

语义提取： 基于第二语言词汇 能力角度的研究

Semantic Processing:
the L2 Lexical Competence
Perspective

李 红 著



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序

学用语言是人类与生俱来的能力，但一个人所能掌握的语言却是十分有限的。一个不争的事实是，几乎人人都会说自己的母语，但能说外语的人就少了很多，外语说得好的人就更少，好到能够跟母语媲美的，纵使有，恐怕也是凤毛麟角。人的大脑有巨大的学习潜力，奇怪的是，在装载了母语之后，似乎发生了莫名的变化，学习外语，灵光不再，儿童获得母语的那种神奇速度和韧性似乎随着年龄的增长而逐渐消失了。这个神秘的现象引起了语言学家们浓厚的兴趣，为了揭示它的奥秘，众多学者绞尽了脑汁，从不同的角度去探讨它，有从社会语用角度的，有从心理和生理角度的，提出了许多假设，开展了无数实验。时至今日，定论不多，争议却不少，但人们的研究兴致并未因此而衰减。不管怎样研究，学习外语终归离不开大脑活动，揭示大脑认知在第二语言学习过程中的作用自然唱起了主角，使得第二语言习得研究者成为认知科学领域里一支蓬勃向上的生力军。李红就是这个研究队伍中充满激情的一员，她的这本博士论文便是明证。

做博士论文，选题最为重要。所选的课题是否可行，决定于一系列因素：除了课题的理论意义和研究价值之外，还要考虑作者自己的学术积淀，研究的客观条件，包括时间的宽限，导师的研究方向，资料的多寡，等等。在选题这点上，李红做了一个大胆的决定。她勇敢地选择了一个自己未曾涉足的大脑认知领域：研究第二语言词汇的大脑表征和词汇提取的过程，并探讨记忆因素对此过程的影响。课题跨二语习得和心理语言学领域，国内做的人极少。开展这项课题，她面临不少困难：要学会使用实验工具，包括复杂的统计方法、电脑软件、实验操作，还要参阅大量的国外文献，借鉴最新的理论和前人的研究成果。对于一位原本只有纯文科背景的人来说，一切都要从头开始，这无疑是对人生的一个挑战。

对于李红的选择，说实话，我曾经有过担心。她报考博士之前，没有太多的二语习得实证研究体验，更没有坚实的心理语言学基础。她能够驾驭这样一个复杂的课题吗？此外，博士论文一般要求三年完成，光学会使用实验工具就要耗去很多时间，还不算听课学习、实验调查、撰写论文。担心归担心，我也同时发现她身上有一种难得的气质。她肯动脑筋、不畏艰难、做事快捷、自信不服输、敢于挑战自己。记得入学之初，作为博士开题之前的热身，我建议她复制一项有关普遍语法的二语习得实验。实验的理论模式相当抽象，操作起来也比较繁琐。对这项陌生的作业，她主动出击，听课，看书，与人讨论，很快就理清了思路，按时完成了实验，撰写了论文，并且发表在权威期刊上。成功的体验为她后来的研究奠定了良好的基础，也证明了她的研究潜质，让我看到了她的博士课题研究最终取得成功的希望。此后回想起来，我认识到，读博士能否成功是跟人的个性有着一定联系的，因为读博士的过程

异常艰辛,除了学术能力要符合基本条件之外,对非智力因素也有一定的要求,半途而废的情况并非少见,不是人人都适合读的。

课题一经定下来,李红就坚持到底。她集中精力,主攻第二语言词汇习得的两个方面:一是二语词汇知识水平跟词汇语义提取效率之间的关系,一是语义提取跟工作记忆之间的关系。把词汇知识水平作为变量去开展实验,观察词汇知识的提取,关键在于给二语词汇知识水平下定义,是否科学,直接影响到实验的可操作性,而定义需要建立在前人研究的基础之上。对此,李红在论文中进行了比较详细的阐释,并且系统地总结了国内外的最新研究成果,对有志于相关研究的学者极具参考价值。把握住了研究课题的理论方向,有了清晰的思路,实验开展起来就比较顺利,取得进展也就顺理成章。在李红的研究里,一个最主要的发现是,水平高的学习者提取词汇知识的效率也高,水平低的提取效率也低。显然,在学习者之间,词汇信息的提取效率是有差别的,而差别跟词汇知识水平有着密切的联系。这一结果似乎在情理之中,令人颇感意外的,是实验中启动词的作用。按理,提取大脑中存储的信息应该得益于外部的启示。然而,启动词对激活单词的作用并不明显,对词汇水平高分组和低分组均未产生显著效应。这意味着,外语词汇知识的储存方式可能相当稳固,不依词汇知识水平的高低而受外部启动词的影响。此发现给进一步深入研究外语词汇的大脑表征留下了悬念:支撑外语单词后面知识的稳固性是如何形成的?母语知识是否扮演了一定的角色?

不管学习者提取词汇语义信息的个体差异如何,提取的过程不可能不经过工作记忆这个关键环节。为了深入了解外语学习者提取词汇语义的过程,人们自然会联想到工作记忆的作用。工作记忆的广度有大有小,人与人之间也存在个体差异。信息提取表现出来的差异是否跟工作记忆的容量有关呢?为此,李红充分利用了实验的前期结果,在此基础上进一步引入了工作记忆广度变量,将大脑提取语义的实验推向深入。结果发现,工作记忆广度的大小与二语词汇语义的提取不存在显著的相关,既无明显的促进作用也无明显的抑制作用。就外语词汇语义提取而言,实验结果降低了对工作记忆广度作用的期望值,让我们认识到,影响外语词汇的储存和使用的,还有其他更重要的因素,需要我们今后去探讨。

李红的心理语言学实验结果表明:语言习得过程是异常复杂的,仅仅为了弄清楚词汇知识的表征和提取就已使研究者们耗费了大量的精力;在这个领域里,一个人所能做到的,也只是沧海一粟;词汇知识的大脑表征和提取研究给我们留下许多疑问,需要学者们继续努力去解答,惟此,方能逐步逼近真理。李红的工作为探索大脑词汇知识的发展变化和使用做了十分有益的铺垫,她的博士论文出版,定将使后来者从中受益。

王初明

2004年10月于广外

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love and care, and my daughter, for her wonderful achievements in national English speech competitions, which added motivation to my study.

ABSTRACT

The present study is intended to investigate two factors relating to the retrieval of semantic meanings of words in the second language mental lexicon. The first factor has to do with L2 vocabulary knowledge, which is believed to facilitate L2 semantic processing at a word level. The second factor is concerned with individual differences in working memory capacity, which is assumed to constrain L2 semantic processing. With adult Chinese-speaking learners of English as subjects, this study aims to reveal three kinds of relationships: (a) between L2 vocabulary knowledge and efficiency of L2 semantic processing, (b) between individual differences in working memory capacity and efficiency of L2 semantic processing, and (c) between L2 vocabulary knowledge and individual differences in working memory capacity. Hopefully, the results thus obtained will cast light on the processes of L2 lexical development and the development of the second language mental lexicon.

To this end, three experiments have been run within a conceptual framework of L2 lexical competence, which was specially developed for the current research. Experiment 1 tested the L2 vocabulary knowledge hypothesis, which postulated that L2 vocabulary knowledge would affect efficiency of L2 semantic processing for Chinese learners of English. A primed lexical decision task was used to assess the learners' efficiency of L2 semantic processing, and the Controlled Active Vocabulary Test was administrated to determine their L2 vocabulary knowledge. The results showed that the learners of high-level L2 vocabulary knowledge were significantly quicker and more accurate than those of low-level L2 vocabulary knowledge regarding accessibility of semantic knowledge in the L2 mental lexicon. Furthermore, semantic priming effects did not increase with the development of L2 vocabulary knowledge.

Experiment 2 tested the links hypothesis, which states that links in lexical networks of Chinese-speaking learners of English would influence the changes in efficiency of L2 semantic processing. For this purpose, a task of restricted word association was adopted. The results showed that the pattern of responses in the lexical networks of learners with richer vocabulary knowledge was significantly different from that in the lexical networks of learners with poorer vocabulary knowledge. The findings from Experiment 2 lent support to an explanation of a weaker semantic priming effect achieved by the learners with higher level of vocabulary knowledge, which attributes the weaker effect to better-structured lexical

networks in the light of the compound cue theory.

Experiment 3 examined the issue concerning whether access to word meanings in the L2 mental lexicon would be constrained by individual differences in working memory capacity of Chinese-speaking learners of English. It also looked into the correlations between L2 vocabulary knowledge and individual differences in working memory capacity in order to attain a better understanding of the nature of L2 vocabulary knowledge. Using the operation span task as the measure of the language-unrelated working memory capacity based on the general capacity model proposed by Engle et al. (1992), the results from this experiment revealed a null effect of working memory capacity. Nevertheless, a pattern of slower (not significant) response latency was observed for the learners of high span than that for the learners of low span in the group of high-level vocabulary knowledge, but this pattern was not evident in the group of low-level vocabulary knowledge. The results also showed that L2 vocabulary knowledge was not correlated with individual differences in working memory capacity.

So, the present study finds that second language vocabulary knowledge facilitates acquisition of L2 lexical competence because it contributes not only to the build-up of a lexical network, but also access to word knowledge in the L2 mental lexicon. The study also finds that working memory capacity does not seem to constrain the retrieval of word meanings when the retrieval is relatively automatic.

The findings of the present study make it possible to conclude that L2 vocabulary knowledge is a key factor in the development of efficient conceptual processing in a second language and this obviously provides a new perspective on the issue of a developmental L2 mental lexicon. The significance of this research lies in the tri-component framework of L2 lexical competence, which can be viewed as a contribution to theory building on L2 lexical competence and considered a useful point of departure for further research.

Key Words: L2 vocabulary knowledge, L2 semantic processing, working memory capacity, lexical competence, mental lexicon

语义提取：基于第二语言词汇能力角度的研究(论文摘要)

本文针对双语心理词汇表征中“发展性变化”的现象，探究了第二语言单词语义提取中的词汇知识效应和工作记忆效应问题。研究以中国英语学习者为受试，试图揭示以下三种关系：1) 第二语言词汇知识与第二语言单词语义提取效率的关系；2) 工作记忆广度中的个体差异与第二语言单词语义提取效率的关系；3) 第二语言词汇知识与工作记忆广度中个体差异的关系。

为实现上述目标，本文以所提出的第二语言词汇能力为概念框架，进行了三个实验。实验一采用启动式词汇判断作业，验证了第二语言词汇知识假设。该假设假定第二语言词汇知识会对第二语言单词语义提取效率产生效应。结果表明第二语言词汇知识影响了学习者对第二语言单词语义提取的效率，词汇知识水平高的学习者比水平低的学习者更快和更准确地对语义信息进行了提取。同时，结果还表明启动效应不一定随着第二语言词汇知识水平的提高而增加。因此，本实验结果支持了第二语言词汇知识假设。

实验二使用限制性词语联想作业验证了联结假设。该假设认为学习者的第二语言词汇网络会影响第二语言单词语义提取的效率。该实验的结果表明学习者心理词汇网络中的联结类型因不同英语词汇知识水平而呈现出不同的规律。学习者的各类联结在数量上存在显著的差异，说明他们的心理词汇网络影响了单词语义提取的效率。本实验结果证实了联结假设，并支持了本论文基于复合标识理论提出的关于词汇知识水平与启动效应关系的解释；也揭示了第二语言词汇知识、词汇网络和单词语义提取之间存在着密切的联系。

实验三研究工作记忆广度中的个体差异是否抑制学习者对第二语言单词语义信息的提取问题，还探索了工作记忆和第二语言词汇知识水平的相关性。实验以通用容量工作记忆模型(Engle et al. 1992)为基础，采用运算广度的工作记忆测试任务，得出工作记忆广度中的个体差异对单词语义信息的提取没有显著抑制作用的结果。但是，在词汇知识高水平组中，工作记忆高广度组获得的平均反应时要略低于工作记忆低广度组获得的平均反应时（未达到显著水平）；而在词汇知识低水平组中，这一规律则并不明显。实验结果还显示工作记忆广度与第二语言词汇知识水平之间没有显著的线性关系。

以上三个实验的结果表明：1) 第二语言词汇知识不仅可以促进学习者心理词汇网络的建立；也提高了他们对第二语言心理词汇中单词语义信息提取的效率。2) 在对注意力要求较低的作业中，工作记忆对第二语言单词语义提取没有显著的限制作用，说明工作记忆对第二语言词汇知识提取的影响是随着不同作业对注意力的要求而变化的。

本文得出的结论是第二语言词汇知识是影响第二语言单词语义提取的重

要因素。本文的结论为研究第二语言心理词汇提供了新的研究视角。本文所提出的第二语言词汇能力概念框架不仅为第二语言词汇能力的理论建设有所贡献，也为以后的研究提供了一个有益的出发点。

关键词：第二语言词汇知识、第二语言语义加工、工作记忆广度、词汇能力、心理词汇

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