当代外语研究论丛
FOREIGN LANGUAGES STUDIES
语言学研究系列

A Study on Chinese EFL Learners' Automaticity
—Evidence from Online Processing of English Subject-Verb Number Agreement

中国英语学习者的自动性能力研究

（英文版）

袁 慧◎著

上海交通大学出版社
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内容提要

本书致力于研究二语习得中的自动性能力问题。本书共分八章。第一章介绍有关自动性研究的背景，在此基础上突出本研究的理论、实践和方法论意义。第二章致力于梳理现有的两大自动性理论(基于范例 vs. 基于规则)。第三章着眼于厘清两种自动性语言能力的测量方法("二分法"vs."连续体")，为后续本研究所采用的实验方法铺垫。第四章论证以英语主谓一致为目标语法结构研究中国英语学习者自动性能力的原因，同时梳理已有文献以讨论影响第二语言学习者在线加工英语主谓一致的因素。第五章主要介绍本研究的理据以及具体的研究设计。第六和第七章分别是研究结果和讨论部分。第八章讨论本实验研究的启示、创新和不足之处，同时谈及未来的研究方向。

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前　言

在二语习得研究领域中，自动性作为一种快速、不费力的语言使用能力，被研究者认为是二语习得的最终目标。但相关的实证研究不多，尤其在语法层面的研究十分少见。国内利用实验心理语言学范式对中国英语学习者自动性进行的研究更为缺乏。由于自动性能力的内在本质是强调语言的使用，就中国英语学习者的自动性能力展开实证研究对当前国内“费时低效、哑巴英语”的学习窘境具有积极的启发意义。

已有的实证研究拘泥于自动性或自动化，择一而探究。基于前者的研究以严格意义上的二分法模式看待自动性（二语学习的理想化最终成果），而基于后者的研究以变化连续体的视角看待自动化（二语学习的发展过程）。和以往的研究不同，本书中的研究不以割裂的方式看待自动性和自动化。很显然，二语习得是一个漫长、逐渐发展的过程。因为，我们既要考查二语学习者能否达到类似本族语者的自动性能力，也要考查他们学习二语的发展变化过程。基于此，Anderson（1983，1992，1993，1994，1997，2004）的思维适应性控制理论（Adaptive Control of Thought，以下简称 ACT）是基于规则的自动化理论，清晰地描述了语言自动化发展过程，适用于本研究。它提出二语能力发展是从陈述性知识过渡到程序性知识的自动化过程，同时指出大量练习和工作记忆在此过程中的重要作用。基于此理论框架，本书中的自动性被定义为：无意识的或最小程度地占有注意力资源的语言处理能力。自动化是逐渐实现这一目标的过程。

基于文献回顾，本书中的研究采用在线的自定步速阅读实验范式。与其他实验范式相比较，该范式有两大优势：作为接受型任务避免了产出任务带来的“目的语知识提取困难”的干扰变量；由于任务本身是强调意义理解加以逐词阅读带来的时间压力，最大程度地避免了被试使用陈述性知识的可能性，从而反映其自动加工相关语法知识的能力。本研究的目标语法结构采用英语主谓一致，是因为已有研究表明中国英语学习者在使用该语法结构时经常出错，很有可能是由于汉语不具备标记主谓一致的屈折形态。基于此，本书中的研究进一步将自动性操作定义为：在以意义为导向的自定步速在线阅读实验中，被试对语法错误呈现敏感性；具体表现为阅读违反主谓一致的动词时间要显著地长于其符合正确语法的情况。同时，考查不同水平的中国英语学习者在自定步速阅读任务中的差别以探究英语主谓一

致自动化的发展过程。自动化程度以被试对正确动词和相对应的错误动词的反应时间差来衡量。

本书致力于回答以下5组研究问题:①英语本族语者在英语主谓相邻和不相邻的条件下,对主谓不一致的反应时模式是什么?②水平较高的中国英语学习者在英语主谓相邻和不相邻的条件下,对主谓不一致的反应时模式是什么?是否达到类似母语者的自动性能力?③水平较低的中国英语学习者在英语主谓相邻和不相邻的条件下,对主谓不一致的反应时模式是什么?是否达到类似母语者的自动性能力?④中国英语学习者是否随着水平提高,对英语主谓一致反应时模式呈现自动化程度提高?⑤中国英语学习者的工作记忆容量是否和其对英语主谓一致的反应时模式相关?研究结果证明了ACT提出两种知识的区别:陈述性知识和程序性知识。本书研究中的中国英语学习者没有达到类似英语本族语者对主谓一致的自动加工能力。结合已有的研究,这主要归结于汉语和英语之间的差别。但从两组中国英语学习者在主谓相邻情况下不同的反应时模式来看,代表着潜在练习程度不同的英语水平对自动化的发展过程是至关重要的。同时,英语学习者个人的工作记忆容量在这一过程中的作用不可忽视。

本书共分八章。第一章主要介绍有关自动性研究的背景,在此基础上突出本研究的理论、实践和方法论意义。第二章致力于梳理现有的两大自动性理论(基于范例 vs. 基于规则),阐明本研究采纳基于规则的ACT理论的原因以及ACT理论框架的具体内容。第三章着眼于厘清两种自动性语言能力的测量方法("二分法" vs."连续体"),为后续本研究所采用的实验方法铺垫。第四章论证以英语主谓一致为目标语法结构研究中国英语学习者自动性能力的原因,同时梳理已有文献以讨论影响第二语言学习者在线加工英语主谓一致的因素。第五章主要介绍本研究的理据以及具体的研究设计。第六章和第七章分别是研究结果和讨论部分。第八章讨论本实验研究的启示、创新和不足之处,同时谈及未来的研究方向。本书对中国课堂环境下的英语教学具有一定的启示意义,希冀本书的出版能激发更多的研究者和教师关注二语习得中的自动性能力问题。

本书是笔者博士阶段学习的研究成果。借此机会,我要将最真挚的谢意送给我敬爱的导师,上海外国语大学戴炜栋教授。感谢导师以其高瞻远瞩的学术视野、博大精深的专业知识、细致严谨的治学态度,引导我在学术道路上一步一步地成长。此外,特别感谢美国马里兰大学蒋楠教授和上海外国语大学吴芙芸教授,是他们开设的实验心理语言学课程为我开启了一道崭新的门,他们的鼓励和帮助让我终身受益。也真诚地感谢上海外国语大学的博士生陈孚和钱晶晶,他们毫无保留地和我分享开展自定步速实验研究的经验和心得,保障了实验的顺利开展。感谢上海海洋大学外国语学院的领导和同事给予的理解、宽容、关怀和帮助,给笔者创造了良好的工作环境。最后感谢我的家人,他们是我最坚强的后盾,激励我不断地前进。

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List of Abbreviations

ACT	Adaptive control of thought
AOA	Age of acquisition
AOST	Automated operation span task
CDA	Competence deficit approach
CET-4	College English Test Band 4
CET-6	College English Test Band 6
CV	Coefficient of variation
EFL	English as a foreign language
ER	Error rate
ERPs	Event-related potentials
ELAN	Early left anterior negativity
LAN	Left anterior negativity
LPI	Language proficiency index
MMN	Mismatch negativity
NNSs	Nonnative speakers
NSs	Native speakers
N400	Negative-going wave 400
P-P-P	Present-Practice-Produce
P600	Positive-going wave 600
RST	Reading span task
RT	Reaction time

SLA	Second language acquisition
SPR	Self-paced reading task
SOA	Stimulus onset asynchrony
SV	Subject-verb
TEM-8	Test for English Majors Band 8
WM	Working memory

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Chapter One Introduction

1.1 Background of the study

There are two views of language learning. One is modular approach, while the other is non-modular (Dick et al., 2001). Based on universal grammar (UG), modular approach suggests that language learning involves innate language-specific faculty (Anderson, 1983). Second language acquisition (SLA) research based on the aforementioned innateness position has been challenged by empiricists (Segalowitz & Lightbown, 1999: 45). In contrast, non-modular approach to SLA① sees it as a special case of complex skill acquisition (Segalowitz, 2003; Gu, 2009: 20). That is to say, within this skill acquisition domain, the pattern of L2 development is very similar to other skills being learned. The present study, standing on the footing of cognitive psychology in general and skill acquisition theory in particular, is concerned with whether Chinese EFL learners at certain stages of learning can put to use any second language (L2) automatically and in a spontaneous way.

1.1.1 Insufficient attention paid to the issue of automaticity

One aspect of skill acquisition that has long attracted considerable attention is the development and the role of "automaticity" in performance. In a nutshell, the hallmark of skilled behavior is automaticity, a central notion in cognitive psychology. In the cognitive psychological sense, every layman has experienced automaticity. For example, now I am typing words into my computer very quickly and efficiently, without having to look at the keyboard. Namely, when typing, I don't think about the various components and subcomponents involved. But initially

① Adopting R. Ellis's (1985) and Long's (2012) view, this study doesn't intend to contrast Second language acquisition with foreign language acquisition. SLA is used as a general term that covers acquisition in both naturalistic and classroom environments. In order to more accurately describe the Chinese participants in the present study, I call them EFL learners, for they are mostly involved in a classroom situation to acquire English and seldom use English outside of the classroom.

I was troubled a lot by making my fingers locate the key by position. This escape from the need to focus evidences that my typing skill has reached automaticity. The automaticity, that is, the speed and ease with which we ultimately carry out tasks, is the result of a slow process that we call automatization (DeKeyser, 2001:125).

As proposed by many researchers (e. g., N. Ellis, 1993; Hulstijn, 2001; Segalowitz,2003; Segalowitz, Segalowitz & Wood, 1998), the ultimate goal of L2 learning and teaching is to develop the ability to use the target language spontaneously and efficiently (Jiang, 2004; 2007). This requires the development of knowledge that can be retrieved and applied automatically in real-time communication. This requirement is quite demanding. Previous studies have shown that even for relatively proficient bilinguals, the L2 is likely to be processed less automatically (e.g., Segalowitz & Hulstijn, 2005). In fact, the age-old problem of EFL students who know all the rules but can't speak is not one of a gap between competence and performance but one of a gap between insufficiently proceduralized/automatizated explicit knowledge, on the one hand, and very limited implicit and/or automatized knowledge on the other hand (DeKeyser, 2007b).

In the field of applied linguistics, the notion of automatization (the gradual bringing out of automaticity through practice) was used loosely by advocates of audiolingualism(e.g., Rivers, 1964) and cognitive code (e.g., Chastain, 1971) and elaborated didactically by early communicative methodologists (Paulston & Bruder, 1976). These authors claimed, respectively, that automaticity was to be achieved by extensive drill practice, and the careful sequencing of mechanical, meaningful, and communicative drills. At that time, no psychological theory of automaticity existed, that would have allowed testing these claims in any empirical detail. Additionally, psychological methodology of the 1960s and 1970s was insufficiently developed to address the complex issue of automaticity in language learning.

In the field of Second language acquisition, McLaughlin (1978, 1980) suggested using the distinction between "controlled" and "automatic" processing (proposed by Schneider & Shiffrin, 1977; Shiffrin & Schneider, 1977) to replace the terms of "learning" and "acquisition" (proposed by Krashen, 1978). According to McLaughlin (Ibid.), the advantage of adopting the new distinction is to avoid the disputes about "conscious" and "subconscious" experience, which in Krashen's view (1978) helps draw a clear line of demarcation between "learning" and "acquisition". While the conscious-subconscious distinction can not meet the requirement of falsifiability, the controlled-automatic distinction can be tied to

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