Language in Performance

#### Saskia Kersten

# The Mental Lexicon and Vocabulary Learning

Implications for the foreign language classroom



2

The Mental Lexicon and Vocabulary Learning

#### Language in Performance 43

Edited by Werner Hüllent and Rainer Schulze

Advisory Board: Thomas Herbst (Erlangen), Andreas Jucker (Zürich), Manfred Krug (Bamberg), Christian Mair (Freiburg i. Br.), Ute Römer (Hannover), Andrea Sand (Trier), Hans-Jörg Schmid (München), Josef Schmied (Chemnitz) and Edgar W. Schneider (Regensburg) Saskia Kersten

## The Mental Lexicon and Vocabulary Learning

Implications for the foreign language classroom



Bibliografische Information der Deutschen Nationalbibliothek

Die Deutsche Nationalbibliothek verzeichnet diese Publikation in der Deutschen Nationalbibliografie; detaillierte bibliografische Daten sind im Internet über <http://dnb.d-nb.de> abrufbar.

Hil 2

© 2010 · Narr Francke Attempto Verlag GmbH + Co. KG Dischingerweg 5 · D-72070 Tübingen

Das Werk einschließlich aller seiner Teile ist urheberrechtlich geschützt. Jede Verwertung außerhalb der engen Grenzen des Urheberrechtsgesetzes ist ohne Zustimmung des Verlages unzulässig und strafbar. Das gilt insbesondere für Vervielfältigungen, Übersetzungen, Mikroverfilmungen und die Einspeicherung und Verarbeitung in elektronischen Systemen.

Gedruckt auf säurefreiem und alterungsbeständigem Werkdruckpapier.

Internet: www.narr.de E-Mail: info@narr.de

Printed in Germany

ISSN 0939-9399 ISBN 978-3-8233-6586-0

#### Contents

1	Introduction	1
The	e Mental Lexicon	5
2	The L1 and L2 Mental Lexicon	7
2.1	Defining the Content of the Mental Lexicon	8
2.2	Methodological Approaches	9
2.2.1	Psycholinguistic Methods	9
2.2.2	Neurolinguistic Methods	11
2.3	Modelling the Mental Lexicon	13
2.3.1	Models of Lexical Processing	13
2.3.2	Modelling the Bilingual Mental Lexicon	20
2.4	Internal Organisation of the Bilingual	
	Mental Lexicon	23
2.4.1	L1 and L2 Lexicon - Same or Different?	29
2.4.2	The Influence of Proficiency	32
2.5	The Neurocognitive Foundation	33
2.6	Interim Summary	34
3	Dynamic Systems Theory	35
3.1	Growth in Dynamic Systems Theory	36
3.2	Dynamic Systems Theory and Second	
	Language Acquisition	37
3.3	Interim Summary	38
4	Cognitive Linguistics and Foreign Language Teaching	39
4.1	Defining Cognitive Linguistics	39

4.2	Implications of Cognitive Linguistics forVocabulary Learning	42
4.3	Interim Summary	42 46
Vo	cabulary Learning and Teaching	47
5	Current Issues in Vocabulary Research	49
5.1	What is it to Know a Word?	50
5.1.1	What is a Word?	50
5.1.2	What is Involved in Knowing a Word	52
5.2	Breadth and Depth of Vocabulary	
	Knowledge	54
5.3	Active vs Passive Vocabulary Knowledge	55
5.4	Interim Summary	56
6	Learning New Vocabulary	57
6.1	The Basis for Learning	58
6.1.1	Levels of Memory	58
6.1.2	Long-Term Memory	60
6.2	Language Learning	62
6.2.1	Vocabulary in Language Learning	63
6.2.2	Depth of Processing Hypothesis	64
6.2.3	Incidental Vocabulary Learning	66
6.2.4	Implicit versus Explicit	68
6.2.5	Item versus System Knowledge	69
6.2.6	Rote Learning	70
6.3	General Processes which aid Vocabulary	
	Retention	71
6.3.1	Noticing, Retrieving & Using Vocabulary	71
6.3.2	Involvement	73
6.4	Interim Summary	74
7	Teaching Vocabulary	75
7.1	The Beginner's Paradox	75
7.2	Presenting New Vocabulary	76
7.3	Teaching to Promote Long-Term Vocabulary Retention	78
7.3.1	Repeated Exposure to an Item	78
7.3.2	Richness Activities	78
7.3.3	Information Gap Activities	79
7.3.4	Structuring New Vocabulary	80

7.4	Integration of Old and New Knowledge	80 81
<b>8</b> 8.1 8.1.1 8.1.2 8.1.3 8.1.4 8.1.5 8.2 8.3	SLA and the Young LearnerKnowing a Word in Primary SchoolGames in Early Second Language AcquisitionTasks in Foreign Language LearningScaffoldingThe Importance of ChunksThe Role of WritingEnhancing Vocabulary Activities in Primary SchoolInterim Summary	<ul> <li>83</li> <li>83</li> <li>85</li> <li>86</li> <li>87</li> <li>88</li> <li>90</li> <li>91</li> <li>92</li> </ul>
9	Measuring Vocabulary Knowledge	93
9.1	Developing Assessment Tasks for Younger Learners	94
9.2	Types of Vocabulary Tests	95 97
9.2.1 9.3	Selected-response Tasks	97 99
Inte	ervention Study in Primary School Classrooms	101
10	From Theory to Practice	103
10.1		103
10.1	Implications for the Classroom	103
10.1 10.2	Implications for the ClassroomChoosing Vocabulary Items	
10.2 10.2.1	Choosing Vocabulary Items	103 104 105
10.2 10.2.1	Choosing Vocabulary Items	103 104
10.2 10.2.1	Choosing Vocabulary Items	103 104 105
10.2 10.2.1 10.2.2	Choosing Vocabulary Items	103 104 105 106
10.2 10.2.1 10.2.2 <b>11</b> 11.1 11.1.1	Choosing Vocabulary Items	103 104 105 106 <b>107</b> 107 110
10.2 10.2.1 10.2.2 <b>11</b> 11.1 11.1.1 11.1.2	Choosing Vocabulary Items	103 104 105 106 <b>107</b> 107 110 113
10.2 10.2.1 10.2.2 <b>11</b> 11.1 11.1.1 11.1.2 11.1.3	Choosing Vocabulary Items	103 104 105 106 <b>107</b> 107 110 113 116
10.2 10.2.1 10.2.2 <b>11</b> 11.1 11.1.1 11.1.2 11.1.3 11.2	Choosing Vocabulary Items	103 104 105 106 <b>107</b> 107 110 113 116 117
10.2 10.2.1 10.2.2 <b>11</b> 11.1 11.1.1 11.1.2 11.1.3 11.2 11.3	Choosing Vocabulary Items	103 104 105 106 <b>107</b> 107 110 113 116 117 119
10.2 10.2.1 10.2.2 <b>11</b> 11.1 11.1.1 11.1.2 11.1.3 11.2 11.3 11.4	Choosing Vocabulary Items	103 104 105 106 <b>107</b> 110 113 116 117 119 121
10.2 10.2.1 10.2.2 <b>11</b> 11.1 11.1.1 11.1.2 11.1.3 11.2 11.3 11.4 11.5	Choosing Vocabulary Items	103 104 105 106 <b>107</b> 107 110 113 116 117 119 121 125
10.2 10.2.1 10.2.2 <b>11</b> 11.1 11.1.1 11.1.2 11.1.3 11.2 11.3 11.4 11.5 11.5.1	Choosing Vocabulary Items	103 104 105 106 <b>107</b> 110 113 116 117 119 121 125 125
10.2 10.2.1 10.2.2 <b>11</b> 11.1 11.1.1 11.1.2 11.1.3 11.2 11.3 11.4 11.5 11.5.1 11.5.2	Choosing Vocabulary Items	103 104 105 106 <b>107</b> 110 113 116 117 119 121 125 125 127
10.2 10.2.1 10.2.2 <b>11</b> 11.1 11.1.1 11.1.2 11.1.3 11.2 11.3 11.4 11.5 11.5.1 11.5.2 11.5.3	Choosing Vocabulary Items	103 104 105 106 <b>107</b> 110 113 116 117 119 121 125 125

	Exploring the Data for Grade 4	
11.6.1	Test 1	132
11.6.2	Test 2	134
11.6.3	Comparing Test 1 and Test 2	136
11.6.4	Chi-Square Tests	136
11.7	Discussion of Results	137
11.8	Discussion of Classroom Observation	138
12	Conclusion	141
Bibliography		144
Source	Sources of Illustrations	
Apper	ndix	169
Α	Lesson plans	171

## **List of Figures**

2.1	Levelt's Blueprint for Speech Production and Comprehension (De Bot et al. 2005, 40)	15
2.2	A Spreading Activation Model (Randall 2007, 115)	19
2.3	Lexical Comprehension/Production Model for Oral and Writ-	
	ten Modalities (De Bot et al. 1997, 315)	22
2.4	A Network Illustrating a Bilingual Spreading Activation Model	
	(see also Randall 2007, 116)	24
2.5	Possible Types Organisation of the Mental Lexicon (adapted	
	from Obler & Gjerlow 1999, 129)	25
2.6	Schematic Representation of Various Models of the Organi-	
	sation of the Mental Lexicon (Paradis 2004, 111)	27
2.7	Revised Hierarchical Model (Kroll 1993, 54)	28
4.1	A Concentual Man of Cognitive Linguistics (Cognorts 2006	
4.1	A Conceptual Map of Cognitive Linguistics (Geeraerts 2006, 19)	40
	19)	40
6.1	A Model of Working Memory (Lefrançois 2006, 305)	60
6.2	Tasks Involved in Learning the Meaning of Words (adapted	
	from Aitchison 2003, 189)	62
11.1	Worksheets for Intervention Group (left) and Control Group	
		113
11.2	Worksheets for Intervention Group (left) and Control Group	
		114
11.3		120
11.4		121
11.5	$\sim$ ( ) ( )	122
11.6	~	123
11.7	Questionnaire 2 for Grade 4	124

11.8	Score Frequencies for Test 1 in Grade 3	126
11.9	Percentages for Test 1 in Grade 3	126
11.10	Score Frequencies for Test 2 in Grade 3	128
11.11	Percentages for Test 2 in Grade 3	128
11.12	Score Frequencies for Test 1 in Grade 4	133
11.13	Percentages for Test 1 in Grade 4	133
11.14	Score Frequencies for Test 2 in Grade 4	135
11.15	Percentages for Test 2 in Grade 4	135

#### **List of Tables**

5.1	What is Involved in Knowing a Word (Nation 2001, 23)	53
6.1 6.2	Three Levels of Memory (Lefrançois 2006, 309) Ways of Learning and Teaching Vocabulary (Nation 2001, 16)	59 64
11.1	Overview of Differences between Groups in Grade 3	116
11.2	Overview of Differences between the Groups in Grade 4	117
11.3	How the Groups were Coded	117
11.4	N for Each Class - Test 1	118
11.5	N for Each Class - Test 2	118
11.6	Pooled N for Each Group	
11.7	Mean Results for Test 1 in Grade 3	
11.8	Mean Results for Test 2 in Grade 3	127
11.9	Comparison of Mean Results in Grade 3	
11.10	Vocabulary Knowledge Self-Evaluation for Test 1	130
11.11	Vocabulary Knowledge Self-Evaluation for Test 2	130
11.12	Games Rating Crosstabulation	131
		132
11.15	Comparison of Mean Results in Grade 4	136

### **List of Abbreviations**

**BIA** Bilingual Interactive Activation **CEF** Common European Framework of Reference for Languages **CL** Cognitive Linguistics **DST** Dynamic Systems Theory EEG electroencephalography **EFL** Early Foreign Language **EFLT** Early Foreign Language Teaching ERP event-related potential FLA first language acquisition FLT foreign language teaching fMRI functional magnetic resonance imaging IAM Interactive Activation Model K-S test Kolmogorov-Smirnov test LL learners L1 native language L2 second or foreign language LTM long-term memory **PET** positron emission tomography SLA second language acquisition STM short-term memory T teacher **TOT** tip of the tongue

### Acknowledgements

This book would not have been possible without the help of many people who encouraged me along the way and were always quick to offer advice, helpful comments, ideas and the occasional piece of chocolate to keep me going. It is based on a Ph.D. doctorate for Hildesheim University.

I would like to thank my supervisor, Prof. Dr. Friedrich Lenz, for the inspiration for this study and his support and encouragement along the way.

I am greatly indebted to all my colleagues, in particular to Janet McLaughlin, for greatly improving my English and for giving me valuable feedback during the final stages of writing this book, and to Carsten John, for providing much needed help with the methodology and statistics for the empirical research. I learned a lot from both of them.

The empirical research would not have been possible without the support and participation of the schools, the learners and their teachers, who made room in their busy schedule for me to test my ideas in real life. Thank you for your time and commitment.

Thanks also to Jana Winnefeld and Anika Wüstefeld for the excellent teaching during the intervention and for challenging my ideas about teaching from a professional perspective.

I am also greatly indebted to the editor of *Language in Performance*, Prof. Dr. Rainer Schulze, who made valuable comments on the final draft of this book.

And finally, thank you to Thomas Epping for his continual love and support. This is for you.

# Chapter 1 Introduction

Lexis was for a long time swept under the carpet in foreign language teaching (FLT), but over the last 20 years, this has changed.

In the literature concerning vocabulary acquisition, there are accounts of what it means to know a word (see Chapter 5.1 and Table 5.1). However, much less attention has been paid to the way learners acquire such knowledge. Different conditions thought to promote or impede vocabulary acquisition have been studied (as is partly done in this book), but the process itself has seldom been the focus of study (De Bot et al. 1997).

Unlike grammar, which is fairly much acquired to serve most communicative needs by the time most learners leave school, new words are continually being acquired throughout a person's life. Vocabulary learning never stops, as "a person is unlikely to ever run out of words to learn" (Schmitt 2000, 4).

Many people have at least some experience of learning a foreign language and, in the process, learn new vocabulary. Interestingly, learning vocabulary is still strongly associated with rote learning in many parts of the world, that is, the repetition of items, usually using lists. For many learners, this is the only activity they associate with vocabulary learning. Over the past 20 years strong arguments for a focus on words instead of 'language' rules have been put forward, but this has not necessarily filtered down to the schools.

In German, *Wortschatz* (vocabulary, often in relation to vocabulary size) expresses well what it means to know words: the more we know, the more abundantly our treasure chest of language is filled, enabling us to communicate on a variety of levels (Stork 2003). *Vokabeln* (a cognate of vocabulary, albeit with a narrower meaning) fill most learners with dread (Aßbeck 2002). *Vokabeln* are generally associated with having to

learn long lists of pair associations (generally consisting of the target language word and a native language translation) (Aßbeck 1996; Knapp-Potthoff 2000). This can be very demotivating as the mindless repetition of translation pairs are often perceived as being pointless and boring. These lists could and can still be found at the back of the course books used in the English language classroom.

Even in primary school teaching of English, a fairly recent development in Germany and therefore more open to modern approaches and methods than other types of formal instruction, this focus on vocabulary is often absent. This is despite the fact that current research has shown that time spent teaching vocabulary is time well spent (Read 2004b). In a German school context, learning vocabulary in class is generally referred to as *Wortschatzarbeit* (vocabulary work), suggesting that this is fundamentally different from learning *Vokabeln* (Knapp-Potthoff 2000; Stork 2003).

The practical implementation of theoretical considerations in formal language instruction, whether these considerations are linguistic or cognitive, is still rare, although many course books, for example, *Discovery* (Behrendt et al. 2004a,b) and *Sally* (Bredenbröcker et al. 2005a), claim that they base their methodology and curriculum on findings of linguistics, especially Cognitive Linguistics. The actual content of the course books, however, often does not reflect research findings in this area.

The Common European Framework of Reference for Languages (CEF), when describing the linguistic competence a learner has to reach, does not only relate this competence to the range and quality of knowledge (e.g. in terms of phonetic distinctions made or the extent and precision of vocabulary). It also relates the acquisition to the cognitive organisation and the way this knowledge is stored (e.g. the various associative networks in which the speaker places a lexical item) and to its accessibility, that is, activation, recall and availability (Council of Europe 2001, 13). The CEF does not, however, state how these aims can be achieved.

This issue is addressed in Cognitive Linguistic research and outlined in this book, as its objective is to give a description of the theoretical background of the lexical knowledge humans possess and the organisation of this knowledge in the mono- and bilingual mind. The processes of second language acquisition and learning<sup>1</sup> will be discussed, with particular attention paid to Cognitive Linguistic models, including usage-based

<sup>&</sup>lt;sup>1</sup>The delineation between acquisition and learning in a second or foreign language is not always clear. I will use the terms interchangeably, although acquisition is generally associated with unconscious processes (see e.g. De Bot et al. 2005; Lightbown & Spada 2006; Johnson 2008).

approaches to language acquisition (see e.g. Kemmer & Barlow 2000; Tomasello 2003). By connecting this research to studies conducted in the area of vocabulary learning and teaching, suggestions for an implementation of the theoretical assumptions in Early Foreign Language (EFL) classrooms will be put forward.

At a time when research in the areas of the bilingual mental lexicon was still in its infancy, Meara (1993, 295) held the view that the "study of the bilingual lexicon is just not well enough developed for it to be able to tell practitioners what to do in classrooms". He continues by saying that it might be regarded as "esoteric and difficult" (ibid.) by hands-on language teachers. Over subsequent years, however, further research has made it somewhat easier to access the research on the bilingual lexicon and use it to design informed lessons. In the intervention study outlined in this book, the focus is to do exactly this: to adapt laboratory findings and other research results in order to devise a way to teach vocabulary that might prove to be beneficial for foreign language learners.

The Cognitive Linguistic perspective on foreign language learning in general and the acquisition of vocabulary in particular is a growing research area. The implications of Cognitive Linguistics for FLT are manyfold and promising, offering both ease of learning and more profound knowledge of the target language (see e.g. Niemeier 2008).

These suggestions form the basis for the intervention study carried out in two German primary schools. The study investigates whether lessons enabling learners to elaborate on words and thereby process the vocabulary more deeply lead to better long-term retention of these items. Young learners were chosen as the subjects of this intervention because the main focus of empirical studies in vocabulary acquisition, learning and teaching still lies in the analyses of adult learners at intermediate or advanced levels, although some studies regarding SLA in young learners have been published. It has been shown that young learners may also benefit from teaching that is based on Cognitive Linguistic models (see e.g. Piquer Píriz 2008).

In this context, the issue of measuring vocabulary knowledge will also be discussed, since no standardized vocabulary tests for young EFL learners have been proposed yet, although suggestions on how this can be done have been put forward (Becker et al. 2003, Niedersächsisches Kultusministerium [Lower Saxony Ministry of Education] 2006.

The results of this empirical study, and their implications for future research, form the basis for evaluating the relevance and benefits of the theoretical implications of vocabulary research for primary school learners of English.

#### **The Mental Lexicon**