任务复杂度和工作记忆对中国英语学习者口语产出的影响研究

The Effects of Task Complexity and Working Memory on Chinese EFL Learners' Oral Task Performance

岑海兵　著

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Preface

In the domain of Task-Based Language Teaching (TBLT), researchers have long been interested in exploring how internal task features affect language performance. Recently, from the cognitive perspective in TBLT, a lot of empirical studies have been conducted to test the effects of cognitive task complexity on task performance guided by two competing influential frameworks in TBLT, namely, the Limited Attentional Capacity Model (Skehan, 1996b, 1998) and the Multiple Attentional Resource model (or the Cognition Hypothesis) (Robinson, 2001a, 2007a, 2011b, 2015). The two frameworks differ from each other in how learners allocate their attentional resources when they are engaged in performing tasks. Following the predictions of the two frameworks, a lot of research has been conducted to determine whether universal task design features exist which systematically influence learners' interlanguage in predictable ways. However, most research carried out to date has focused solely on the impact of task complexity by manipulating cognitive demands along one of the dimensions in Cognition Hypothesis rather than exploring the synergistic effects of increasing task complexity along more than one dimension on language production. In addition, although researchers have posited that individual difference in working memory may play an important and differential role for SLA as working memory capacity is held responsible for individual difference in regulating attention, it has been a largely

underrepresented construct in both conceptual and empirical work in task complexity study.

The current study sought to fill this gap by designing a quantitative experimental study to investigate how Chinese EFL learners with different working memory capacities perform oral narrative tasks differing in cognitive complexity. The purpose of the quantitative study was two-fold. The prime objective of the study was to explore the relationship between task complexity along one or two of the cognitive dimensions of +/− reasoning demand and +/− contextual support and Chinese EFL learners' oral narrative performance; the second major aspect of this study was concerned with how Chinese EFL learners' oral narrative performances with tasks differing in cognitive complexity were mediated by their differences in working memory capacities.

A repeated measures design was used to obtain oral production data from 48 Chinese EFL learners elicited by performing four conditions of Task Complexity along +/− contextual support and +/− reasoning demand dimensions. Each participant narrated each of four pictures operationalized in different task complexity, the sequence of learners' task performances were controlled by means of a Latin square design. Learners' oral productions were measured in terms of complexity, accuracy and fluency. Repeated ANOVAs and pairwise comparison were employed to find out within-group difference for participants in performing tasks differing in cognitive complexity. Independent sample t-test was run to explore differences in task performance between higher working memory capacity group and lower working memory capacity group. The major findings of the present study are as follows:

Findings revealed a complicated relationship among cognitive demands, working memory capacity, and learner task performance.

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Overall, the results suggested that Chinese EFL learners' narrative oral performances were affected by manipulating along the two dimensions of task complexity, but the patterns of task complexity on learner's oral performance were different for the two working memory groups. For learners with lower working memory capacity, when performing tasks increasing in either or both dimensions of cognitive complexity their language performance was opposite to what were predicted in Robinson's hypothesis, but favored Skehen's hypothesis. For learners with higher working memory capacity, when performing tasks increasing cognitive complexity on either of the two dimensions of cognitive complexity, the results confirmed what were predicted in Robinson's Cognition Hypothesis; when performing tasks increasing cognitive complexity on both of the two dimensions of cognitive complexity, the results were opposite to what were predicted in Robinson's hypothesis, but favored Skehen's hypothesis. In addition, the research results showed moderating effects of working memory capacity when learners with different working memory were engaged in performing the same tasks.

Based on the results of the present study, the book concludes that task complexity, learner's differences in working memory capacities and their task performance are interrelated with each other. Despite some limitations, the present study may offer a new perspective to our understanding of the two competing theoretical frameworks in TBLT. It also provides some pedagogical implications on how tasks should be designed to meet learner's individual needs in Chinese EFL context.

前　言

本书是以我的博士论文为基础修改完成的。全书用英文写成，共分五章。该研究基于第二语言习得和认知心理学的基本理论，采用实验研究的方法，探讨了任务复杂度和工作记忆对中国大学生英语口语产出的影响。

在任务型教学领域，任务的内在特征如何影响学习者语言产出这一问题长期受研究者普遍关注。尤其是近些年来，研究者从认知视角出发，开展了大量的实证研究，来探索任务复杂度对学习者语言产出的影响。这些研究主要以任务型教学领域里两个极具影响的假说为理论框架，它们分别是 Skehan（1996b，1998）提出的“有限注意力资源模型”和 Robinson（2001a，2007a，2011b，2015）提出的“多元注意力资源模型”（也称“认知假说”）。这两个理论框架基于对学习者注意力资源容量和控制的不同理解，提出了任务复杂度对语言产出影响的不同假说。围绕这两个理论框架所做的假说和推论，学者们开展了大量的实证研究，求证第二语言或外语学习过程中是否存在普适性的任务设计，来帮助学习者按照可预测的语言发展路径系统地促进中介语的习得。但到目前为止，沿着这个思路开展的大部分研究设计主要通过调节认知假说框架下的某一认知复杂维度来检测其对学习者语言产出的影响，少有研究探索多维度复杂任务对学习者语言产出所产生的协同效应。同时，尽管第二语言习得研究已经发现因为工作记忆能力调节学习者注意力资源的分配，工作记忆能力差异在第二语言习得过程中有重要作用，但是在第二语言任务复杂度研究领域，工作记忆的调节作用从理论和实践上都没有得到足够的重视。

基于此，本研究试图探究具有不同工作记忆能力的中国英语学习者在完成不同复杂度的语言产出任务时语言表现上的差异。本研究有两个目的，其一是试图发现不同工作记忆能力的中国英语学习者在完成一个维度或两个维度上增加任务复杂度的图片描述任务时语言产出的差异。另一个目的是试图发现在完成同一复杂度任务时，工作记忆能力差异对学习者语言产出造成的影响。

本试验研究采用重复测量设计来获取学习者在完成不同复杂度任务时的语言表现数据。参加本试验研究的对象为 48 名大学英语专业刚入学的新生，按工作记忆能力测试结果分为两组，分别为高工作记忆能力组和低工作记忆能力组。所有的受试按拉丁方设计顺序完成通过调节“+/-语境支持”和“+/-推理要求”两个维度的图片描述任务。研究者从语言的复杂度、准确度和流利度三个方面分析受试的语言产出。本研究主要采用重复测量方差分析方法来检测受试组内口语产出任务表现差异，采用独立样本 t 检验方法来检测受试完成相同复杂度的任务时语言产出的组间差异。

研究结果揭示了口语任务的复杂度、学习者工作记忆能力和他们的语言产出之间的复杂关系。总体而言，研究结论表明中国英语学习者完成不同复杂度的口头描述任务时，语言产出受其工作记忆能力的影响，且在工作记忆能力有差别的两组受试语言产出上影响模式不同。低工作记忆能力组完成单一维度或双维度上增加任务复杂程度的成对任务时，语言产出模式与 Robinson 的“认知假说”所做的推理呈反向模式，趋向于 Skehan 的假说所推定的语言表现模式。而高工作记忆能力组完成在单一维度上增加复杂度的成对任务时，语言产出模式与 Robinson 的认知假说所做的推理一致，但该组受试在完成双维度上增加任务复杂程度的成对任务时语言产出模式与 Robinson 的认知假说所做的推理呈反向模式，趋向于 Skehan 的假说所推定的语言表现模式。同时，试验结果表明，完成在两个维度上都不增加复杂度的口语表达任务时，两组受试语言表现水平基本相同，但完成在单一或双维度上增加复杂度的口头表达任务时，高工作记忆能力组语言表现优于低工作记忆能力组。

基于以上结论，本研究认为任务复杂度、学习者工作记忆能力差异及其任务表现之间相互关联、互有影响。尽管研究还存在很多局限和不足，但本研究结论从理论和实践上补充了“认知假说”。同时，对在中国英语外语教学环境下如何考虑学习者在工作记忆等方面的个体差异，深入理解和运用任务型语言教学的两大假说也有一定的教学启示。

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List of Abbreviations

EFL	English as a Foreign Language
ESL	English as a Second Language
SLA	Second Language Acquisition
TBLT	Task-Based Language Learning
ID	Individual Differences
WM	Working Memory
WMC	Working Memory Capacity
HWMC	Higher Working Memory Capacity
LWMC	Lower Working Memory Capacity

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