiment Two.

Experiment One explores how Chinese EFL learners maintain the relevant story characters in focus in order to keep track of the "causal path" existing among events in L2 narratives. Specifically, it investigates how the three general cognitive processes (*laying a foundation, mapping,* and *shifting*) and two mechanisms (*suppression* and *enhancement*) are involved in Chinese EFL learners' management of their mental representations of the L2 narratives. The role of their L2 WM, L2 proficiency, and L2 comprehension skills involved was also assessed in their comprehension. Altogether 138 freshmen from a key university took part in this experiment. Data elicited from the experiment were analyzed by using both the subjects and the probe words as random effects.

Experiment Two is designed to investigate how Chinese EFL learners

keep track of the most relevant character goals so as to understand the "causal path" existing in L2 narratives. Specifically, it investigates how the three general cognitive processes (*laying a foundation, mapping,* and *shifting*) and two mechanisms (*suppression* and *enhancement*) are utilized as precious cognitive resources in Chinese EFL learners' management of their mental representations of the narrative stories. Moreover, it also explores the role of Chinese EFL learners' L2 WM, L2 proficiency, and L2 comprehension skills in this complex psychocognitive process. Two sets of experiments were conducted. A group of 163 sophomores attended the first set of experiments (within-subjects design), while another group of 140 sophomores participated in the second set of experiments (between-subjects design).

Experiment One and Experiment Two are complementary in the sense that the former adopts a very concrete construct (i.e., story characters) whereas the latter adopts a very abstract construct (i.e., story character goals) in order to probe into Chinese EFL learners' L2 narrative comprehension. By including both a concrete construct and an abstract construct in the experiments, the present research rules out the possibility that the results obtained from Experiment One are dependent on a specific probe word (the story character name) rather than the subjects' mental representations of that character. In this way, it arrives at important reliable and generalizable findings, and offer insights into their management of mental representations during L2 narrative comprehension.

Experiment One demonstrates that, when the original story character is rementioned in a narrative, Chinese EFL learners' access to the original character becomes enhanced (reaping "benefits"). On the other hand, Chinese EFL learners' access to the original character becomes weakened when a new character is introduced. It can be seen that a mechanism of suppression is adopted by Chinese EFL learners to modulate the activation of story characters (key concepts in narrative comprehension). In order to understand L2 narrative events, Chinese EFL learners keep track of multiple, changing story characters by using the cognitive mechanism of suppression. Besides, it also demonstrates that Chinese EFL learners' L2 WM plays a significant role in their management of their mental representations of story characters.

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Experiment Two including both the within-subjects design and the between-subjects design indicates that, when it is rementioned in an L2 narrative story, the original character goal becomes more accessible (reaping "benefits") in Chinese EFL learners' mental representations of the L2 narrative story. On the other hand, when a new goal is introduced, the accessibility of the original goal becomes suppressed (paying "costs") in Chinese EFL learners' mental representations. In addition, it also shows that Chinese EFL learners' L2 proficiency plays an important role in their managing mental representations of character goals. More proficient Chinese EFL learners are more skilled at suppressing irrelevant information during their narrative comprehension, demonstrating a "threshold effect".

Findings above have demonstrated that suppression is exerting very important effects on Chinese EFL learners' managing mental representations of the text they are reading. In line with the predictions of Gernsbacher's Structure Building Framework, the present book concludes that Chinese EFL learners laid a foundation by using the initial story characters or story character goals at the beginning of the narrative. They would map consistent incoming story character or story character goal information onto that foundation or shift to build a new substructure if the incoming information is inconsistent. Besides, the results have also shown that Chinese EFL learners' L2 proficiency, L2 comprehension skills and L2 WM are important in advanced cognitive activities such as narrative comprehension. However, when dealing with specific cognitive tasks, those cognitive and linguistic factors would compensate for each other and would coordinate in their effects on comprehension.

This book is valuable in that it provides insights into L2 narrative comprehension and L2 reading processes from the perspectives of SLA and psycholinguistics. It also provides guidelines for both L2 learning and teaching. However, this book is not exhaustive and more studies are still needed. For example, studies of the hemispheric differences for enhancement and suppression mechanisms would be such fruitful attempts.

ABBREVIATIONS

3C theory	The Capacity Constrained Comprehension theory
ANCOVA	Analyses of covariance
ANOVA	Analyses of variance
CET 4	College English Test Band-4
CET 6	College English Test Band-6
EFL	English as a Foreign Language
GS	Goal Status
HiL2	High L2 Proficiency Group
L1	First Language
L2	Second Language
LIH	The Linguistic Interdependence Hypothesis
LoL2	Low L2 Proficiency Group
LSD	Least Square Distance
LTH	The Linguistic Threshold Hypothesis
MCQ	Multiple Choice Question
RST	Reading Span Test
SBF	The Structure Building Framework
SLA	Second Language Acquisition
SPSS	Statistical Package for the Social Sciences
TFQ	True-or-False Question
TOEFL	The Test of English as a Foreign Language
VE	Verification Errors
VET	The Verbal Efficiency Theory
VL	Verification Latencies

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CHAPTER 1

INTRODUCTION

Narrative comprehension has received tremendous attention in the research field of language and cognition on account of its importance in people's life and education. Narratives have a privileged status among various genres (argumentation, exposition, logical reasoning, etc.) (Graesser, Golding & Long, 1991; Gerrig, 1993; Schank & Abelson, 1995; Goldman, Graesser & van den Broek, 1999). They introduce novel information, defamiliarize existing information, and provide models for new behavior, thus influencing the way people perceive and respond to the world (Strange, 2002). In many countries, story reading constitutes the early part of education for many young children, largely on the ground that reading a story helps the development of their cognitive styles. In general, such reading activities help people, be it young children or adults, understand the world, for the situations and episodes in narratives are supposed to be closely related to daily experiences of human being (Schank & Abelson, 1995; Schank & Berman, 2002).

The process of narrative comprehension is, however, still a mystery in the research field. Much work and research effort are still needed. As argued by many scholars, comprehenders are involved in encoding three psycho-cognitive activities in the process of story comprehension: encoding the surface features of texts, which is called *surface code* of the story, their idea content (or *textbase*), and the situations to which texts refer (Graesser, Singer & Trabasso, 1994; Perfetti, 1989; Radvansky & Copeland, 2000; Radvansky, Zwaan, Curiel & Copeland, 2001). van Dijk & Kintsch (1983) and Kintsch (1988) refer to the last one as *situation* models. According to them, these are situational representations which are often described

as *mental* models (Johnson-Laird, 1983). Successful comprehension of narratives entails representing a model of the situation described by the text. During the process of creating a situation model, comprehenders are able to understand things that are not explicitly stated in the text and hence comprehend narratives successfully.

The present book is designed to investigate how Chinese EFL (English as a Foreign Language) learners manage their mental representations during L2 narrative comprehension. Based on Gernsbacher's Structure Building Framework (SBF, 1990), it investigates how the three general cognitive processes (*laying a foundation*, *mapping*, and *shifting*) and two cognitive mechanisms (*suppression* and *enhancement*) are involved in Chinese EFL learners' construction of the mental representations of the L2 narratives. Several other important cognitive and linguistic factors closely related to the management of Chinese EFL learners' mental representations of L2 narratives will also be taken into account, including their L2 working memory, L2 proficiency and L2 comprehension skills.

1.1 Need for the Study

The present study is motivated by three concerns: ① importance of L2 narrative comprehension in Second Language Acquisition (SLA), ② significance of suppression in the research field of language and cognition, and ③ further clarification of problems with previous studies.

In the first place, narrative comprehension, as one of EFL learners' most common reading activities in L2, is an important psycho-cognitive activity. Reading in L2, as a significant source of language input, is especially meaningful for Chinese EFL learners who learn English in a target-language "poor-input environment" (Zhang, 2000). They have few opportunities to communicate directly with English native speakers, and then such an important source of language input acts as causative variable promoting EFL learners' advancement in L2 proficiency through either conscious or unconscious processes (Elley & Mangubhai, 1983; Krashen, 1985).

EFL learners commonly acquire L2 knowledge and enrich learning experience through their reading of L2 stories. English textbooks,

magazines, and journals include L2 stories as a means of input to L2 learning. EFL learners acquire vocabulary, develop L2 comprehension skills, and make improvements in L2 proficiency by reading them. What's more, various English tests such as TOEFL (the Test of English as a Foreign Language) utilize L2 narratives as test materials and have test items constructed from them. It could be seen that research on reading and narrative comprehension in L2 is of tremendous value.

In the second place, suppression, defined as a general cognitive mechanism, plays a crucial role in a variety of cognitive and linguistic tasks. It functions to dampen mental activation that becomes irrelevant or inappropriate to a final interpretation (Tompkins *et al.*, 2000). Suppression of potential interference of irrelevant information is crucial to any type of comprehension and cognition (Lavie, 2005). It has been proposed in various cognitive domains such as visuo-spatial orienting to long-term memory retrieval. It also plays a crucial role in many aspects of language comprehension. In language processing, the role of suppression has been identified in many comprehension processes such as lexical access, anaphoric reference, cataphoric reference, syntactic parsing, simultaneous interpreting and metaphor understanding. Few studies, however, have ever touched upon the role of suppression in narrative comprehension (Gernsbacher *et al.*, 2004; Linderholm *et al.*, 2004). Still fewer have had EFL learners as subjects in their empirical research on the role of suppression in the field of language and cognition.

Thirdly, although narrative comprehension has been widely-studied, the scope of research in the previous studies is limited in several ways. The first limitation is that L1 readers were exclusively used as research subjects. What is it like for L2 learners' comprehension process? Are findings and conclusions in previous research generalizable to reading in a second/foreign language? How would the three general cognitive processes (*laying a foundation, mapping,* and *shifting*) and two mechanisms (*suppression* and *enhancement*) be involved in Chinese EFL learners' comprehension process? The second limitation is that most previous research touched upon effects of only one or two factors, and therefore a comprehensive study is necessary by considering both the main effects and also the covariate effects of related factors. What is the role of Chinese EFL learners'

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