

# **Lexical Strategies of Chinese Learners of English in L1-L2 Translation**

**INAUGURAL-DISSERTATION**

zur

Erlangung des Dr. phil.

dem

Fachbereich Fremdsprachliche Philologien

der

Philipps-Universität Marburg

vorgelegt von

**Long Chen**

aus

Xinjiang, China

Marburg 2005

Vom Fachbereich Fremdsprachliche Philologien  
der Philipps-Universität Marburg als Dissertation  
angenommen am 15 November, 2005

Gutachter: Prof. Dr. Rüdiger Zimmermann  
Prof. Dr. Ruth Albert

Tag der mündlichen Prüfung am 14 Dezember, 2005

# Acknowledgments

During the process of this dissertation research, numerous people have supported me. I would like to express my most sincere gratitude to my doctorate supervisor, Prof. Dr. Rüdiger Zimmermann, who has guided and encouraged me throughout the years. His constructive comments and insightful questions have provided invaluable stimulation for my work. His consistent support and encouragement have been vital to the completion of this dissertation. I greatly appreciate Marcus Callies's help to solve the problems that I have. Dr. Christian Uffmann has my gratitude for generously sharing his SPSS knowledge and for his perceptive comments on data coding. I am also grateful to Nila LaVanaway and Professor Zhao Hong for ranking the subjects' translation quality and judging the learners' L2 proficiency levels, which is invaluable for a sophisticated data analysis.

I would like to thank the 38 graduate students who participated in this research but whose names did not appear in the dissertation. Their curiosity and enthusiasm for the research and the prospective results of it were most encouraging. I will remember their patience and kind cooperation.

For their teaching and support I wish to thank all my colleagues, who have contributed valuable comments and have shared many ideas for data collection and data analysis.

Many thanks also belong to my friends, old and new, Chen Mei, Ou Yang Li Peng, Zhang Yan, Zheng Rixing, who have cheered me in Germany. Chen Feng, Li Zhiyong, Ma Zewei, Xiong Jia and Zhao Shuying have done the same in China.

I wish to acknowledge my great debts to my family. I owe my deepest respect and gratitude to my parents, my two sisters, Chen Yan and Chen Feng, and their husbands, who have offered consistent support throughout my many years of graduate study in Germany.

Last but not least, I would like to thank my wife, Wang Qishu, who has supported and kept me company as I pursued my doctoral degree at the Philipps-University Marburg, Germany. My son, Chen Qi, and my two nephews, Guo Yuntao and Zhang Shijie, have given me many moments of joy which have kept my spirits up.

# Abstract

This dissertation examines the use of lexical search strategies in the form of written translation from L1 into L2 by intermediate and advanced adult Chinese learners of English as a foreign language. The purpose of the study was: (a) to identify and describe the lexical strategies employed by different proficiency levels of English-speaking learners of Chinese when they are unable to retrieve a word or phrase to express their meaning in the written translation task; (b) to investigate whether there is a relationship between the use of types of lexical strategies and the learners' L2 proficiency levels; (c) to explore the effectiveness of various types of strategies for different linguistic proficiency groups; (d) to demonstrate preferences of strategies between and within L2 proficiency groups and individuals; and (e) to show the cause of the discrepancy between L2 proficiency levels and translation competence and to reveal the characteristics of the learners' thinking and lexical strategies when translating L1 into L2.

Adopting think-aloud protocol and retrospective interviews as research methods to collect empirical data, all think-aloud protocols and retrospective data were recorded and transcribed in order to single out lexical strategies employed by Chinese learners of English at different proficiency levels. Variations of strategies between and within proficiency groups and individuals were processed statistically and the significance of the use of various lexical strategies was testified by means of referential statistics.

By analyzing the data and referring to the theoretical background of the bilingual mental lexicon (De Bot, 1993), language transfer (Odlin, 1989; Ringbom, 1987, 1991, 2001) and communication strategies (Bialystok, 1990; Kasper & Kellerman, 1997; Tarone, 1983), these findings were obtained from the study: (1) A taxonomy of lexical strategies by Chinese learners of English at intermediate level and advanced level was identified; (2) Advanced Chinese learners of English preferred L2-based strategies while intermediate Chinese learners of English chose strategies which were rooted in their native language; (3) There were certain changes in the strategies used within both L1-based and L2-based categories of lexical strategies; (4) The effectiveness of lexical strategies employed by Chinese learners of English depended on the 'ease of comprehension' (Littlemore, 2003); (5) Noun-plus-noun compound structure was used more by intermediate Chinese learners, even though advanced learners also applied the strategy to some extent because the Chinese language favors the structure of compounding; and (6) L2 proficiency level did not correspond to translation

production competence. L2 proficiency level is not the only factor that determines the translation production quality.

The findings of the study make it possible to conclude that Chinese learners of English at different L2 proficiency levels may apply a combination of lexical search strategies, but preferences of lexical strategies exist among individuals and within linguistic proficiency groups. The teaching implications elicited in the study may be helpful for searching words in the learner's mental lexicon. Thus the teaching of lexical strategies may be worthwhile (Zimmermann, 1999). Although the findings of the study may contribute to a better understanding of L2 acquisition and bilingualism, the scope of this study is, of course, limited, and further research is needed.

# Table of Contents

<b>Acknowledgments</b> .....	i
<b>Abstract</b> .....	ii
<b>List of Figures</b> .....	ix
<b>List of Tables</b> .....	x

## Chapter 1 Introduction

1.1 Research Orientation.....	1
1.2 English Learning Situation in China.....	2
1.3 Chinese Word Formation.....	4
1.4 Comparison of Chinese and English Noun Combinations .....	5
1.5 Lexical Difficulties Encountered by Chinese Learners of English.....	9
1.6 Target of Research .....	10
1.7 Research Questions and Hypotheses .....	11
1.8 Overview of the Dissertation .....	14

## Chapter 2 Theoretical Considerations

2.1 Bilingualism.....	15
2.1.1 Delimitation of the Bilingual for Chinese Learners of English .....	16
2.1.2 Types of Bilingualism .....	16
2.1.3 The Bilingual Mental Lexicon .....	17
2.1.3.1 Organization of the Bilingual Mental Lexicon .....	17
2.1.3.2 The Relationship between the L1 and the L2 Mental Lexicon... ..	19
2.1.3.2.1 Independence of the L1 and the L2 Mental Lexicon .....	20
2.1.3.2.2 Interdependence of the L1 and the L2 Mental Lexicon....	21
2.2 Language Transfer in Foreign Language Learning .....	23
2.2.1 Perspectives on Language Transfer .....	25
2.2.2 Factors Influencing Language Transfer .....	29
2.2.2.1 Structural Factors .....	29
2.2.2.1.1 Language Typology.....	29

2.2.2.1.2 Language Level.....	30
2.2.2.1.3 Frequency.....	31
2.2.2.1.4 Word Class .....	31
2.2.2.2. Non-Structural Factors.....	32
2.2.2.2.1 Linguistic Proficiency.....	32
2.2.2.2.2 Linguistic Awareness and Linguistic Focus .....	33
2.2.2.2.3 Social and Educational Background.....	34
2.3 Communication Strategies and Lexical Strategies .....	34
2.3.1 Definition of Communication Strategies .....	35
2.3.2 Taxonomies of Communication Strategies .....	38
2.3.3 Variables Affecting the Use of Communication Strategies.....	46
2.3.3.1 The Learner's Language Proficiency .....	46
2.3.3.2 Nature of Tasks and Effects of Problem Source.....	48
2.3.3.3 Learning Situation.....	49
2.3.3.4 Personality.....	49
2.3.3.5 Effects of Native Language .....	50
2.3.4 Lexical Strategies.....	50
2.3.4.1 Zimmermann and Schneider's (1987) Model of Lexical Search Strategies .....	50
2.3.4.2 Mondahl's (1995) Lexical Search Strategies.....	52
2.3.5 Teaching and Teachability of Communication Strategies .....	55
2.4 Summary.....	56

### **Chapter 3 Research Design and Data Collection**

3.1 Introspection as a Research Method .....	57
3.1.1 The Use of the Think-Aloud Protocol .....	65
3.1.2 Retrospective Interview .....	66
3.2 The Design of the Experiment.....	69
3.2.1 Subjects.....	69
3.2.2 Criteria for Selecting Subjects .....	70

3.2.2.1 The Subject's Linguistic Proficiency .....	70
3.2.2.2 English Language Learning Background.....	71
3.2.2.3 Scores on the National Graduate Record Examination.....	73
3.2.2.4 Teachers' Judgments .....	74
3.2.3 Translation Task .....	74
3.2.3.1 Text in the Trial Session.....	75
3.2.3.2 Text in the Improved Round .....	76
3.3 The Experiment.....	77
3.3.1 Creating a Relaxed Atmosphere in the Office .....	79
3.3.2 Explaining the Task.....	80
3.3.3 Training and Practicing Think-Aloud Technique.....	80
3.3.4 Pilot Round Study .....	82
3.3.5 Real Round Study .....	83
3.3.6 Carrying out the Retrospective Interview .....	83
3.4 Processing of the Data .....	84
3.4.1 Establishing the Transcription Rules .....	85
3.4.2 Coding the Protocols.....	86
3.4.3 Translation Quality Ranking.....	87
3.5 Summary .....	88

## **Chapter 4 A Taxonomy of Lexical Strategies**

4.1 Identifying Lexical Search Strategies .....	89
4.1.1 The Identification on the Basis of Think-Aloud Protocols.....	89
4.1.1.1 The Reliability of Think-Aloud Protocols .....	90
4.1.1.2 Using the Structure of Lexical Search .....	91
4.1.1.3 Using Strategy Markers .....	93
4.1.2 The Identification on the Basis of Retrospective Data .....	95
4.1.2.1 The Reliability of Retrospective Data.....	95
4.1.2.2 The Usefulness of Retrospective Data .....	97
4.2 The Taxonomy .....	101



4.2.1 Retrieval.....	103
4.2.2 Strategic Activities .....	103
4.2.2.1 L1-Based Strategies .....	104
4.2.2.1.1 L1-Based Form-Orientation.....	104
4.2.2.1.2 L1-Based Content-Orientation.....	105
4.2.2.2 L2-Based Strategies .....	108
4.2.2.2.1 L2-Based Form-Orientation.....	108
4.2.2.2.2 L2-Based Content-Orientation.....	109
4.2.3 Non-Strategic Activities——Monitoring Strategies.....	112
4.2.3.1 Reflection.....	113
4.2.3.2 Metalinguistic Statements.....	113
4.2.3.3 Deficit Statements.....	113
4.2.3.4 Orthographic Check.....	114
4.2.3.5 L1 and L2 Repetition .....	114
4.2.4 Abandonment .....	115
4.2.4.1 Problem Avoidance .....	115
4.2.4.2 Strategy Avoidance .....	116
4.3 Summary .....	117

## **Chapter 5 The Use of Lexical Strategies and Translation Quality Ranking**

5.1 Frequency of the Use of Lexical Search Strategies .....	118
5.1.1 The Use of L1-Based Strategies.....	119
5.1.1.1 The Use of RELEX .....	120
5.1.1.2 The Use of L1 SYN .....	122
5.1.1.3 The Use of L1 REL CON.....	123
5.1.1.4 The Use of L1 DECOMP.....	124
5.1.1.5 The Use of L1 PARA .....	126
5.1.1.6 The Use of L1 ASSOC.....	127
5.1.2 The Use of L2-Based Strategies.....	130
5.1.2.1 The Use of L2 FO .....	130

5.1.2.2 The Use of L2 SYN .....	131
5.1.2.3 The Use of L2 REL CON.....	133
5.1.2.4 The Use of L2 FIG .....	133
5.1.2.5 The Use of L2 Formal Variation .....	134
5.1.2.6 The Use of L2 PARA .....	135
5.1.2.7 The Use of Word Formation .....	136
5.1.2.8 The Use of L2 ASSOC.....	138
5.2 Retrieval.....	142
5.3 Monitoring Strategies.....	143
5.4 Abandonment.....	143
5.5 Discrepancy between Translation Competence and Linguistic Proficiency.	144
5.6 Some Borderline Cases .....	147
5.7 Summary.....	149

## **Chapter 6 Interpretation of the Results, Discussion and Conclusion**

6.1 The Relationship between the Use of Lexical Strategies and Linguistic Proficiency .....	150
6.1.1 Hypothesis 1.....	151
6.1.2 Hypothesis 2.....	155
6.2 The Blend of Lexical Strategies.....	157
6.3 The Effectiveness of Lexical Strategies.....	162
6.4 Transfer of Chinese Noun Compounding Structure .....	166
6.5 Discrepancy between Translation Quality and L2 Proficiency .....	168
6.5.1 Learner's Cognitive Style .....	169
6.5.2 Learner's Experience .....	169
6.5.3 Characteristics of Learner's Thinking.....	171
6.5.4 Characteristics of Lexical Strategies.....	172
6.6 Implications for Teaching.....	173
6.6.1 Expanding Vocabulary through Reading.....	174
6.6.2 Developing L2 Lexical Networks in a Classroom Setting.....	175

6.6.3 Improving Vocabulary Knowledge in a Classroom Context.....	176
6.6.4 Teaching Lexical Strategies through Translating .....	177
6.7 Conclusion .....	178
6.8 Suggestions for Further Research .....	180
<b>References</b> .....	183
<b>Appendix I</b> Instructions for the informants.....	212
<b>Appendix II</b> Questionnaire .....	213
<b>Appendix III</b> Changes in the concept of nationalism .....	214
<b>Appendix IV</b> Optimal Translation .....	215
<b>Appendix V</b> German Translation of the Chinese Text .....	216
<b>Appendix VI</b> Changes in the Concept of Patriotism.....	217
<b>Appendix VII</b> The Chinese Text.....	218
<b>Appendix VIII</b> Compounding Structures of Chinese and English.....	219
<b>Appendix IX</b> List of Strategies and Learner Forms.....	221
<b>Appendix X</b> Sample of Transcription of Think-Aloud Protocols .....	237
<b>Appendix XI</b> Sample of Retrospection.....	246

## List of Figures

2. 1 The revised hierarchical model.....	22
3. 1 A picture of the room where the experiment took place .....	79
5. 1 The use of L1-based strategies in the protocols.....	129
5. 2 The use of L1-based strategies in the finals.....	129
5. 3 The use of L2-based strategies in the protocols.....	140
5. 4 The use of L2-based strategies in the solutions .....	140
5. 5 The use of L1- and L2-based strategies in think-aloud protocols across proficiency levels.....	141
5. 6 The use of L1- and L2-based strategies in final solutions across proficiency levels .....	141
5. 7 The use of retrieval by advanced and intermediate learners.....	142
5. 8 The use of monitoring strategies across proficiency levels .....	143
5. 9 The use of abandonment by advanced and intermediate learners.....	144
5. 10 Translation quality evaluation (real round).....	145
5. 11 Translation quality evaluation (pilot round).....	146
6. 1 The use of L1- and L2-based strategies by advanced learners and intermediate	

learners .....	153
6. 2 The use of word-formation processes across proficiency levels.....	156
6. 3 The use of strategies across proficiency levels in think-aloud protocols.....	158
6. 4 The use of strategies across proficiency levels in the final solutions .....	158
6. 5 The use of each strategy across proficiency levels .....	165
6. 6 The popularity of activities of learning English outside the classroom.....	170

## List of Tables

1. 1 Contrastive analysis of noun combination patterns in English and Chinese ....	9
2. 1 Various definitions of communication strategies .....	38
2. 2 Various taxonomies of communication strategies.....	41
2. 3 A partial model of lexical search.....	51
2. 4 Mondahl's lexical search strategies .....	54
3. 1 Second language studies using introspection (na= not available) .....	61
3. 2 Information on the proficiency levels and the ages of the subjects in the two experimental groups.....	70
3. 3 Transcription rules .....	86
4. 1 Safeguards for the reliability of think-aloud protocols .....	91
4. 2 Levels of search .....	92
4. 3 Taxonomy of lexical search: overview .....	102
5. 1 Frequencies of lexical strategies: overview .....	119
5. 2 Frequencies and percentages of RELEX .....	121
5. 3 Frequencies and percentages of L1 SYN.....	122
5. 4 Frequencies and percentages of L1 REL CON .....	124
5. 5 Frequencies and percentages of L1 DECOMP .....	125
5. 6 Frequencies and percentages of L1 PARA.....	126
5. 7 Frequencies and percentages of L1 ASSOC .....	127
5. 8 Frequencies and percentages of L2 FO.....	130
5. 9 Frequencies and percentages of L2 SYN.....	132
5. 10 Frequencies and percentages of L2 REL CON .....	133
5. 11 Frequencies and percentages of L2 FIG.....	134
5. 12 Frequencies and percentages of FO VAR .....	135
5. 13 Frequencies and percentages of L2 PARA.....	136
5. 14 Frequencies and percentages of the use of word formation.....	137
5. 15 Frequencies and percentages of L2 ASSOC .....	139
6. 1 Proficiency levels and number of lexical strategies.....	151
6. 2 Percentage of strategy use according to proficiency levels .....	153
6. 3 The significance of word-formation process .....	156
6. 4 Choice of strategies across groups .....	159
6. 5 Comparison of means of choice of strategies across groups .....	160

# Chapter 1 Introduction

## 1.1 Research Orientation

Learning and using English vocabulary is considered the most difficult tasks by Chinese learners of English across all proficiency levels. It is believed that learners have to apply certain strategies to overcome the linguistic difficulties encountered when they communicate. When learners employ some strategies to overcome the problems caused by “an inadequate command of the language” (Poulisse, Bongarts & Kellerman, 1990, p.1), they are considered using communication strategies (Bialystok, 1990; Dörnyei & Scott, 1995; R. Ellis, 1994, p. 396; Faerch & Kasper, 1983; Kellerman, 1991; Tarone, 1977, 1980; Varadi, 1980), or compensatory strategies (Poulisse, Bongarts & Kellerman,1990), or lexical communication strategies (Poulisse, 1993), or lexical search strategies (Zimmermann, 1987a, 1987b, 1999; Zimmermann & Schneider, 1987). The present study intends to investigate lexical search strategies employed by adult Chinese learners of English in translation performance tasks from L1 into L2. The topic of lexical strategies is chosen because it has not received much attention in studies of second language acquisition. Although there has been an increasing interest among researchers in finding how L2 learners overcome linguistic problems due to an inadequate command of the target language, not much attention has been paid to lexical strategies applied by L2 learners at different proficiency levels. Since it is known that the difficulties encountered by Chinese learners of English are mainly lexical problems in nature, it is this particular area which has attracted my attention to investigate lexical search strategies used by Chinese learners of English at advanced and intermediate proficiency levels. It is expected that the results obtained in this study can shed light on the underlying processes of L2 lexical search and provide some helpful guidelines for Chinese people learning English as a foreign language. As the research experiment is carried out in China, it is necessary to provide some general background information on learning English, Chinese word formation, comparison of English and Chinese noun combinations, and difficulties encountered by Chinese learners of English.

## 1.2 English Learning Situation in China

China has the largest population learning English as a foreign language from compulsory education stage to the university level. At the compulsory education stage (from year 1 to year 9), students are required to learn English four periods per week (each period is 40 minutes long) from year seven at junior high school onwards. In 2001, the Ministry of Education of the People's Republic of China issued the document *Guidelines for Actively Promoting the Offering of English Courses in Elementary School* and required the offering of English courses from year three at elementary school level, whereas the schools in the more developed areas can offer English courses from year one onwards at elementary school level.

In order to reinforce the students' English proficiency at higher year levels, the educational government set up nine proficiency levels which are considered as criteria for English courses during the compulsory education stage. The criteria stipulate nine levels of English proficiency, among which the second is the level required for graduation from elementary schools (year 6) and the fifth is the level required for graduation from the junior high schools (year 9). However, the criteria launched by the educational government go beyond the compulsory education stage and state that levels eight and nine are required for graduation from senior high schools (year 10 to year 12). Apart from this, the Ministry of Education sponsors, authorizes finances and coordinates the compiling of English textbooks for all levels, including even first year level in elementary schools. Many schools in more developed areas take advantage of this and start their English education in the first year. Because of the official guidelines and criteria, the level of English required for promotion to a higher year level, and the compiling of officially approved English textbooks, English has become a standardized obligatory subject for all students during the compulsory education period (Cheng, 2002).

At university level, English is also an obligatory course. In university, English is taught according to *The College English Teaching Guidelines*, which specify six levels for English at university. With the guidelines, all students are required to pass

tests at least at the College English Band Four level before graduation. Some universities even set higher goals for their students.

For the graduate schools of Chinese universities, English is equally important. In order to be admitted into a graduate school, candidates must pass national graduate record examination, a very demanding standardized national English examination. National graduate record examination is defined as a test of the English proficiency of outstanding university students. After being admitted to a graduate school, students must study English as an obligatory course and are tested before graduation in order to fulfill the requirements as stated in *The Measures for Implementing the Regulations for Academic Degrees of the People's Republic of China*.

Therefore, when students graduate from a university, they have been learning English for over ten years. During the period of English learning, particularly during university times, they have been exposed to English television programs, English newspapers and English movies. However, even though students are exposed to English to a quite large extent, their learning still mainly takes place in a classroom setting. They do not have much opportunity to interact with native speakers. Their English is not fluent nor proficient enough to communicate on their own with native speakers. Those who acquire English and have a certain linguistic competence are learning English at the English departments of the universities. Thus, it is here where students develop their language abilities respectively. Although English departments of Chinese universities undertake the development of the students' English abilities, they are different from English departments in an American or British context in that English departments at Chinese universities are dealing with a foreign language, and therefore inevitably provide language training for their students. It is known that in western universities, English and linguistics are often separate departments. But in Chinese universities, English language, English literature and English linguistics seem to constitute integral parts of an English department (Cheng, 2002). The result is that, although Chinese learners have a lot of exposure to English for quite a long time, their English language abilities cannot be compared to those of students in the English departments of western universities.

### 1.3 Chinese Word Formation

Whenever the Chinese word is mentioned, it has often been described as ‘monosyllabic’ with the implication that most words in the language consist of one syllable and are formed through compounding. However, this kind of implication is not right. In order to better understand Chinese word formation, Packard (1993, p. 19-21) is referred to. The reason why Chinese words are recognized as monosyllabic words is probably because individual Chinese written characters are often considered to be individual words, and the characters virtually all represent one syllable. It is known that in Chinese monosyllabic words are common, especially words belonging to certain classes such as particles, determiners, classifiers and prepositions. However, most words in Chinese are complex, having more than one syllable or morpheme. Therefore, Packard (1993, p. 20) suggests that the term ‘morphosyllabic’ should be accurate to describe Chinese words since most morphemes in Chinese consist of one syllable and vice-versa.

Complex words are formed by combining morphemes through affixation and compounding. It is believed that words formed with this process have more syllables. Packard (1993, p. 20) postulates the criteria for affixation, which state that affixation is the productive attachment of a bound morpheme, which occupies a consistent position in a word and results in a consistent change in meaning. Some examples of prefixes are *ke-* ‘-able’, *dan-* ‘uni-’, *shuang-* ‘bi-’, *wei-* ‘pseudo-’, etc. Some examples of suffixes include *-jia* ‘-ist’ or ‘-ian’, *men*, human pluralizer, *-hua* ‘-ify’ or ‘-ize’, *-zhe* ‘-ing’, *-guo*, a verbal aspect marker indicating experience, *-le*, a verbal aspect marker indicating completion, and many other suffixes which cannot be listed here one by one.

It is well known that compounding is the most common word-formation process in Chinese. A compound is a word composed of morphemes which do not fit the criteria for affixation listed above. Compounds are formed by combining morphemes from virtually every form class category in many different orders. However, the rules used to form compounds differ greatly in their productivity. Furthermore, compounds



are not equally subject to certain grammatical operations and their consistent morphemes are not bound to an equivalent degree (Packard, 1993, p. 20).

The most common compounds in Chinese are compound nouns, compound verbs and compound adjectives. Huang (1998, p. 279) states that compound nouns in Chinese are head final, compound verbs are head initial and compound adjectives are non-headed. Packard (2000, p. 39) suggests the Headedness Principle of the Chinese compound words runs as: “noun words have nominal constituents on the right and verb words have verbal constituents on the left”. Although these are general headedness conventions in Chinese, there are still some exceptions that receive special treatment in the word formation grammar of Chinese.

This brief description of the Chinese word-formation process may lead to the false conclusion that Chinese word formation is just compounding. Actually it is even more complicated. Packard (1993, p. 21) points out the complexity of Chinese word formation as follows:

(Chinese) words are not the structurally simple monoliths they are often portrayed as. Rather, they contain significant structural complexity which affects their operation within the grammar. There are major differences among classes of complex words in their ability to undergo certain grammatical operations. Also, there are differences in the productivity of word formation processes, and in the word-forming productivity of individual morphemes. In addition, Chinese words vary considerably in the strength with which their constituent morphemes are bound together.

(Packard, 1993, p. 21)

## **1.4 Comparison of Chinese and English Noun Combinations**

A lot of literature can be found regarding the comparison of Chinese and English in terms of phonology, syntax, semantics and pragmatics. Since compounding is the most prominent feature in the Chinese word-formation process, only noun combination is discussed without considering the structures of compound verbs and compound adjectives in the present study. The comparison of Chinese and English is

largely inspired by Bongartz's (2002, p.79-84) study.

Bongartz (2002, p. 26) states that noun combinations consist of two patterns. One pattern is the noun plus noun compound, which is regarded as the result of incorporation. Another pattern is the phrasal noun combination, which involves head movement and the presence of an "overt grammatical marker" (Bongartz, 2002, p. 60). Bauer (1999, p. 245) defines that "incorporation is usually considered to be a special kind of compounding whereby a new verb is created by forming a compound from an existing verb and a possible argument of that verb (usually its direct object)". "In the most cases of incorporation, the noun in the modifying element of the compound has the same semantic function as the direct object of the verb involved" (Bauer, 1999, p. 37). By employing noun incorporation as the result of noun plus noun compounds, Bongartz (2002, p. 20-25) relates incorporation to a wider notion, which does not only refer to the compound created by involving verbs but also nouns.

Bongartz (2002, chapter 3) examines the noun combination in Czech and Chinese and contrasts them with English by applying universal grammar, particularly the minimalist program in order to find commonalities and differences of noun compounding<sup>1</sup> between different languages.

Traditionally, languages are classified as inflecting languages, isolating languages and analytic languages on the basis of employment of overt grammatical marking. Chinese is classified as an isolating language since it does not mark grammatical relations using case inflections and does not have prepositions with semantic content. English is classified as an analytic language because it represents a mixed type of marking grammatical relations using case relations and prepositions (Bongartz, 2002, p. 61).

Based on these traditional classifications, in the framework of universal grammar, especially in the minimalist program, Bongartz (2002, p. 61) points out that these classifications "are treated as language-specific realizations of the same abstract processes, i.e., the processes in which heads select their complements. This process

---

<sup>1</sup> Since the wider notion of incorporation by Bongartz (2002, p. 20-25) is adopted, incorporation structure and noun compounding are used interchangeably in this dissertation.

consists of s-selection (semantic selection) in association with c-selection (categorical selection)”. Referring to Rappaport (1998), Bongartz (2002, p. 61) illustrates that in the minimalist program “category-selection and case selection can be subsumed under the single heading of f-selection (feature selection) in that both are features of the lexical head noun which the modifier noun must match. It is important to note that both f-selection and s-selection are universal processes and not restricted to languages of a particular type”. By applying the theory of the minimalist program, Bongartz (2002, p. 83) outlines the commonalities between different languages as follows:

The ... languages ... all distinguish phrasal noun combination from noun compounding through incorporation. Heads and their complements must match in terms of f-selection and s-selection. Determiners features are weak in all three languages, making incorporation obligatory when the modifier noun has no set value for specificity. In incorporation structures, the modifier noun moves to a position that is c-commanded by the set of value for specificity for the D that serves as functional head for the head noun of the extended nominal projection. While the modifier noun in phrasal noun combination remains syntactically active, the modifier noun in incorporation structures has no referential properties and may not be modified or take an overt determiner.

(Bongartz, 2002, p. 83)

Although the commonalities shown above exist between Chinese and English, there are differences between these two languages in the realization of the patterns of noun combination (Bongartz, 2002, p. 15, p. 26). When both phrasal noun combination and noun compounds are available cross-linguistically, languages vary in terms of morphological options for the specification of case and thematic marking (Bongartz, 2002, p. 41). According to Bongartz (2002, p. 83-84), the first difference of noun combination structure between Chinese and English is the word order in the noun phrases. When the complements in English noun phrases occur to the left of the head noun, they occur to the right of the head noun in Chinese. Thus incorporation can result in a change of word order in English but not in Chinese (Bongartz, 2002, p. 83). For example, *the love song* and *the song about love* in English show the change

of word order while *yu yan xue zhu zuo* (*work on linguistics*) and *yu yan xue de zhu zuo* (*work on linguistics*) in Chinese do not involve the change of word order. However, the exocentric compounds in both Chinese and English demonstrate no word order change and no head, such as *greenback* in English, and *ge ge jie jie* (*brother and sister*) in Chinese.

Another difference noted by Bongartz (2002, p. 83) is the internal properties of incorporation structures between the two languages. “Incorporated nouns in English incorporation structures may be irregular plurals, but not regular ones” (p. 83). However, according to Bongartz (2002, p. 83), “Chinese incorporation structures do not contain plurals. Chinese incorporation has no rule for overt morphology since the language marks neither case nor plural with inflections”. For example, *teeth marks*, *men-bashing*, and *mice eater* in English contain irregular plurals inside of compounds (Bongartz, 2002, p. 36). *ya yin* (*tooth mark*) and *shu jia* (*mouse grip*) in Chinese do not involve plurals with inflections.

The third difference of noun combinations between Chinese and English found by Bongartz (2002, p. 83) is the role of grammatical marking in terms of f-selection and s-selection. The marking of f-selection in English is restricted to the prepositions in the phrasal noun combination. In Chinese f-selection is not marked in the morphology. There is no morphologically marked difference between phrasal noun combinations and incorporation structures in Chinese.

The fourth difference is that Chinese noun combinations formed without overt grammatical marking may result in ambiguity. In order to disambiguate, Chinese phrasal noun combinations as well as noun compounds have to require context. English noun combinations can disambiguate through prepositions. The English speakers can “choose between a combinatory pattern that contains a disambiguating grammatical marker and one that does not. Chinese speakers do not have this option” (Bongartz, 2002, p. 84). Although “English and Chinese speakers both use phrasal noun combination and noun compounding as productive options, ...only English speakers may choose the phrasal pattern for purposes of disambiguation” (Bongartz, 2002, p. 84).

Based on the discussion of the comparison of Chinese and English noun combinations, the following table, based on Bongartz's (2002, p. 80-82) but changed to a large extent<sup>2</sup>, shows the contrastive analysis of the patterns of noun combinations in Chinese and English.

Patterns	English	Chinese
Phrasal Combination	Noun DP=Head Initial NP=Head Initial e.g. <i>this teacher of math</i>	DP=Head Initial NP=Head Final e.g. <i>yi bu yuyanxue de zhuzuo</i> one M linguistic DE work 'a piece of work on linguistics'
Incorporation/Noun Compounds	word order change e.g. <i>the song about love</i> <i>the love song</i>	no word order change e.g. <i>yi bu yuyanxue de zhuzuo</i> one M linguistic DE work <i>yi bu yuyanxue zhuzuo</i> one M linguistic work 'a piece of work on linguistics'
Grammatical Marking	<i>the drivers of trucks</i> * <i>the trucks drivers</i>	<i>Gou wo yijing kan-guo le</i> Dog I have already seen
F-selection		a. 'I have already seen dogs.'
Plurals		b. 'I have already seen the dog.'
S-selection	* <i>a medication for a rock</i> * <i>rock medication</i> rock=*beneficiary	<i>qianbi zhuzuo</i> 'pencil work' <i>yizi de zhuzuo</i> 'a work about chairs'

Table1. 1Contrastive analysis of noun combination patterns in English and Chinese

Source: C. Bongartz, (2002), *Noun Combination in Interlanguage: Typology Effects in Complex Determiner Phrases*, Tuebingen: Max Niemeyer Verlag, p. 80-82.

## 1.5 Lexical Difficulties Encountered by Chinese Learners of English

Learning English vocabulary is generally considered the most difficult task by Chinese learners of English. Of the lexical difficulty, the confusion of English word classes is a prominent one. As it is known, English morphemes can either be

<sup>2</sup> In the table, Chinese and English examples are demonstrated in italicized words. The literal translation is underneath the Chinese words. The English meaning of Chinese is put in the single quotation marks.

derivational morphemes or inflectional morphemes. Derivational morphemes change the word class of English words. Inflectional morphemes indicate the plural form of nouns or the tense of English finite verbs without changing the lexical meaning of the words. There are, as described by the grammarians, eight parts of speech in English, namely Nouns, Verbs, Adjectives, Adverbs, Prepositions, Pronouns, Articles and Conjunctions. The first four are categorized as the open word class, where new words are created through the process of affixation. Although learners may understand the mechanism of changing words from one class to another through the process of affixation at a relatively quite high proficiency level, they may still have difficulties in identifying words in the corresponding word class. For example, they may wrongly regard the adjective form 'different' as a noun, and therefore, may make a sentence like this: "What is the different between X and Y?"

Another prominent lexical difficulty encountered by Chinese learners of English is that there is no formal difference between the noun form and verb form in Chinese words. It cannot be identified whether some words in Chinese are performing the function of a noun or a verb unless the words are put into a Chinese sentence, which may result in the overuse of conversion. However, conversion in English is also used frequently. Therefore, the learner's confusion and the differences between these two languages have made acquiring English a genuine difficulty, which may also be a factor to prevent learners from improving their English.

The difficulties mentioned here are only some representative ones, as there are many other kinds of difficulties encountered by Chinese learners of English such as English written forms, the pronunciation of long words, small verbs (*be, bring, come, have, etc*), articles, and many others. Due to their irrelevance to the present research, they are not discussed.

## **1.6 Target of Research**

The study has five purposes. The first goal is to identify and describe lexical strategies used by Chinese learners of English when they are unable to retrieve a word

or phrase to express their meaning in L1 to L2 translation task performance. The second purpose of the study is to investigate whether there is a relationship between the types of lexical strategies used and learner proficiency level. It is expected that there will be observable changes in the strategies used as L2 proficiency level varies. The third purpose is to explore the effectiveness of different types of strategies for the learners at different linguistic proficiency levels. The fourth goal is to demonstrate the preferences of strategies between and within L2 proficiency groups and individuals. The final goal is to examine the cause of the discrepancy between translation competence and learner proficiency level and to explore characteristics of the learner's thinking and lexical strategies in translation from L1 into L2.

## **1.7 Research Questions and Hypotheses**

The previous studies of bilingualism, language transfer and communication strategies provide a basis for the present investigation. The importance of studying the bilingual mental lexicon cannot be over-emphasized. Studies of the vocabulary size in bilingualism are particularly meaningful to the research of the lexical strategies used by Chinese learners of English.

Regarding the learner's vocabulary size, there are different views on how many words native and L2 university learners should know. Nation and Waring (1997) state that native university graduates master about 20,000 word families<sup>3</sup>. Francis and Kucera (1982, cited in Nation & Waring, 1997, p. 9) have shown that with a vocabulary size of about 2,000 by taking frequency into account<sup>4</sup>, a learner understands 80% of a text. The research by Laufer (1988), Liu and Nation (1985, cited in Nation & Waring, 1997, p. 10-11) demonstrates that this ratio is insufficient for successfully guessing unknown words or reasonable text comprehension, and identified 95% as the minimum ratio to achieve these goals.

As for L2 learners, Nation (1993) proposes to focus on about 3,000 high

---

<sup>3</sup> A word family is usually taken to include a base word, its inflected forms and regular derived forms (Nation and Waring, 1997, p. 8).

<sup>4</sup> This number only refers to the lemma the learner knows, not the word families. The lemma consists of a base word and its inflected forms.

frequency words as an immediate priority. Laufer (1997b) suggests 5,000 words would be sufficient to communicate. Dai (2000) suggests that Chinese learners of English with level four College English should know 5,000 words while Chinese learners with level six College English should master 6,000 words. Among these words, 2,000 to 2,500 should be active words and the rest are passive words respectively.

Studies of language transfer contribute to investigate lexical search strategies applied by Chinese learners of English. Bongartz (2002) examines noun combinations in interlanguage between Chinese and Czech learners of English comprehensively, but does not investigate the relationship between transfer and lexical strategy use. Many Chinese researchers (Cui, Q. M., 2004; Ding, R., 1993; Jia, Y. D., 1994; Jiang, H., 2003; Jing, Z. H., 1997; Liao, F., 1997; Lin, L. H., 2000; Shao, Z. H., 1994; Zheng, J., 2004; Zhu, J. F., 2000; and among others) also hold the idea that cross-linguistic influence affects language learning and use, but none of the studies has ever tried to explore the L1 influence on lexical strategies applied by Chinese learners of English at different proficiency levels.

Since the nature of communication strategies is lexical, there has been an increasing interest among researchers working on second language acquisition in investigating lexical strategies applied by learners of English as a foreign language. Poulisse (1990, 1993) examines the lexical compensatory strategies of Dutch learners of English. Zimmermann and Schneider (1987) offer a partial model of lexical search strategies applied by German learners of English through examining the psychological processes in the learners. Haastrup (1991) investigates lexical inferencing strategies used by Danish learners of English. Mondahl (1995) finds out lexical strategies used by adult Danish learners within a cognitive framework. These studies contribute to the theory of second language acquisition. It is expected that the study of Chinese learners' lexical strategies can also contribute to this field.

Based on the above considerations, the present study sets out to address certain research questions. The research questions are broken down further into more specific hypotheses to be tested in the study.



(1) What is the relationship between the learner's proficiency level and the use of lexical search strategies?

Hypothesis 1: Learners who are less proficient in their L2 will employ more lexical search strategies than learners who are at a higher proficiency level.

Hypothesis 2: Lower proficiency level learners will rely more on the learned rules of the foreign language to search lexical approximations than higher proficiency level learners.

(2) What is the blend of strategies within L1- and L2-based strategy types?

Hypothesis: The learner's proficiency level will affect the choice of particular strategies. Learners at a lower proficiency level will use more strategies, which are based on their native language than learners at a higher proficiency level.

(3) What is the relative effectiveness of lexical strategies?

Hypothesis: Strategies which result in an ease of comprehension and stylishness of expression will be considered effective or fairly effective.

(4) Does cross-linguistic influence occur among learners at different proficiency levels?

Hypothesis: Chinese learners of English are more likely to choose the noun-plus-noun compound structures over phrasal noun combinations in their translations from L1 into L2 because the Chinese language favors noun combination by noun compounding.

(5) Does the linguistic proficiency level correspond to the translation production competence?

Hypothesis: Learners at a higher linguistic proficiency level will translate better than learners at a lower linguistic proficiency level.

## **1.8 Overview of the Dissertation**

The main body of the dissertation is organized in the following way: Chapter 2 reviews the existing literature concerning major theoretical proposals and works of relevance to the present study. Among the issues discussed are the theoretical framework of bilingualism, communication strategies and language transfer.

Chapter 3 describes the design of the experiment for collecting empirical research data in order to test the hypotheses set up in the study. Think-aloud protocols and retrospective interviews are used in the experiment as a methodological foundation.

Chapter 4 depicts the findings concerning lexical strategies employed by Chinese learners of English. A taxonomy of lexical strategies is established on the basis of data analysis. A definition of each strategy is given in order to delimit it.

Chapter 5 continues the findings of the empirical study and the frequency of strategies used by learners is calculated so as to apply statistic analysis. The result of translation quality ranking by a native speaker of English and a non-native speaker of English is presented.

Chapter 6 interprets the major findings and tests the hypotheses set up in the first chapter. The chapter ends up with some teaching implications and some directions for future research. Since it is believed that the study cannot be without any problems, some evaluation of the study is done at the end of the chapter.

# Chapter 2 Theoretical Considerations

This chapter reviews the literature related to the research questions of the study. Section 2.1 presents the views of bilingualism. Section 2.2 deals with the literature on language transfer in foreign language learning and section 2.3 focuses on communication strategies and lexical search strategies.

## 2.1 Bilingualism

Bilingualism can be defined in a narrow and a broad sense. Views of bilingualism “vary from Bloomfield’s (1933) insistence that a bilingual has full fluency in two languages to the more pragmatic assertion by Grosjean (1989) that a bilingual is someone who can function in each language according to given needs” (Bialystok, 2001, p. 4). In the narrower definition, the concept of bilingualism refers to the equal mastery of two languages. The bilinguals in the narrower sense are considered possessing two first languages, or having a native language and a second language that they speak almost as well as the first language. They may be equally or almost equally comfortable in both languages due to fluency.

In the wider definition of bilingualism, bilingualism means that learners have contact with possible modes in a second language or alternative use of two or more languages. They are not fluent in the foreign language because they learn a foreign language at a later age. They communicate in one language more easily and automatically than in the other. They acquire the foreign language in general without defining their specific degree of linguistic ability.

In the research literature, bilinguals are often defined in the broad sense and are referred to as individuals who actively use or attempt to use more than one language since they have some basic competence in one of the four skills (listening, reading, speaking and writing) in a second language or a foreign language. When the wider sense of the definition of bilingualism is adopted, language learners at any levels and any ages can be considered as bilinguals or multilinguals since they have mental

representations of two or more languages. Therefore, taking into account the different mastery of two or more foreign languages, those learners, whose second or foreign language are not fluent enough, are sometimes referred to as novice or nonfluent bilinguals, whereas those learners whose proficiency of the second or foreign language is high enough are regarded as proficient or fluent bilinguals (Kroll & De Groot, 1997, p.170).

### **2.1.1 Delimitation of the Bilingual for Chinese Learners of English**

Since the research context is placed in China, and Chinese learners learn English in a foreign language environment with varying degrees of success for up to ten years in schools and universities, they are believed to have a certain linguistic competence to use the foreign language they have learned. They are called bilinguals in this study based on the broad definition of bilingualism. Bilinguals in this study actually are adult Chinese learners of English at different stages of foreign language learning.

### **2.1.2 Types of Bilingualism**

According to Weinreich (1953), there are three types of bilingualism, namely, coordinative, compound and subordinative bilingualism<sup>5</sup>. In coordinative bilingualism, the person learns two languages in separate environments, resulting in the words of the two languages being kept apart, each word having its own specific meaning. Compound bilingualism entails that the two languages are learned in the same context and are thus used concurrently while being learned. This results in a fused representation of language in the brain causing two words to be tied to the same mental representation. A single concept with two different verbal labels, one in each language, thus exists. The two languages are consequently interdependent. Subordinative bilingualism implies that the bilinguals interpret words of their weaker

---

<sup>5</sup> The use of the forms of the three types of bilingualism varies among the linguists regarding *coordinative*, *compound* and *subordinative*. De Groot (1993, p. 27) adopts *coordinate*, *compound* and *subordinative*. Lowie (1998, p. 95) and Roelofs (2003, p. 177) use *coordinate*, *compound* and *subordinate*. Singleton (1999, p. 173) uses *co-ordinate*, *compound* and *subordinative*. Weinreich's (1953, p. 9-10, reprinted in 1974) terminology is adopted here, i.e., *coordinative*, *compound* and *subordinative*.

language using the words of their stronger language. This type of bilingualism has a primary set of meanings in L1 with another linguistic system attached to them (Romaine, 1995).

### **2.1.3 The Bilingual Mental Lexicon**

Words contained in the mind have been discussed under the term of “mental lexicon”. Aitchison (1994, p. 10) puts it this way: “The human word-store is often referred to as the ‘mental dictionary’ or, perhaps more commonly, as the mental lexicon”. It has been suggested that words in the mind are interconnected “in a gigantic multi-dimensional cobweb, in which every item is attached to scores of others” (Aitchison, 1994, p. 82). Most researchers would agree that words in the mind are stored in a network of some kind. However, no agreement has been reached as to how words are mentally organized although many attempts have been made to explore the organization and the interrelation between the L1 mental lexicon and the L2 mental lexicon.

#### **2.1.3.1 Organization of the Bilingual Mental Lexicon**

There have been numerous suggestions regarding the organization of the mental lexicon and the information it contains. Fraser (1995) suggests that the mental lexicon is phonologically arranged and accessed by two networks — semantic and phonological. Aitchison (1994, chapter 9), adding a syntactic dimension to the structure, holds the idea that two main components or modules, semantic-syntactic and phonetic-phonological, constitute the mental lexicon. The first component contains the lemmas, which refer to word meaning and word class, and the second component includes the word form, which denotes sounds. The two components are linked to a subsidiary component called ‘the lexical-tool-kit’ (Aitchison, 1994, p.132), which is responsible for creating new words. Each component or module can be seen as a multiple network with strong links to items within the component and weaker links to items outside the component. Aitchison (1994, chapter 8, chapter 12) stresses

that the semantic-syntactic component organized in terms of semantic similarity, is arranged to suit the purpose of production and that the phonetic-phonological component organized for terms of phonemic similarity, is arranged for rapid sound identification in comprehension.

The distinction of these two networks or components is crucial to the study of the bilingual mental lexicon. They mean two different levels of representations, namely the conceptual representation and the lexical representation. The conceptual representation refers to the representation of word meaning, whereas the lexical representation involves the representation of word form, i.e. the whole-word representation level. As stated in Kroll and De Groot (1997, p. 169), this distinction is mainly a reflection of the research emphasis in bilingual research<sup>6</sup>. However, in monolingual word recognition literature, Rumelhart and McClelland (1982, cited in Smith, 1997, p. 145) assume that there are three discrete levels of representations: (1) an orthographic level for the representation of letter information, (2) a lexical level for the representation of word information and (3) a conceptual level for the representation of meaning. The three-levels of representation imply an assumption about how vocabulary knowledge is accessed.

Evidence from studies on the structure of the L2 mental lexicon has generally supported the claim that the L2 mental lexicon is fundamentally different from the L1 mental lexicon. A widely held view on the function of the L1 and the L2 mental lexicon is that the L1 mental lexicon is semantically driven while the L2 mental lexicon is phonologically driven (Singleton, 1999, p. 131). However, a recent study (Wolter, 2001) challenges such a view. Adopting a depth of word knowledge model, the results of the Wolter's (2001) study suggest that:

...the L2 mental lexicon is not nearly as randomly and loosely structured as past research seemed to indicate. There is a fair amount of support for this notion, but there are also some apparently fundamental differences between the L1 and the L2 mental lexicon that warrant further investigation. ... it

---

<sup>6</sup> As explained in Kroll and De Groot (1997), the distinction is a useful one in research that employs bilingual word picture tasks within sentence context.

appears that although the phonological connections between words in the L2 mental lexicon do sometimes seem to take precedence over semantic connections for words that are moderately well known, this phenomenon tends to fade as greater understanding of individual words is gained, at which point the semantic connections, and in particular the syntagmatic links, become dominant. This does not mean, however, that paradigmatic connections are not also important in the L2 mental lexicon.

(Wolter, 2001, p. 66)

Singleton (1999, chapter 4), after reviewing the body of studies in lexical memory research, concludes that the structure of the L2 mental lexicon closely resembles that of the L1 mental lexicon. Phonological representations are not unique to L2 lexical processing. Rather, both are dominant in the early stages of dealing with a new item in L1 and L2 lexical development. Additionally, the L2 mental lexicon is not only phonologically linked, but also semantically linked, and the semantic links strengthen with the degree of word integration into the L2 mental lexicon.

### **2.1.3.2 The Relationship between the L1 and the L2 Mental Lexicon**

A much debated topic is whether the L2 mental lexicon, having been stored, works totally independent of L1 or becomes a fully integrated part of an overall mixed lexicon structure. Most of the current studies have focused on the independence or interdependence<sup>7</sup> of lexical organization of bilinguals. The independence model can be described as a separate storage system, which is assumed to have two distinct systems for the lexical items of each language. That is, a separate lexical representation is believed to be accessed via each verbal system. The interdependence model can be referred to as a common storage system, which is presumed to have one underlying representation common to each word and its translation equivalent (Potter,

---

<sup>7</sup> The labels “compound”, “coordinative”, and “subordinative” are not the only labels that have been applied to the types of bilingualism in literature. Singleton (1999, p. 167) chooses “separation” for “coordinative” and “integration” for “compound”. In De Groot’s (1993, p. 29) words: “The distinction between compound and coordinate bilingual language systems has, *mutatis mutandis*, also been referred to as the “common storage” or “shared storage” *versus* “separate storage” hypotheses (e.g., Kolers, 1963; Kolers & Gonzalez 1980), as the “interdependence” *versus* “independence” hypotheses (e.g., Jin 1990; McCormack 1977; Void 1988), or as the “single-code” *versus* “dual-code” hypotheses (Durgunoglu and Roediger 1987). The compound and subordinative systems remind us strongly of the “concept mediation” model *versus* “word association” model as contrasted by Potter, So, Von Eckardt and Feldman (1984) and others.”

So, Von Eckardt & Feldman, 1984). The focus of the debate centers on whether the two verbal systems available to the bilinguals are distinguishable at the lexical level alone or at a conceptual level as well. However, there have been recent proposals (Kroll & De Groot, 1997, p. 193; Libben, 2000, p.228), which incorporate common features at the lexical and conceptual level of the bilingual's mental lexicon.

### **2.1.3.2.1 Independence of the L1 and the L2 Mental Lexicon**

Researchers have different views whether the L1 mental lexicon and L2 mental lexicon are integrated or separate from each other. One argument against the integration of the L1 and the L2 mental lexicon relates to the formal differences between languages. Singleton (1999, p. 167) points out that “experimental research indicates that an individual faced with the task of working out the morphological structure of unfamiliar words will refer to the phonological composition of more familiar items and then analogize”. Through reviewing an example of a French word, Singleton (1999, p. 168) states that “search on which such analogizing tactics (or ‘gang effects’) depend runs through the lexicon of each language separately”.

Another evidence in favor of the separatist view comes from studies of language loss by brain damage in bilinguals/multilinguals where the lost languages are recovered one by one. Singleton (1999, p.170) cites the work of Grosjean (1982, p.260), which reported an interesting case of a native speaker of Swiss German who received a serious head injury. The first language he recovered was French, the language he learned as an adult, and which had a pleasant association for him. The second language he recovered was High German, but he never recovered his L1 Swiss German.

Green (1986, cited in Singleton, 1999, p.169) maintains that when a bilingual speaker has a good command of two languages, lexical items are subconsciously activated in both languages. This seems to suggest that a bilingual speaker's language system can be kept separate because they show different levels of activation depending on whether the language is being used or not.



Grainger (1994, cited in Singleton, 1999, p.170, p.171) refers to a number of studies on the issue of how bilinguals access their L1 or L2 lexicon in their language use. Grainger (1994) attempts to show that the bilinguals can function in one language without having any contact with the lexical representations of the other language. Grainger (1994) also cites the results of the study by Grainger and Beauvillain (1987), which presented pairs of isolated words to subjects and tracked the time taken to identify the second of the pair in same-language and different-language conditions. The results show that the processing of a pair in the different-language condition is longer than in the same-language condition with an exception that the given words have distinctive French or English orthographic features. The study suggests that contextual information about language choice is used on a word-by-word basis rather than a language-by-language basis. As postulated by Singleton (1999, p. 172), Grainger's (1994) work seems to "imply a level at which each language is separately represented and the lexicon of each language being more or less activated by the outcome of lexical search and according to the degree of strength of each language".

#### **2.1.3.2.2 Interdependence of the L1 and the L2 Mental Lexicon**

The notion of "holistic competence" proposed by Cook (1993, p. 3-4), is based on the evidence widely cited from bilingualism research, which favors the view of integration between the L1 and L2 mental lexicon. Jessner (1997, p. 19) supports Cook's (1993) holistic view of bilingualism/multilingualism by providing further evidence, which suggests that bilingual/multilingual competence is an integrated entity composed of interacting linguistic subsystems.

Similar to the above view, the Homogeneity Hypothesis postulated by Libben (2000, p. 229) claims that monolingual, bilingual, and second language vocabulary knowledge can be represented in a single lexical store and there is no difference between the organization of a bilingual lexicon and that of a monolingual one. The theoretical basis of this hypothesis comes from bilingual processing literature, including De Bot's (1992) proposal for bilingual production and the Bilingual

Interactive Activation Model by Grainger and Dijkstra (1992, p. 210). One study (Gui 2000) on the word type effects of Chinese learners of English, which shows that the effects indicate a mixture of different representational forms, can be seen as support for the view that bilinguals share only one unified mental lexicon.

In contrast with the view that the languages of bilinguals or multilinguals are represented in a common lexical store, many researchers (Chen & Leung, 1989; De Groot, Dannenburg & Van Hell, 1994; De Groot & Hoeks, 1995; De Groot & Poot, 1997; La Heij, Hooglander, Kerling & van der Velden, 1996; Paradis, 1997; Potter, So, von Eckardt & Feldman, 1984; Talamas, Kroll & Dufour, 1999) in recent literature have held the idea that languages have functionally separate stores for form-based lexical representations but share a common store of conceptual representation. Kroll (1993) has reviewed a large amount of research dedicated to the organization of the bilingual mental lexicon and suggests that many of the conflicting findings can be accounted for if a distinction is made between two levels of representation: the conceptual and the lexical. She concludes that in the bilingual mental lexicon the conceptual representations are shared, but the lexical representations are independent across languages. Representational models, which distinguish between those two levels of representation, are often referred to as hierarchical models as shown in the following figure.

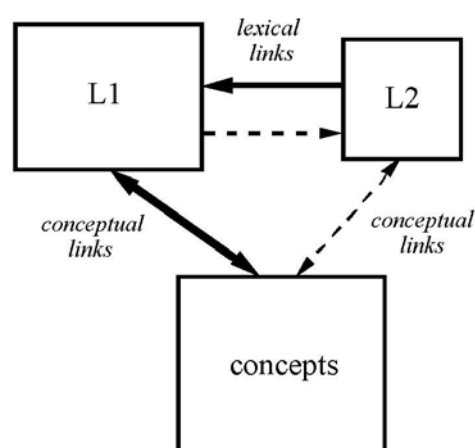


Figure 2. 1 The revised hierarchical model (adapted from Kroll & Stewart, 1994). Words in each language (L1 and L2) are interconnected via lexical-level links and conceptual links. The lexical-level links are stronger from L2 to L1 (solid line) than from L1 to L2 (dashed line) but the conceptual links are stronger for L1 (solid line) than for L2 (dashed line).

From the studies reviewed over the issue of independence/interdependence or separation/integration between the L1 and the L2 mental lexicon, it seems that no clear-cut answer to the issue in question has emerged. But two major positions held by researchers can be seen: (1) conceptual representations across the bilingual's two languages are shared, though in a distributed manner; (2) the view that the L1 and L2 mental lexicons are completely separated is ruled out. A lot of evidence has suggested that L1 and L2 lexicons are separately stored, but are connected with each other.

To sum up, the L1 and L2 mental lexicon cannot be said to work totally independent of each other. The assumption that lexical and semantic information may be organized at different levels within the language processing system is still widely accepted in models of the bilingual lexicon. Recent studies acknowledge the existence of different types of connections although research interest has shifted to examine those factors that determine the connections (Jiang & Forster, 2001; Gollan & Kroll, 2001). As suggested by Singleton (1999):

The relationship between a given L2 word and a given L1 word in the mental lexicon will vary from individual to individual, depending on how the words have been acquired and how well they are known, and also on the degree to which formal and/or semantic similarity is perceived between the L2 word and the L1 word in question.

(Singleton, 1999, p.190)

## **2.2 Language Transfer in Foreign Language Learning**

The phenomenon of language transfer has long been of interest to second language acquisition researchers. Along with the term "transfer", several expressions referring to this phenomenon can be found in previous research such as cross-linguistic influence, linguistic interference, language mixing, native language influence and the role of the mother tongue. All these terms are regarded from different perspectives and refer to the phenomenon of language transfer.

"Transfer is the influence resulting from the similarities and the differences

between the target language and any other language that has been previously (and perhaps imperfectly) acquired” (Odlin, 1989, p. 27). Language transfer is also referred to as “cross-linguistic influence” (Ringbom, 1987, p. 44) since the knowledge of a language already acquired influences (either in a positive or in a negative way) the acquisition of another language. Kellerman and Sharwood Smith (1986) find cross-linguistic influence the more appropriate term since it “is theory-neutral, allowing one to subsume under one heading such phenomena as ‘transfer’, ‘interference’, ‘avoidance’, ‘borrowing’ and L2-related aspects of language loss and thus permitting discussion of the similarities and differences between these phenomena” (Kellerman & Sharwood Smith, 1986, p. 1). In this study, language transfer and cross-linguistic influence will be used interchangeably partly due to convenience and partly due to the term being more familiar to most people.

It is obvious that language transfer occurs in the process of second language acquisition. However, the amount and type of transfer vary according to several factors. Background factors such as age, motivation, literacy and social class make the learning experience of all individuals unique (Odlin, 1989, p. 129). Arguably, the amount of transfer is also related to the distance of the languages involved.

Many language teachers and linguists agree that similarities and dissimilarities in word forms, word meanings, morphological properties and syntactic structure in two languages play a major role in how quickly and accurately a foreign language will be learned (Ringbom, 1987, p. 128). Ringbom (1987, chapter 9) summarizes the experience of several language learners and linguists in a similar way based on the examination of lexical knowledge and lexical acquisition of foreign language learners with different prior linguistic knowledge. He asserts, “Existing knowledge structures are more easily activated by the linguistic cues of incoming data if similarities, cross-linguistic or intralinguistic, can be perceived by the learner” (Ringbom, 1987, p.136).

In this section of reviewing the literature on language transfer, two parts will be focused on. One part is the evolution perspectives on language transfer and another part will deal with the factors influencing language transfer.

## 2.2.1 Perspectives on Language Transfer

Researchers have different views on the effect of the native language on second language acquisition. Corder (1983, 1992) and Krashen (1983), who hold an innatist view of language acquisition, do not believe that the L1 influences the L2 acquisition process in any significant way. Corder (1983, 1992) argues that there is no fundamental difference in the acquisition processes for L1 and L2. Adequate exposure and motivation are sufficient for second language acquisition to take place, and any errors are merely the result of the learner's hypothesis testing, a common strategy of both first and second language learners. Corder (1983, 1992) further claims that any native language's influence would "actually inhibit, prevent, or make more difficult the acquisition of some feature of the target language" (Corder, 1992, p. 19). The most the native language being able to do is to cause the learner to avoid certain target language features. Krashen (1983) states that second language learners draw on their L1 simply as a production strategy of a "pseudoacquisition nature" (p. 142) in order to fill a gap before true L2 acquisition has taken place. Both Krashen (1983) and Corder (1983, 1992) limit their analysis to negative transfer, and do not address the potentially positive role of the native language. Schachter (1992) does not hold as strong an innatist position as Corder (1983, 1992) and Krashen (1983), but she does limit the native language's influence to a constraining role during second language acquisition. She claims that second language acquisition is driven by inferencing and hypothesis testing which can be either facilitated or limited by native language parameters, and that L1 to L2 transfer is not a process in and of itself.

Although they hold different views on the role of the native language during L2 acquisition, Corder (1983, 1992), Krashen (1983) and Schachter (1992) share the proposition that native language's influence is not a process that drives second language acquisition. However, most of the principal researchers of cross-linguistic influence view it as a fundamental second language acquisition process despite their different perspectives on how it occurs. Selinker (1972) considers language transfer to be one of the five processes central to language learning and one of the principal

causes of fossilization. Gass (1983, 1984) also considers language transfer, which she defines as the superposition of native language patterns (both form and function) onto L2 patterns, to be a necessary second language learning process. Selinker (1983) and Gass (1983) also offer empirical suggestions for identifying and measuring the effects of the native language. In Selinker's (1983) operationalization of transfer, he cautions that the existence of transfer cannot be established unless frequency analysis reveals that a "statistically significant trend in the speaker's native language appears....and is then paralleled by a significant trend toward the same alternative in the speaker's interlanguage behavior" (Selinker, 1983, p. 50). Gass (1983, 1984) adds another criterion to Selinker's (1983) criterion of statistical significance: before attributing a given interlanguage feature to native language influence, the researcher must conduct a study comparing between native speakers of a language that exhibits that particular feature and native speakers of other languages that do not possess it. Therefore, evidence of significance and control of the L1 background variable are needed in order to strengthen the validity of any claim of cross-linguistic influence. These empirical safeguards indicate an approach that helps confirm the presence of transfer as an essential second language acquisition process.

If transfer is an essential process, then it must serve a central purpose in second language acquisition. It is not enough to talk about transfer. The question remains what is transferred and why second language learners incorporate L1 features in their L2 production. Anderson (1983) develops the influential Transfer to Somewhere Principle: "a grammatical form or structure will occur consistently and to a significant extent in interlanguage as a result of transfer *if and only if* there already exists within the L2 input the potential for (mis-)generalization from the input to produce the same form or structure" (Anderson 1983, p. 178).

According to Anderson's (1983) definition, the L1 structure must be consistent with natural acquisitional principles, and the preferred structures should be free, invariant, functionally simple, and frequently occurring morphemes. Hence, typological similarity between languages with regard to a particular feature is a necessary condition for transfer to occur. Anderson's (1983) Transfer to Somewhere

responds to counter-evidence for the Contrastive Analysis Hypothesis (Lado, 1960) that shows how typological similarity and structural congruence actually increase the likelihood of transfer between the native and target languages. Although Anderson's (1983) principle sounds appealing, it is unable to account for the full range of language contact phenomena during second language acquisition. Among the shortcomings of this perspective are its emphasis on syntax (as opposed to other linguistic domains such as semantics, discourse, and phonology) and its disregard for the obvious fact that learners' divergent L1 backgrounds do produce some of the same L2 errors, so native language cannot be the only operating factor. But Transfer to Somewhere does pave the way for the consideration of language transfer as a conscious process based on the learner's perception of language typology and the learner's linguistic awareness of particular features.

Kellerman (1983) introduces the term "psychotypology" (p. 114), which refers to the learner's awareness of language distance or his notion of it between his L1 and the L2. If the two languages are perceived as similar with regard to a particular structure, transfer will more likely occur, whereas a perceived dissimilarity will tend to lead to an avoidance of that particular target structure. He adds the further distinction that "not everything that *looks* transferable *is* transferable" (Kellerman, 1983, p.113). There must be constraints that inhibit L1 to L2 transfer between certain congruent structures. This leads him to develop the concept of transferability: "the probability with which a structure will be transferred relative to other structures in the L1" (Kellerman, 1983, p. 117). A particular L1 item is less transferable if it is perceived by the learner to be irregular, infrequent, semantically or structurally opaque, or is in any other way perceived as a marked form. This includes not only grammatically marked forms but also dimensions of lexical items that are perceived by the learner as non-prototypical or infrequent uses of the word (Kellerman, 1986). The main point of divergence between Anderson's (1983) and Kellerman's (1983) perspectives is that transferability as defined by Kellerman (1983) is not based on L1 and L2 congruence but refers to a judgment that the learner makes about his L1 before knowing anything about the corresponding L2 structure, a judgment that remains constant regardless of

the particular target language.

Kellerman (1995) also develops the Transfer to Nowhere Principle, which marks a shift from the general focus in the literature on cross-linguistic influence to the role of the L1 conceptual system in the L2 learner's interlanguage. This principle does not address the syntactic features of the L1 but its conceptual organization. This principle states that if language determines how speakers conceptualize experience, a shift to a new language implies a change in the conceptual framework through which the speaker views the world, which may well prove a more challenging undertaking than syntactic restructuring. While learners are consciously able to identify congruent and noncongruent structures between their L1 and L2 and to judge the degree of markedness of their native language's syntactic and lexical features, Kellerman (1995) suggests that they will be less likely to perceive, or even to admit, cross-linguistic conceptual differences and will continue to hold "an unconscious assumption that the way we talk or write about experience is not something that is subject to between-language variation" (Kellerman, 1995, p.141). The result is that instead of adopting the target language's conceptual perspective and its concomitant linguistic features, L2 learners unconsciously look for L2 linguistic structures that allow them to maintain their L1 perspective, which leads to an L2 production that may be grammatically acceptable but does nevertheless not meet the target.

Pavlenko and Jarvis' (2001) study supports Kellerman's Transfer to Nowhere principle. In their study, Pavlenko and Jarvis (2001) look at the narrative production of English and Russian by 22 Russian L2 users of English, comparing them to the productions of English and Russian monolinguals, and identify instances of possible conceptual transfer. The results show evidence of L1 to L2 conceptual transfer as well as instances of L2 to L1 influence in the form of internalization of L2 concepts, restructuring, convergence into distinct bilingual conceptual domains or items, conceptual shifts, and conceptual attrition. Although the study does not provide a systematic, quantitative analysis of the data and also does not analyze the level of conscious awareness among the participants despite the researchers' claim that conceptual transfer occurs unconsciously, it nevertheless supports Kellerman's (1995)



claim that linguistic transfer is largely driven by the conceptual need to find adequate linguistic means of expression in the L2.

## **2.2.2 Factors Influencing Language Transfer**

The complexity of cross-linguistic influence reviewed in the literature indicates that many factors are involved and interact when languages come into contact. Selinker and Lakshmanan's (1992) Multiple Effects Principle (MEP) suggests the factors which influence language transfer: "when two or more SLA factors work in tandem, there is a greater chance of stabilization of interlanguage forms leading to possible fossilization" (Selinker & Lakshmanan, 1992, p. 198). In the weak form of the MEP, language transfer is a "privileged co-factor" but in its strong form, language transfer is "a necessary co-factor" in setting multiple effects (Selinker & Lakshmanan, 1992, p. 198). The MEP applies not only to the interaction of language transfer and other factors influencing the acquisition process but also to the interaction of the factors that cause the transfer to occur. An example is Kellerman's (1983) concept of transferability, since a linguistic item must be perceived as both unmarked and typologically congruent with the target language before it will be transferred. Anderson (1983) also states that the convergence of two or more forces will cause the emergence of interlanguage forms that are more difficult to eradicate than those caused by a single factor. On the basis of this review of the literature on language transfer, the factors that influence language transfer can be roughly divided into structural variables and non-structural variables.

### **2.2.2.1 Structural Factors**

#### **2.2.2.1.1 Language Typology**

As the review of the literature has shown, language typology (and psychotypology) appears to be a very important factor when determining the occurrences of language transfer. The evolution of the study of cross-linguistic influence can be seen as an evolution in the perspectives on the role of language

typology. Early studies of language contact emphasize the importance of typological closeness and congruent structures between L1 and L2 (Weinreich, 1953). Later approaches identify a facilitative role for both typological closeness (Anderson, 1983; Gass, 1983; Jarvis & Odlin, 2000; Odlin, 1989; Selinker & Lakshmanan, 1992) and in the case of conceptual transfer, typological distance (Kellerman, 1995). Empirical studies on language transfer among learners of different L1 backgrounds have shown that language typology overrides other factors such as proficiency (DeBot, 1992; Poulisse, Bongaerts & Kellerman, 1990) and the amount of L2 exposure (Jarvis, 2000).

### **2.2.2.1.2 Language Level**

Language level relates to the common belief that cross-linguistic influence appears more frequently and noticeably at the levels of phonology, lexis and discourse than grammar. Ellis (1999, p. 56) considers this to be one of the main findings explaining learners' errors. A learner's more developed metalingual awareness of grammar can be one of the main reasons why cross-linguistic influence does not seem to be as frequent on the grammatical level. In a classroom environment, learners are often exposed to grammatical rules and it seems that grammar is the area of language learning which receives the most attention. Although Ringbom (1987, p. 72, p. 134) states that some errors in written production occur due to different pronunciation of the two languages, he points out that learners do not invariably transfer the phonological features of their first language. Ringbom (1986) has studied two groups of learners. One group has Finnish as L1 and the other Swedish. He finds that the majority of lexical errors the two groups learning English make can be attributed to the transfer of partial translation equivalents. The assumption that acquisition of lexis appears to be facilitated if the target language is related to the learner's first language is partly proved by the fact that Swedish-speaking learners seem to acquire the English vocabulary faster than Finnish-speaking learners.

### **2.2.2.1.3 Frequency**

The frequency with which a particular linguistic item or feature appears in the L1 increases its likelihood of being transferred to the L2. From the perspective of learner perception, an infrequent item will be considered as “psychologically marked” and therefore less transferable (Kellerman, 1983, p. 128). From a language processing perspective, highly frequent L1 lexical items are likely candidates for unintentional lexical transfer due to their high activation levels during the early stages of L2 learning (Faerch & Kasper, 1986; Poullisse & Bongaerts, 1994). Poullisse and Bongaerts (1994) claim that the frequency effect of L1 items can override language activation and is inversely proportional to proficiency and amount of L2 exposure based on their empirical evidence derived from native Dutch speakers’ L2 English productions. This means that at low L2 proficiency and particularly with limited L2 exposure, highly frequent L1 items can be unintentionally incorporated in an L2 utterance even when the speaker is in monolingual mode. This is inherently different from strategic forms of lexical transfer such as intentional code-switching to fill a lexical gap, transfer of cognates, or the borrowing of words from another language for pragmatic purposes.

### **2.2.2.1.4 Word Class**

The process of lexical transfer distinguishes between content and function words. This factor appears to be closely related to the factors of control and attention. Faerch and Kasper (1986) distinguish between the transfer of content words as a conscious strategy to fill a gap, often preceded by a pause, and the unintentional transfer of a highly-frequent L1 lexical item, usually a function word. While code-switching among bilinguals is intentional, augmentative rather than compensatory, focused, and showing complex syntactic structures in the language switches (Odlin, 1989, chapter 6), lexical transfer during L2 acquisition, on the other hand, tends to involve short, complete, non-adapted L1 words and is often unintentional and involves function words (Ringbom, 1986, 2001). Poullisse and Bongaerts (1994) focus particularly on

content versus function words in unintentional language switches. Their results show that content word transfer is much more monitored than expected, as shown by the amount of repair both during and after the utterance, but that the unintended switches usually contain function words. Furthermore, the L1 function words are hardly ever morphologically or phonologically adapted to the L2. They attribute this phenomenon to the frequency effect and also to the relationship between proficiency and attention: when a learner has low L2 proficiency, he centers most of his conscious attention on meaning and focuses more on content words, which leads to more errors with function words, whose short length requires less effort to encode and articulate (Poulisse & Bongaerts, 1994, p. 46-47).

## **2.2.2.2. Non-Structural Factors**

### **2.2.2.2.1 Linguistic Proficiency**

As the literature on the cross-linguistic influence demonstrates, the linguistic proficiency of the L2 learners is considered one of the most important factors determining the occurrences of language transfer. There is general agreement among researchers that language transfer is more likely to occur at lower levels of proficiency (Odlin, 1989, p. 133; Poulisse & Bongaerts, 1994, p. 46). This confirms the transfer-as-strategy perspective, since learners often draw on their L1 to fill a lexical or syntactic gap when they lack the linguistic means of expression in the L2 (Fuller, 1999; Ringbom, 1986). From a language processing perspective, the correlation between low L2 proficiency and transfer can be explained by the assumption that L1 morphemes remain highly active in beginning L2 learners due to their higher frequency and are therefore easily selected for production (Poulisse & Bongaerts, 1994). Nevertheless, Odlin (1989, p. 134) points out that the correlation between low L2 proficiency and transfer applies primarily to negative transfer, whereas certain types of negative transfer “cannot occur until learners have reached a certain level of proficiency”. The relationship between L2 proficiency and transfer is certainly complex as indicated by Odlin (1989, p. 133) who maintains that “learners’ abilities

differ vastly, with much (though not all) of the individual variation reflecting different degrees of second language skill”. With regard to conceptual transfer, in particular the Transfer to Nowhere perspective, it seems likely that L1 influence will increase with L2 proficiency as the learners acquire more L2 tools that can express their L1 perspective (Jarvis, 2000). Therefore, it is clear that proficiency has a strong effect on the occurrences of language transfer.

#### **2.2.2.2.2 Linguistic Awareness and Linguistic Focus**

The learner’s linguistic awareness is a key variable in his language performance and acquisition processes and is often related to the educational background. Awareness is not only limited to linguistic structures and semantics but also affects phonological, pragmatic, and sociolinguistic knowledge. It causes cross-linguistic influence to occur in any of these domains. Concepts such as psychotypology, congruence, and structural variables that facilitate language transfer depend on the learner’s ability to notice native- and target-language linguistic features. It is clear that multiple levels of awareness are operative during transfer (Kellerman, 1983, 1984, 1995; Odlin, 1989, p. 140).

Linguistic focus refers to the focused versus unfocused contexts in L2 learning. In the focused case, the behavior of members of one group tends to become more alike, thus distinguishing this group from others (Le Page & Tabouret-Keller, 1985, cited in Odlin, 1989, p. 144). The focused case presupposes an awareness of belonging to one group, knowledge of some linguistic and social norms, and an adherence to norms. It is one of the important factors in the social context of L2 acquisition that affect transfer. That is, focused contexts tend to discourage from other languages. Adult learners are usually more aware of language and social norms and try to use only what they believe to be structures of the L2 while minimizing transfer from their L1 (Odlin 1989, p. 144).

Odlin (1989, p. 146) argues that learners in a classroom environment where focused language is highlighted can benefit from overt instruction promoting the

awareness of the differences between their L1 and L2. Wherever positive transfer is possible, the learners should be led to capitalize on it, and at this point explicit instruction may again be of use in helping them notice the similarities and apply what they know of their L1 to the L2. As Odlin (1989, p. 147) points out, teachers who know the native language of their students can take advantage of this knowledge by providing information about native and target language contrasts and by using textbooks and other materials that present analogies between these two languages.

### **2.2.2.2.3 Social and Educational Background**

As all language acquisition takes place in a social context it is evident that some, but not all, social background factors make a difference in cross-linguistic influence. Tarone (1982) examines sociolinguistic factors and comes to the conclusion that cross-linguistic influence of the first language is more evident when learners are paying more attention to how they speak as they are using all of their potential resources. This is a rather surprising claim as it could be thought that the more careful the learner is in his production, the more he is paying attention to the rules and lexicon of a particular language and therefore the less cross-linguistic influence would arise.

Odlin (1989, p. 135) includes educational background and literacy as a factor in positive transfer. Learners who have highly developed language skills, such as reading, writing and rich vocabulary in their native language will most likely find that these skills facilitate second language acquisition.

## **2.3 Communication Strategies and Lexical Strategies**

Ever since Selinker suggested the term “communication strategies” in 1972, the study of communication strategies has evolved from identifying and classifying to the analysis of the mental processes underlying communication strategies. Two different and at the same time closely related goals have guided the research in this area: firstly, to arrive at a definitive description of communication strategies and of the specific types of strategies available (Bialystok, 1990; Faerch & Kasper, 1983; Poulisse,

Bongaerts & Kellerman, 1990; Tarone, 1977, 1983); secondly, to explain the use that foreign language speakers and learners make of these strategies. The learner-related and task-related factors that possibly influence the use of communication strategies have been widely studied by researchers. The learner-related factors are the proficiency level (Bialystok, 1983; Jourdain, 2000; Paribakht, 1985; Poulisse, Bongaerts & Kellerman, 1990; Tarone, 1977), the native language (Chen, 1990; Tarone & Yule, 1987), personality (Haastrup & Phillipson, 1983) or learning and cognitive style (Littlemore, 2001). The task-related features are those such as cognitive demands, time constraints or the interlocutor's role (Khanji, 1993; Poulisse, Bongaerts & Kellerman, 1990). Other related issues such as the comprehensibility and effectiveness of different strategies (Bialystok, 1983; Poulisse, Bongaerts & Kellerman, 1990; Littlemore, 2003), the relationship between first and second language strategic behavior (Poulisse, Bongaerts & Kellerman, 1990) and the possibility of teaching communication strategies in the foreign language classroom (Dörnyei, 1995; Tarone, 1984) have also been considered.

### **2.3.1 Definition of Communication Strategies**

Several definitions of communication strategies have been proposed since the concept was first introduced by Selinker in 1972. Tarone (1977) defines communications strategies as “used by an individual to overcome the crisis which occurs when language structures are inadequate to convey the individual's thought” (Tarone, 1977, p. 195, cited in Kasper & Kellerman, 1997, p. 2). In 1983, Tarone considered communication strategies to be an interactional phenomenon: “a mutual attempt of two interlocutors to agree on a meaning in situations where requisite meaning structures are not shared” (Tarone, 1983, p. 65). This definition has been criticized in that it does not account for situations where there is no or a delayed feedback, as in lectures.

Faerch and Kasper (1983) adopt a psycholinguistic approach and recognize communication strategies as being a part of the planning process. They are used when

the learner has problems with the original plan and cannot execute it: “potentially conscious plans for solving what to an individual presents itself as a problem in reaching a particular communicative goal” (Faerch & Kasper, 1983, p.36). It has been argued that ‘problematicity’ should not be regarded as a defining criterion of communication strategies.

Poulisse, Bongaerts and Kellerman (1984) define communication strategies as “strategies which a language user employs in order to achieve his intended meaning on becoming aware of problems arising during the planning phase of an utterance due to his own linguistic shortcomings” (Poulisse, Bongaerts & Kellerman, 1984, p.72).

Ellis (1985) further expresses that communication strategies are psycholinguistic plans, which exist as part of the language users’ communication competence. They are potentially conscious and serve as substitutes for production plans, which the learners are unable to implement. Compared to Faerch and Kasper’s (1983) definition, Ellis made an improvement by putting forward the concept of communicative competence and the direct effect communication strategies have on it. This plays a significant role in exploring the relationship between language proficiency and communicative competence.

Bialystok (1990, p. 146) defines communication strategies on the basis of a psychological analysis of second language use. She states three points about the nature of communication strategies: (1) “Communication strategies used by second-language learners are consistent with descriptions of language processing where no problem is perceived. Strategic language use, that is, is not fundamentally different from nonstrategic use”; (2) “Language learners solve communication problems with remarkable consistency”; (3) “Few conditions alter the selection or effectiveness of particular strategies for communicating”.

Kasper and Kellerman (1997) regard communication strategies as being processed within the individual, focusing on the psycholinguistic and cognitive view of their use. All communication strategies, whether from an interactional view or a psycholinguistic and cognitive view, are the techniques used by learners in order to avoid interrupting the flow of communications.



Cohen (1998, p. 7) takes communication strategies as one of the four language use strategies (retrieval strategies, rehearsal strategies, cover strategies and communication strategies). He states that communication strategies focus on “approaches to convey a message that is both meaningful and informative for the listener or reader”.

Although researchers have tried to define communication strategies from different perspectives, it seems not very easy to define them in a consensus. It is believed that the concept of communication strategies is a somewhat fuzzy one and not easy to clarify. Perhaps a better way to understand the different definitions of communication strategies is to check Table 2.1, although it is not possible to include all definitions of communication strategies suggested by all researchers.

Clearly, it is not possible to have a detailed and accurate definition of communication strategies. A comprehensive description of its characteristics is required. The main distinguishing characteristics of communication strategies are presented as follows:

- (1) Communication strategies are intentional — the speaker desires to communicate a meaning to a listener;
- (2) Communication strategies are problem-oriented — the speaker believes the linguistic and sociolinguistic structure desired to communicate the meaning to be unavailable or not shared with the listener;
- (3) Communication strategies are conscious or potentially conscious;
- (4) Communication strategies are behavioral and mental as well;
- (5) Communication strategies are part of the language user’s communicative competence.

<b>Researcher(s)</b>	<b>Definition of Communication Strategies</b>
Brown (1987, p. 180)	Communication strategy pertains to the conscious employment of verbal or non-verbal mechanisms for communicating an idea when precise linguistic forms are for some reason not available to the learner at that point in communication.
Corder (1981, p. 103)	Communication strategy is a systematic technique employed by a speaker to express his meaning when faced with some difficulty. Difficulty in this definition is taken to refer uniquely to the speaker's inadequate command of the language used in the interaction.
Ellis (1985, p. 182)	Communication strategies are psycholinguistic plans which exist as part of the language user's communicative competence. They are potentially conscious and serve as substitutes for production plans which the learner is unable to implement.
Faerch & Kasper (1983, p. 36)	Communication strategies are potentially conscious plans for solving what to an individual presents itself as a problem in reaching a particular communication goal.
Gass & Selinker (2001, p. 451)	An approach used by learners when they need to express a concept or an idea in the second language, but do not have or cannot access the linguistic resources to do so.
Stern (1983, p. 411)	Communication strategies are the techniques of coping with difficulties in communicating in an imperfectly known second language.
Tarone (1983, p. 65)	Communication strategy is a mutual attempt of two interlocutors to agree on a meaning in situations where requisite meaning structures do not seem to be shared (Meaning structures include both linguistic and sociolinguistic structures).

Table 2. 1 Various definitions of communication strategies

### **2.3.2 Taxonomies of Communication Strategies**

Communication strategies have been classified by many researchers according to different strategy classification systems (Bialystok, 1990; Dörnyei, 1995; Faerch & Kasper, 1983; Paribahkt, 1985; Poulisse, Bongaerts & Kellerman, 1990; Tarone, 1983). “Among second language acquisition (SLA) researchers, there has always been broad agreement as to what the various kinds of CS observable in non-native performance are” (Kasper & Kellerman 1997, p. 4). However, most of the attempts to classify communication strategies reflect more or less the same categorization of communication strategies with a difference in terminology and structure. After

examining the literature on how researchers specify the actual devices they consider to be communication strategies, Dörnyei and Scott (1997) outline nine taxonomies of communication strategies. They are strategies put forward by Tarone (1977), Faerch and Kasper (1983), Bialystok (1983), Bialystok (1990), Paribakht (1985), Willems (1987), the Nijmegen Group (Poulisse, Bongaerts & Kellerman, 1990), Poulisse (1993) and finally Dörnyei and Scott (1995a, 1995b). Table 2.2 shows these taxonomies.

From the table of various taxonomies of communication strategies, it can be found that the early taxonomies are based on surface structural differences in the utterances and have proposed several linguistic possibilities to express a thought. Tarone (1977) claims that there are strategies intended to overcome the differences between the learner's and the native speaker's linguistic knowledge as well as strategies that are applied when there does not seem to be any solution to the problem from an interactional perspective. In Tarone's (1977) taxonomy, five main categories are distinguished: (1) avoidance, (2) paraphrase, (3) conscious transfer, (4) appeal for assistance and (5) mime. When using avoidance strategies the learner decides not to say anything in order to avoid communication problems. There are two possibilities, topic avoidance, where the problem is avoided, and message abandonment, where the learner starts to refer to an object but gives up because it is too difficult. With "paraphrase" Tarone (1977) means the rewording of the message into an alternative, acceptable target language construction in situations where the appropriate form or construction is not known or not yet stable. Paraphrase is divided into three subcategories such as approximation, word coinage and circumlocution. Conscious transfer involves translating word for word from the native language, known as literal translation, or the use of a native language term, referred to as "language switch". In an appeal for assistance the learner asks for the correct term while the strategy of mime is the use of non-verbal strategies.

<b>Tarone (1977)</b>	<b>Faerch &amp; Kasper (1983b)</b>	<b>Bialystok (1983)</b>	<b>Paribakht (1985)</b>	<b>Willems (1987)</b>
AVOIDANCE	FORMAL REDUCTION	L1-BASED	LINGUISTIC APPROACH	REDUCTION STRATEGIES
Topic avoidance	Phonological	STRATEGIES	<i>Semantic contiguity</i>	Formal reduction
Message Abandonment	Morphological	Language switch	-Superordinate	-Phonological
	Syntactic	Foreignizing	-Comparison	-Morphological
PARAPHRASE	Lexical	Transliteration	*Positive comparison	-Syntactic
Approximation			Analogy	-Lexical
Word coinage	FUNCTIONAL REDUCTION	L2-BASED	Synonymy	Functional reduction
Circumlocution	Actional red.	STRATEGIES	*Negative comparison	-Message abandonment
	Model red.	Semantic	Contrast & opposite.	-Meaning replacement
CONSCIOUS	Reduction of	contiguity	<i>Circumlocution</i>	-Topic avoidance
TRANSFER	propositional	Description	-Physical description	
Literal	content	Word coinage	*Size	ACHIEVEMENT
translation	-Topic avoidance		*Shape	STRATEGIES
Language switch	-Message abandonment	NON-LINGUISTIC	*Color	Paralinguistic strategies
	-meaning replacement	STRATEGIES	*Material	Interlingual strategies
APPEAL FOR ASSISTANCE	ACHIEVEMENT		-Constituent features	-Borrowing/code switching
	STRATEGIES		*Feature	-Literal translation
	<i>Compensatory strategies</i>		*Elaborated features	-Foreignizing
MIME			-Locational property	Intralingual strategies
	-Code switching		-Historical property	-Approximation
	-Interlingual transfer		-Other features	-Word coinage
	-inter-/intralingual transfer		-Functional description	-Paraphrase
	-ILbased strategies		<i>Metalinguistic clues</i>	*Description
	* Generalization		CONTEXTUAL APPROACH	*Exemplification
	* Paraphrase		Linguistic context	-Smurfing
	* Word coinage		Use of L2 idioms and proverbs	-Self-repair
	* Restructuring		Transliteration of L1 idioms and proverbs	-Appeal for assistance
	-Cooperative strategies		Idiomatic transfer	*Explicit
	-Non-linguistic strategies			*Implicit
	<i>Retrieval strategies</i>		CONCEPTUAL APPROACH	*Checking questions
			Demonstration	-Initiating repair
			Exemplification	
			Metonymy	
			MIME	
			Replacing verbal output	
			Accompanying verbal output	

Continued

<b>Bialystok (1990)</b>	<b>Nijmegen Group</b>	<b>Poulisse (1993)</b>	<b>Dörnyei &amp; Scott (1995a, 1995b)</b>
ANALYSIS-BASED STRATEGIES	CONCEPTUAL STRATEGIES Analytic Holistic	SUBSTITUTION STRATEGIES	DIRECT STRATEGIES <i>Resource deficit-related strategies</i> *Message abandonment , *Message reduction
CONTROL-BASED STRATEGIES	LINGUISTIC/CODE STRATEGIES Morphological creativity Transfer	SUBSTITUTION PLUS STRATEGIES RECONCEPTUALIZATION STRATEGIES	*Message replacement , *Circumlocution *Approximation, *Use of all-purpose words *Word-coinage, *Restructuring *Literal translation , *Foreignizing *Code switching, *Use of similar sounding words *Mumbling, *Omission *Retrieval, *Mime
			<i>Own-performance problem-related strategies</i> *Self-rephrasing *Self-repair <i>Other- performance problem-related strategies</i> *Other-repair
			INTERACTIONAL STRATEGIES <i>Resource deficit-related strategies</i> *Appeal for help <i>Own-performance problem-related</i> *Comprehension check *Own-accuracy check <i>Other-performance problem-related strategies</i> *Asking for repetition *Asking for clarification *Guessing *Expressing nonunderstanding *Interpretive summary *Responses
			INDIRECT STRATEGIES <i>Processing time pressure-related strategies</i> *Use of fillers *Repetitions <i>Own-performance problem-related strategies</i> *Verbal strategy markers <i>Other-performance problem-related strategies</i> *Feigning understanding

Table 2. 2 Various taxonomies of communication strategies

Source: Z. Dörnyei and M. L. Scott (1997), “Review Article: Communication Strategies in a Second Language: Definitions and Taxonomies”, *Language Learning* 47 (1), p. 196-197.

Faerch and Kasper (1983) place communication strategies in a model of speech production. The model has two phases: a planning phase, where the plan is developed, and an execution phase, where the plan is executed. If there are problems with the plan so that it cannot be executed, the learner either avoids the problem, which leads to a change of the communicative goal and hence employs reduction strategies, or faces the problem and develops an alternative plan which leads to the application of achievement strategies. With formal reduction, the learner communicates by means of a system that has been phonologically, morphologically, syntactically, or lexically reduced, whereas functional reduction involves a reduced communicative goal. Besides Tarone's (1977) topic avoidance and message abandonment, Faerch and Kasper (1983) include meaning replacement as a functional reduction. The use of a meaning replacement strategy implies a more general reference to the subject. Achievement strategies can either be to solve problems in the planning phase known, so as to use compensatory strategies, or to somehow get hold of the missing term and to apply retrieval strategies. The subtypes of compensatory strategies are based either on a different code (code switching and interlingual transfer), or a different code and the interlingual code (inter-/intralingual transfer), only the interlingual code (generalization, paraphrase, word coinage and restructuring), discourse phenomena (cooperative strategies) or nonlinguistic communication (mime, gestures, etc.). Generalization, paraphrase and word coinage correspond approximately to Tarone's (1977, 1983) approximation, circumlocution and word coinage respectively.

The most severe criticism of the traditional taxonomies has been directed towards their psychological credibility. Kellerman (1991) claims that some of the strategies demonstrate the same underlying cognitive processes and should therefore not be classified as diverse strategies even if they have different linguistic realizations. It has also been argued that the strategies are not generalized over task, language, and learner. The more practical problems concern the definitions of the strategies. But they are sometimes too vague, and the choice of some criteria, e.g. "the construction of a new word" as a definition for word coinage (Kellerman 1991, p.146, p. 150) excludes all the words created by the learner but that already exist in the language.

More recent taxonomies are based on underlying processes involved in the production of communication strategies, which makes them psychologically plausible. Bialystok (1990, chapter 7) has expressed the importance of strategies differing in a psychologically correct way. Her theory is therefore based on the distinction between analysis (or knowledge) and control, which is firmly grounded on cognitive psychology. Bialystok's (1990) analysis-based strategy is "an attempt to convey the structure of the intended concept by making explicit the relational defining features" (p. 133). The speaker modifies the content of the message by using his knowledge about the concept. A control-based strategy is "the manipulation of form of expression through attention to different sources of information" (p. 133). Contrary to analysis-based strategies the speaker keeps the original intention of the utterance and turns to different means of reference outside the L2.

Another taxonomy based on underlying processes is used in an extensive project involving the investigation of compensatory strategies, called the Nijmegen Group taxonomy (Poullisse, Bongaerts & Kellerman, 1990). The Nijmegen group uses a binary system based on conceptual and linguistic strategies. Conceptual strategies are either analytic or holistic. When the speaker uses analytic strategy, he or she refers "to the intended concept by listing (some of) its properties" (Poullisse, Bongaerts & Kellerman, 1990, p. 60). When holistic strategy is employed, the speaker "refers to a concept by using the word for a related concept" (Poullisse, Bongaerts & Kellerman, 1990, p. 61). There are also cases where analytic and holistic strategies are combined. Linguistic strategies involve the manipulation of the speaker's linguistic knowledge. The subtypes are morphological creativity which is "the use of L2 rules of morphological derivation to create (what the subject assumes to be) comprehensible L2 lexis" (Poullisse, Bongaerts & Kellerman, 1990, p.62) and the strategy of transfer which is used when the speaker "exploits the similarities between languages" (Poullisse, Bongaerts & Kellerman, 1990, p. 62). The words or phrases that are transferred can sometimes be adjusted to the L2 and the use of a transfer strategy can also result in words that already exist in the language. The Nijmegen group does not claim that all utterances need to be purely conceptual or linguistic, as they may also

be a combination of the two.

Bialystok's (1990, chapter 7) distinction between analysis- and control-based strategies and the taxonomy used in the Nijmegen project are both binary systems based on underlying cognitive processes. Basically they have the same surface structures with the exception that the Nijmegen group makes a distinction between mime and ostensive definition and between semantic and linguistic word coinage. Bialystok (1990, chapter 7) has also included the appeal for assistance in her control-based strategies.

Poulisse (1993) suggests a modified taxonomy based on the Nijmegen group's taxonomy. This modified taxonomy of compensatory strategies consists of three categories. The first category is substitution strategy. When this strategy is in use, "one or more features of a particular chunk are either changed or omitted in the search of a new lexical item" (Poulisse, 1993, p.180). The second category is substitution plus strategy. It involves the "out-of-the-ordinary application of L1 or L2 morphological and/or phonological encoding procedures" (Poulisse, 1993, p. 180). The third category is reconceptualization strategy. This strategy is defined as "a change in the preverbal message involving more than a single chunk. This change can take various forms" (Poulisse, 1993, p.181).

Dörnyei and Scott's (1995a, 1995b) taxonomy classifies communication strategies based on the manner of problem-management. Three basic categories in the taxonomy are separated: (1) direct strategies; (2) indirect strategies and (3) interactional strategies. Direct strategies provide "an alternative, manageable and self-contained means of getting the (sometimes modified) meaning across" (Dörnyei & Scott, 1997, p. 198). It is believed that most traditionally identified communication strategies fall under this category. Indirect strategies facilitate the "conveyance of meaning indirectly by creating the conditions for achieving mutual understanding: preventing breakdowns and keeping the communication channel open (e.g., using fillers or feigning understanding) or indicating less-than-perfect forms that require extra effort to understand (using strategy markers or hedges)" (Dörnyei & Scott, 1997, p. 198). Interactional strategies involve "a third approach, whereby the participants



carry out trouble-shooting exchanges cooperatively (e.g., appeal for and grant help, or request for and provide clarification), and therefore mutual understanding is a function of the successful execution of both pair parts of the exchange” (Dörnyei & Scott, 1997, p. 199).

By examining various taxonomies of communication strategies, although it is not possible to review all these taxonomies one by one, it becomes obvious that all taxonomies concern “various ranges of language devices in different degrees of elaborateness. On the one end of the narrow-broad continuum are the typologies of the Nijmegen Group and Poulisse (1993) who explicitly restricted the scope of language phenomenon examined to lexical compensatory strategies. On the other end of the continuum is Dörnyei and Scott’s (1995a, 1995b) which concerns L2 problem-management in general” (Dörnyei & Scott, 1997, p. 187, p. 195).

Furthermore, by reviewing different taxonomies established in terms of different perspectives, it has been found that although the terminologies used to describe communication strategies vary to a quite large extent, six of nine taxonomies (Bialystok, 1983; Dörnyei & Scott, 1995; Faerch & Kasper, 1983; Paribakht, 1985; Tarone, 1977; Willems, 1987) show many similarities in concepts of classifying communication strategies. What Bialystok (1990, cited in Dörnyei & Scott, 1997, p. 195) has illustrated shows such a view which runs as follows:

The variety of taxonomies proposed in the literature differ primarily in terminology and overall categorizing principle rather than in the substance of the specific strategies. If we ignore, then, differences in the structure of taxonomies by abolishing the various overall categories, then a core group of specific strategies that appear consistently across the taxonomies clearly emerges.

(Bialystok, 1990, p. 61)

However, three of the earlier taxonomies (Faerch & Kasper, 1983; Tarone, 1977; Willems, 1987) recognize a basic duality in strategy use: strategies are used either to tailor one’s message to one’s resources by alerting, reducing or completely abandoning the original content; or to try to convey the intended message in spite of

the linguistic deficiencies by extending or manipulating the available language system (Dörnyei & Scott, 1997, p. 195).

### **2.3.3 Variables Affecting the Use of Communication Strategies**

The results of empirical research indicate that communication strategies play a positive role in second language learning only on condition that the factors that influence the operation of these strategies can be eliminated. These factors can be demographic, such as age, cultural background and gender, or could be issues like the level of language proficiency and different learning styles, as well as the learning context, task demands and the learner's attitudes. However, one can assume that a learner using achievement strategies would at least be more successful in an interactional situation. The following subchapter examines some major variables regarding the use of communication strategies.

#### **2.3.3.1 The Learner's Language Proficiency**

The proficiency level of a language learner might be regarded as the most important factor that may be expected to predict the choice of specific communication strategies. Different communication strategies demand different linguistic knowledge, and some may be too sophisticated for less advanced language learners. Attempts have been made by some researchers to examine the relationship between the language learners' proficiency and their use of communication strategies. A better understanding of this relationship is expected to shed light on the acquisition process and have a significant bearing on language teaching practice. However, after years of research in this area, no definitive conclusions have been reached. Although it is now a well-accepted fact that the degree of proficiency affects the use of communication strategy, to what extent and in which specific ways is still an open question and a fruitful object of research.

The possibility of an influence of the proficiency factor on the foreign language learner's use of communication strategies is suggested even in the early approaches to

the study of the phenomenon, although no empirical data supporting this idea are available at the time (Corder, 1983; Tarone, 1977, 1983). Subsequent studies attempt to test this hypothesis and reach two main conclusions. On the one hand, Hyde (1982) finds that lower level students make more frequent use of communication strategies than more proficient ones because they encounter more problems in communication due to their more limited command of the target language. On the other hand, Bialystok and Froehlich (1980), and Bialystok (1983) provide evidence of a relationship between the learner's proficiency and their choice of specific communication strategy types. They name these strategies as L1-based and L2-based strategies. In order to overcome linguistic deficiencies in the second language, low level learners resort to the borrowing of lexical items from their first language more often than high level learners, whereas the latter use a significantly higher proportion of L2-based strategies, i.e. strategies based on the speaker's manipulation of their resources in the foreign language.

Although small-scale and fairly exploratory in nature, these studies establish the main lines of research for more comprehensive analyses later. Paribakht (1985) and Chen (1990), despite adopting different analytical frameworks and methodological designs, obtain similar results and provide further support for the hypothesis that, both in terms of frequency and choice, the use of communication strategies correlates with the level of L2 proficiency.

However, evidence that contradicts this hypothesis has also been found. During the late 1980s a group of researchers carried out a study which is considered the most ambitious and comprehensive research on communication strategies to date: the Nijmegen project. Rigorous quantitative and statistical analyses were conducted on more than 4,000 instances of communication strategies obtained from a total of 45 Dutch learners of English with three different levels of proficiency. Although a significant inverse relationship was found between the absolute number of communication strategies used and the degree of proficiency of the speakers, the results suggest that the proficiency factor has a slightly limited influence on the choice of a particular communication strategy type. The impact of proficiency is overruled by

that of other factors, such as the nature of the communicative task used in the elicitation of the data (Poulisse & Schils, 1989; Poulisse, Bongaerts & Kellerman, 1990). When considering these findings it is necessary to bear in mind that these researchers have adopted a psycholinguistic approach to their study of communication strategies. This means that they focus on only one subgroup of communication strategies, namely compensatory strategies, and classify them according to a taxonomy that emphasizes psychological plausibility and parsimony. They do not pay much attention to output differences. Furthermore, although the amount of quantitative data is impressive, no qualitative analyses are carried out on the question of the influence of proficiency.

In recent years, research has widened its scope to focus on the influence that proficiency has not only on number and types of communication strategies used but also on their linguistic realization. Jourdain (2000) finds that one's ability to make use of certain communication strategies such as the paraphrase strategy increases with proficiency. That is to say, more proficient students seem to become more native-like and, consequently, more effective and successful in their strategic behavior than less proficient learners.

All these contributions suggest that, although the influence of proficiency on the use of communication strategies is a widely accepted fact, it seems to be more complex than initially thought and, consequently, further research is required.

### **2.3.3.2 Nature of Tasks and Effects of Problem Source**

Researchers have used different tasks in order to elicit foreign language learners' use of communication strategies when it is related to the nature of the tasks. A larger number of procedures have been used. The elicitation methods include picture description, instruction, and interview, etc. These methodological differences may influence a language learner's selection of a specific communication strategy. Obviously, strategies such as miming and appeals for assistance are precluded by written or non-interactive tasks. The type of elicitation method is important to

determine the strategies that will be observed. It is clear that learners will adjust the way in which they approach a problem.

Faerch and Kasper (1983) postulate that the choice of a strategy relates not so much to the task, but to the nature of the problem. They claim that for problems relating to fluency and correctness, learners tend to employ reduction strategies in order to avoid using potentially problematic parts of their linguistic repertoire.

### **2.3.3.3 Learning Situation**

It seems possible that a learner's use of communication strategies is affected by his or her learning situation. Generally speaking, learners use more communication strategies in a natural environment than they do in the formal classroom teaching environment, especially, when teaching focuses on correcting learner's mistakes instead of encouraging fluency. In consequence, the learning environment also influences the selection of communication strategies.

### **2.3.3.4 Personality**

The personality of the speaker is also a possible source of systematic variance in the selection of communication strategies. Learners of different personalities differ in their selection of types of communication strategies. Tarone (1977) observes definite differences in her learners' overall approach to story telling. Some learners spoke quickly when they retold a story either in their mother tongue or L2, and they left out many details, whereas some other learners spoke slowly and provided more particulars. In addition, these learners frequently appealed for assistance. Littlemore (2001, 2003) has studied the relationship between cognitive style and the use of communication strategies on the basis of Poulisse's (1990, 1993) taxonomies and finds that holistic students use more communication strategies that are based on comparison while analytic students employ more strategies that involve focusing on individual features of the target item. Littlemore's (2001, 2003) study has indicated that individual differences in patterns of communication strategy use can be attributed at least in part to the learner's personality.

### **2.3.3.5 Effects of Native Language**

It seems reasonable that second language learners who have different first language backgrounds select quite different communication strategies. There is no doubt that the form of certain strategies will change according to the learner's L1, particularly for such strategies as conscious transfer. Kellerman's study (1984) has shown how learners differentially transfer terms from an L1 to an L2. One of the factors is the learner's perception of the distance between the L1 and the L2. Languages which are perceived to be similar (whether or not they actually are) are more likely to lead to a transfer than those which are not.

### **2.3.4 Lexical Strategies**

As the study of communication strategies has gradually evolved from identifying and classifying to the analysis of the mental processes underlying the use of communication strategies, a growing interest is directed to lexical strategies used by learners since the "communication strategies that are studied by L2 researchers are mostly lexical in nature" (Poulisse, 1993, p. 157). In this section, Zimmermann and Schneider's (1987) model of lexical search strategies and Mondahl's (1995) study of lexical search strategies in translation processes are reviewed.

#### **2.3.4.1 Zimmermann and Schneider's (1987) Model of**

##### **Lexical Search Strategies**

Since very little is known about lexical search in both speech production and writing production, Zimmermann and Schneider (1987) suggest a partial model of lexical search. The model, which is considered as the first model dealing with lexical solving problems among the publications of lexical communication strategies, outlines five stages for searching approximations of the target word. The purpose of the model is to provide "insights into psychological processes in the learner" (Zimmermann, 1989a, p.87) when German learners translate from L1 to L2. Table 2.2 is the model adopted from Zimmermann and Schneider (1987).

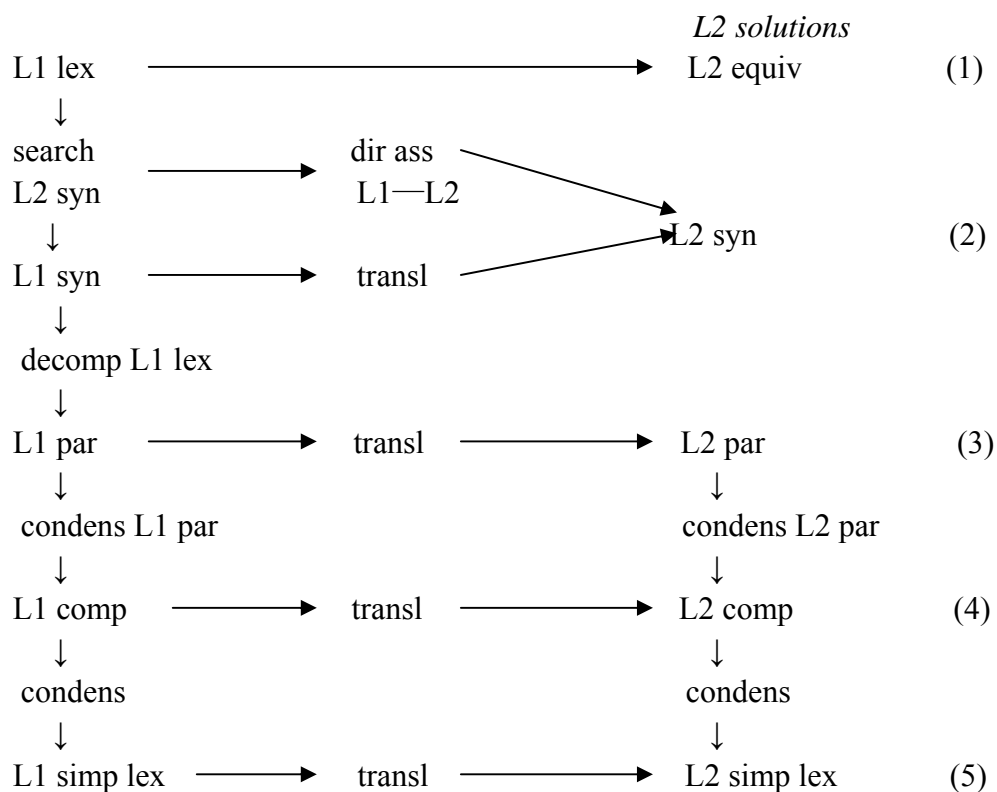


Table 2. 3 A partial model of lexical search

Source: R. Zimmermann and K. Schneider (1987), “Collective Learner Tested: Retrospective Evidence for a Model of Lexical Search”, in C. Faerch & G. Kasper (eds.), *Introspection in Second Language Research*, Clevedon: Multilingual Matters, p. 181.

According to Zimmermann (1989a, p.89), the model while checking compatibility with the context does not consider contextual factors. If the contextual factors are considered, they would be taken into account after lexical selection, while checking the compatibility with the context. In this model, at stage one, learners do not have problems selecting the target word they need. At this stage of lexical search, an L1 lexical item (L1 lex) is the only input to the translation process. Even though the retrieved words cannot be a complete equivalent in a strict sense, they serve as a “relatively best approximation” (Zimmermann, 1989a, p.89). When learners find that direct retrieval does not suffice to find the target word, they try to search for words with a similar meaning via L1 synonym. This reaches stage two. If the search via L1 synonym fails to hit the target word, learners “decompose the original L1 lexeme

and/or an L1 synonym into (some of) its meaning components” (Zimmermann, 1989a, p. 90) and translate them into the L2, or they form L2 paraphrases right away. The process of lexical search has reached stage three. At this stage, it is believed that “more proficient learners may do this inside the L2 immediately” (Zimmermann, 1989a, p. 90). When the third stage is reached, some learners are considered finishing the searching process. But others may go on to reach stage four as they condense “paraphrases into shorter lexical phrases and complex words, omitting irrelevant semantic words, reducing the information further, often too far” (Zimmermann & Schneider, 1987, p.180). When stage four does not suffice to get the expected word, a possible further stage is needed. Thus the process comes to stage five. At this stage, the search process yields L2 simplex words based on either a L1 or L2 complex form.

According to the model, Zimmermann (1989a) indicates that “simplex and complex forms can appear at two points in the search process, at stage (2) and at stage (4) and (5), respectively. Learners can hit a loosely synonymous simplex or complex word immediately, or as the result of a longer search process” (Zimmermann, 1989a, p. 92). However, two points should be commented on concerning simplex forms. One is that “the term *simplex form* is used in a slightly superficial sense” (Zimmermann, 1989a, p. 91). Another one is that “simplex forms are not necessarily seen as *formally* based on an underlying complex word” (Zimmermann, 1989a, p.92).

#### **2.3.4.2 Mondahl’s (1995) Lexical Search Strategies**

Mondahl (1995) applies the cognitive framework of information processing and Krings’s (1986) model of translation process in order to elicit lexical search strategies. According to Mondahl (1995), information processing in a translation falls into two categories: (1) sequences that present no problems to the translator, namely spontaneous sequences and (2) sequences that are considered problematic, namely problem sequences. The first category results in the application of know-when or know-how knowledge, and it leads to little or no verbalization. The second category contains problems for the translator. Here the translator has to introduce know-how or



know-why knowledge (Mondahl, 1995, p. 187).

By applying the cognitive framework of information processing in order to examine lexical search strategies employed by Danish translators when translating a Danish commercial article into English, Mondahl (1995) divides strategies used by translators into three categories: (1) achievement strategy, (2) reduction strategy and (3) evaluation strategy. An achievement strategy is characterized by the translator's attempt to remain as close to the source text as possible. Four subcategories of strategies are included in the class of achievement strategies. The first one is spontaneous association, which resembles brainstorming. This strategy shows that the translator is aware of the problem he or she is facing and operates on the basis of associations which come to him or her spontaneously. Thus, several possibilities exist which may help to solve the problem. The second one is situational search strategy, which means that the translator tries to solve the problem by referring to previous experience so as to reach an acceptable solution. The third type of achievement strategy is the reformulation of the source text in either the translator's L1 or L2. When this type of achievement strategy is used in the process of translation, the translator feels that it is not necessary to change the overall meaning of the element but the need for deliberation increases. Hence, the translator has to consciously consider the degree of equivalence obtained. The fourth type of achievement strategy suggested by Mondahl (1995) is problem analysis. It refers the linguistic knowledge resorted to.

According to Mondahl's taxonomy(1995), a reduction strategy means that translators unable to find an acceptable translation equivalent and have to simplify the form or the content, or even have to abandon finding a satisfactory translation equivalent. The result of the simplification may be linguistically correct but perhaps leads to a less precise translation. "The extreme version of this strategy is to leave out a source text element entirely" (Mondahl, 1995, p. 188).

When several options occur to the translator at the same time during the task performance, the translator has to evaluate and choose the most likely one. Thus, Mondahl (1995) suggests that evaluation strategies should be introduced next to

achievement strategies and reduction strategies. Evaluation strategies may range “from the spontaneous evaluation: ‘this sounds best’ to the less intuitive strategy of identifying differences between the source element and a potential translation. Acceptability and translating ‘back’ to the source language to check meaning/status of translation used and potential readers’ background may be used, or the translator’s general maxims may be introduced as a yardstick” (Mondahl, 1995, p.188).

The lexical search strategies recognized by Mondahl (1995) on the basis of cognitive framework of information processing seem to provide new perceptions on the translation process for teachers who are instructing translation and students who are learning translation. It is admitted that a knowledge about the translation process will help students to improve their translation competence and help teachers advance their instruction.

Based on the illustration of Mondahl’s (1995) taxonomy of lexical search strategies in translation, the following table generalizes Mondahl’s (1995) classification of lexical search strategies.

<b>Strategy Types</b>	<b>Brief Description</b>
A. Achievement Strategies	
1. Spontaneous associations	The translator brainstorms and retrieves the possibilities.
2. Situational associations	The translator tries to recall former experiences or situations where the word/phrase occurred.
3. Reformulations	The translator reformulates either in the translator’s L1 or L2. These reformulations are made on the assumption that the source text meaning is not changed radically.
4. Problem analysis	Linguistic knowledge is introduced when translating.
B. Reduction Strategies	The translator abandons finding an entirely satisfactory translation equivalent and this leads to a simplification of either form or content.
C. Evaluation Strategies	The translator makes a choice between several options in terms of acceptability or the potential readers’ background or the translator’s general translation maxims.

Table 2. 4 Mondahl’s lexical search strategies

### **2.3.5 Teaching and Teachability of Communication Strategies**

Regarding teaching communication strategies, there are two groups of researchers with different views. The group in favor of teaching communication strategies is called “Pro group” while the group opposite to it is “Con group”. Yule and Tarone (1997) have made a comprehensible illustration of the pros and cons of teaching communication strategies. The Pros favor a liberal expansion of strategy categories whereas the Cons are rather conservative in that they reduce compensatory strategies to two fundamental types. The Pros often investigate the variability in linguistic performance while the Cons are more concerned with generalizability and the psychological plausibility of the strategy categories. Likewise, the Pros favor the teaching of some communication strategies (Tarone, 1984), while the Cons are vehemently opposed to such instruction as they view strategies employed in creating L2 references as cognitive processes and regard teaching them as an attempt to teach cognitive processing. They argue that, for adult learners, these cognitive processes are already in place and well-developed through their experience with their L1. The Pros, in contrast, suggest that learners develop a wide range of abilities in the target language through various classroom activities and tasks.

Apart from many arguments and recommendations in favor of teaching communication strategies, there have also been empirical studies that assess the value of communication strategy teaching. Faucette (2001) cites certain studies by Yule and Tarone (1997), Chen (1990), Brooks (1992), Salomone and Marsal (1997), Russel and Loschky (1998), and Dörnyei (1995) in order to support the views that favor teaching communication strategies. Zimmermann (1999, p.140) suggests that teaching learners paraphrases, productive word-formation processes and loose synonym will help them search for the optimal solution when meeting with lexical problems.

Although the concept of teaching communication strategies is controversial and there have been many arguments against it, it is believed that research results are still encouraging. It is beneficial for both instructors and students to teach and learn

communication strategies so as to improve language skills in order to solve the problems at either lexical or pragmatic levels.

## **2.4 Summary**

This chapter has reviewed the literature on bilingualism, language transfer and communication strategies as far as it is considered to be related to the present study. Concerning bilingualism, there seems no clear-cut answer to the issue whether the L1 mental lexicon and L2 mental lexicon are stored separately or are integrated. However, a lot of evidence has suggested though the L1 and L2 lexicons are separately stored, they are connected with each other.

By reviewing the literature on language transfer, it is clear that transfer can occur at all proficiency levels of Chinese learners even though Chinese and English are typologically distant languages. Structural and non-structural factors, which affect transfer, provide us with a better understanding of transfer.

The interest of the studies of communication strategies has been shifting from focusing on defining and classifying communication strategies to investigating the cognitive processes involved in learning. As the nature of communication strategies is mostly lexical, studies of communication strategies help to carry the research of lexical strategies even further. Two groups of researchers have completely different views on teaching communication strategies to learners. The Pro group insists that communication strategies should be taught while the Con group considers that cognitive processes cannot be instructed. Although there are different views on teaching and teachability of communication strategies, it is beneficial to instruct communication strategies so that learners can overcome lexical problems encountered more effectively.

# Chapter 3 Research Design and Data Collection

This chapter presents an experiment designed for collecting empirical data in order to test the hypotheses raised in this study. The theoretical perspectives on implementing the experiment are described in section 3.1. What follows is the research design in section 3.2. The actual experimentation is illustrated in section 3.3. Section 3.4 demonstrates the processing of the data collected in the study. The summary of this chapter is given in section 3.5.

## 3.1 Introspection as a Research Method

When the experiment was designed, it was assumed that introspection as a research method would be appropriate for the design of the experiment since “introspective methods have been a common source of data elicitation in second and foreign language research (cf. Cohen, 1996, 1998; Ericsson & Simon, 1993; see also Faerch & Kasper, 1987)” (Gass & Mackey, 2000, p. 25). Therefore it is necessary to consider this method before moving on to the description of the experiment.

During the last few decades, introspective methods have been used in language research to investigate linguistic knowledge (Boersch, 1986; Faerch & Kasper, 1987; Haastrop, 1991; Mondahl, 1995; Smith, 1994, chapter 2; Zimmermann, 1987a, 1989b). Since introspective methods have grown in popularity, as researchers have experimented with different ways of finding out how learners go about learning and using language, and as the questions researchers ask have become more sophisticated and complex, it is believed that the popularity of such methods will continue to grow. The use of introspective methods primarily enables the researchers to identify the information processing used by the subjects. It is assumed that in a study that employs both thinking aloud and retrospection the chances of getting reliable data are good. Table 3.1 shows the use of introspection by a number of researchers cited from Gass & Mackey (2000, p. 29-35) but with several additions. As can be seen, stimulated

recall methodology<sup>8</sup> combined with introspective methods have been used to address a wide range of research topics. These topics include cognitive processes in general and specifically L2 strategy or inferencing use, L2 teachers' decisions, L2 writing choices and processes, L2 reading and lexical use, and L2 oral interaction amongst other areas (Gass & Mackey, 2000, p. 29). In the table, a sampling of such studies, categorized by type, focuses in particular on studies that utilize a verbal report.

<b>Author (s)</b>	<b>Year</b>	<b>Type of Data</b>	<b>Method</b>	<b>Number of participants</b>
Abraham & Vann	1996	L2 test-taking	Think-aloud	9
Alanen	1995	Reading	Rule presentation Think-aloud	36
Anderson	1989	L2 test-taking	Retrospective think-aloud Think-aloud	28
Anderson	1991	L2 test-taking	Self-revelation/observation	
Bartelt	1997	Production	Introspection (written)	105
Block	1986	Reading	Think-aloud	12
Boersch	1986	Communication strategies	Think-aloud	na
Bosher	1998	Writing	Stimulated recall	3
Brice	1995	Writing	Think-aloud	
Brown	1993	Oral proficiency testing	Stimulated recall reports (written)	53
Buck	1991	Listening	Retrospection	6
Cavalcanti	1987	Reading	Retrospection Think-aloud	na
Chern	1993	Vocabulary	Think-aloud	20
Cohen	1994	L2 test-taking	Think-aloud Self-revelation	5
Cohen & Apeh	1979	Vocabulary	Retrospective reflection	17
Cohen & Apeh	1981	Vocabulary	Retrospective reflection	19
Cohen & Cavalcanti	1987	Writing	Think-aloud	8
Cohen & Cavalcanti	1990	Writing	Think-aloud	12
Cohen & Olshtain	1993	Speaking	Stimulated recall	15

Continued

<sup>8</sup> Retrospective reports are referred to as “stimulated recall” by Gass & Mackey (2000). In the present study, “retrospection” is preferred.

<b>Author (s)</b>	<b>Year</b>	<b>Type of Data</b>	<b>Method</b>	<b>Number of participants</b>
Cohen, Weaver & Li	1995	Strategy use	Think-aloud	21
Cumming	1989	Writing	Compose-aloud	23
Davies & Kaplan	1998	Grammaticality judgments	Think-aloud (not all provided a verbal report)	26
Davies & Kaplan	1998	Grammaticality judgments	Think-aloud (not all provided a verbal report)	26
Dörnyei & Kormos	1998	Oral language production	Stimulated recall	44
Enkvist	1995	Translation	Think-aloud	47
Faerch & Kasper	1986	Translation	Think-aloud retrospection	1
Feldman & Stemmer	1987	L2 test-taking	Think-aloud Retrospection	20
Fraser	1999	Vocabulary	Retrospective think-aloud	8
Gass	1994	Acceptability judgments	Stimulated recall	small subset
Gatbonton	1999	Pedagogical knowledge	Stimulated recall Verbal report	7
Gerloff	1987	Translation	Think-aloud	5
Glahn	1980	Gender Communication strategies	Stimulated recall	26
Gordon	1987	L2 test-taking	Self-revelation/observation	na
Gosden	1996	Writing	Self-reflection/self-report	16
Goss, Zhang, & Lantolf	1994	Grammaticality judgments	Think-aloud	15
Gu	1994	Vocabulary	Thin-aloud Retrospective interviews	2
Haastrup	1987	Vocabulary	Think-aloud Think-aloud with retrospection	104
Hill	1994	L2 test-taking	Self-revelation/observation	na
Hoelscher & Moehle	1987	Translation	Think-aloud	7
Hosenfeld	1976	Grammar	Think-aloud	25
Hosenfeld	1977	Reading	Think-aloud	40
Hosenfeld	1979	Reading	Think-aloud	1
Hosenfeld	1984	Reading	Think-aloud	2

Continued

<b>Author (s)</b>	<b>Year</b>	<b>Type of Data</b>	<b>Method</b>	<b>Number of participants</b>
Huckin & Bloch	1993	Vocabulary	Think-aloud	3
Jones	1985	Writing	Stimulated recall	9
Jones & Tetroe	1987	Writing	Think-aloud	6
Jourdenais, Ota, Stauffer, Boyson, & Doughty	1995	Linguistic knowledge	Think-aloud	10
Kern	1994	Reading	Think-aloud	51
Krings	1987	Translation	Think-aloud	8
Laviosa	1991	Listening	Self-observation (immediate retrospection)	5
Lay	1982	Writing	Writing	4
Lennon	1989	Acquisition strategies	Self-report	4
Mackey, Gass, & McDonough	in press	Oral language	Stimulated recall	17
Mondahl	1995	translation	Think-aloud	10
Murphy	1989	Listening strategies	Talk-aloud	12
Neubach & Cohen	1988	Dictionary use	Think-aloud	6
Nevo	1989	L2 test-taking	Immediate introspective and retrospective reports (written)	42
Paribakht & Wesche	1999	Vocabulary	Think-aloud Retrospective interviews	20
Poullisse, bongaerts, & Kellerman	1990	Communication strategies	Stimulated recall	45
Raimes	1985	Writing	Think-aloud	8
Robinson	1991	Pragmatics/Speech Acts	Think-aloud Retrospective interviews	12
Skibniewski	1990	Writing	Think-aloud	3
Smith	1994	Writing	Thin-aloud	4
Stemmer	1991	L2 test-taking	Think-aloud and immediate retrospection (stimulated recall)	30
Swain & Lapkin	1995	Writing	Think-aloud	18
Swain & Lapkin	1998	Oral interaction	Think-aloud	35
Tomitch	1999	reading	Think-aloud and retrospective interview	12

Continued



Author (s)	Year	Type of Data	Method	Number of participants
Tyler	1995	Discourse	Stimulated recall	2
Vignola	1995	Writing	Think-aloud	17
Villamil & Guerrero	1998	Writing	Think aloud	14
Wang Wenyu & Wen Qiufang	2002	Writing	Think-aloud and retrospective interview	16
Wang Lurong	2003	Writing	Think-aloud and retrospective interview	8
Warren	1996	L2 test-taking	Self-revelation/observation	20
Zamel	1983	Writing	Retrospective interviews	6
Zimmermann & Schneider	1987	Vocabulary	Think-aloud	10

Table 3. 1 Second language studies using introspection (na= not available)

Source: Gass, S. & A. Mackey (2000), *Stimulated Recall Methodology in Second Language Research*, Mahwah, NJ: Lawrence Erlbaum Associates, Inc., p.29-35.

This table shows the increasing popularity of using introspection in second and foreign language research. It is believed to be impossible to count all projects that use this method. The increasing use of introspection suggests that introspective methods are gaining momentum every day. Such studies cover a wide variety of topics including L2 test-taking, reading, writing, listening, speaking, strategy use, grammaticality judgments, translation, vocabulary, pedagogical knowledge, and gender communication strategies.

Introspective methods are assumed to be well suited for the analysis of the subjects' considerations in connection with problem solving (Ericsson & Simon, 1987). However, it is not an entirely uncontroversial method. The data yielded from this method may differ in quality and type. The use of introspective methods originates from cognitive psychology, where it has aroused considerable controversy. In fact, many psychologists assume that verbal reports have nothing to do with causal cognitive processes. Table 3.1 proves that its use in researching language learning has increased in the last decades, although it is certain to arouse a similar amount of controversy as it becomes more widely used. Particularly contentious is the

assumption made by researchers that the verbal reports obtained through the introspection carried out by their subjects accurately reflects the underlying cognitive processes giving rise to behavior. In other words, there might be a discontinuity between what the subjects believed they were doing and what they were actually doing.

Cohen (1987a, 1987b, 1996, 1998, chapter 3) divides introspection into three categories: (1) self-report, (2) self-observation and (3) self-revelation. According to Cohen (1987a, 1987b, 1996, 1998, chapter 3), in “self-report” data learners describe what they are doing but not what they are thinking. They indulge in a form of meta-communication which usually is about the language learning situation and the personally preferred method of language learning. Self-report data tend to appear frequently in questionnaires that ask learners to describe the way they usually learn and use language. This type of study captures the more global features of the learning situation and motivation as remembered, but suffers from the disadvantages that the description can only offer a condensed version of what went on and the data cannot be verified easily. Cohen (1987a, p. 32) commented on this technique as: “... statements are usually based on beliefs or concepts that the learners have about the way they learn language, and are often not based on the observation of any specific event”.

Therefore, they are less suited to the study of specific strategies because they rarely include language data of individual utterances and the discourse constraints surrounding them. More importantly, they are highly individual and the insights cannot be generalized to other learners.

“Self-observation” data can be either introspective (within a short period of the event) or retrospective, refer to specific events, and are not as generalized as a self-report. When learners do “self-observation”, they observe their behavior instead of verbalizing thought processes (Loercher, 1991) and comment on their own performance. Here the information about specific language behavior is elicited either immediately after the event (introspection) or at any time after the event (retrospection). As pointed out by Cohen (1996, p. 13), “Self-observation implies

reference to some actual instance(s) of language learning or use. For example, entries in journals or diaries that retrospectively describe some language-learning or language-use event involving the subjunctive would count as retrospective self-observation.... Thoughts which are immediately analyzed would constitute introspective self-observation". Therefore, self-observation offers a rich enough source of information not available through think-aloud protocols alone that researchers are willing to risk in order to obtain the data.

What Cohen (1998) advocated in introspection is "self-revelation" or a "think-aloud" stream of consciousness disclosure of thought processes while the information is being attended to (p. 34). The subjects provide an ongoing report of their thought processes while performing some task. Self-revelation or think-aloud data are available at the time that the language learning or use events that are taking place, and imply that the subject is describing, for example, the struggle to use the correct form of the word, and not attempting to analyze this struggle.

Not only Cohen's (1987a, 1987b, 1996, 1998, chapter 3) arguments lay foundation for employing introspection as a research method in the experiment, but Zimmermann (1987a, 1987d, 1989a, 1989b) also provides more convincing evidence for using introspection as a research method to obtain empirical data in the study. According to Zimmermann (1987a), L2 researchers seem to share all or most of the following assumptions for using introspection:

1. Conscious mental processes can be verbalized in thinking-aloud. This implies, of course, that automatic processes below the level of consciousness can not.

2. The amount of what can be verbalized depends on the task. Abstract problem solving or reaching social value judgments may be more difficult to verbalize than language-specific tasks. Planning an L2, especially if there is an L1 source text, should be particularly well-suited for verbal reports. This should be even more the case if the verbalization task is informal and open, not including or presupposing theoretical categories and/or self-explanations, but rather yielding raw data with whose status the subjects are not concerned.

All this seems most plausible for L2 tasks of some difficulty since they necessitate a high degree of problem-consciousness.

3. With such verbally encoded information thinking-aloud protocols are not assumed to influence the thinking or planning process in its structure.

4. The more competent the subjects are, the less demanding a task is for them, the fewer relevant verbalizations can be expected of them because what might have caused conscious planning in less advanced subjects will be largely automatized and, therefore, inaccessible for reporting in advanced ones. (This may not be the case, however, for choices between alternative solutions: advanced subjects will have more options.)

5. So if (almost) everything conscious can be verbalized in L2-related tasks, this does not mean that it is confided to the tape. This is where interactional aspects have to be considered.

If subjects are insecure for some reason, if they do not feel protected by anonymity or suspect a disguised test, if they do not feel taken seriously, if there is a tension between them and the research team, or too much social distance, or if they are just ashamed of their poor overall competence, then they may just not be able to cooperate and be outspoken on the tape.

There seem to be different ways of overcoming subjects' inhibition, again depending on the task.

(Zimmermann, 1987a, p. 442)

Based on the consideration of introspection mentioned so far, it seems appropriate to adopt two introspective methods so as to be able to get as close as possible to the learners' mental procedures in solving lexical problems when translating L1 into L2. One is the think-aloud protocol and the other one is the retrospective interview. By employing think-aloud protocols and retrospective interviews in the experiment, the following data are expected to be collected:

- (1) Draft and copied versions as traces of individual planning,
- (2) Delayed retrospective interviews and immediately consecutive interviews after the translation task,
- (3) Think-aloud protocols (uninterrupted translation of a text).

### **3.1.1 The Use of the Think-Aloud Protocol**

The think-aloud protocol has been found to be particularly fruitful as a research method and has been applied widely in recent research of language learning, especially research into L2 writing. Learners are given a task that demands some form of written text production and are asked to verbalize their thoughts, which are recorded on audio cassette or video tape while completing the task. Although think-aloud protocol has been widely criticized as a research method, the number of studies to use it continues to grow. There has been an increasing interest in analyzing the translation process using think-aloud protocols as the primary research method to uncover the translator's "black box", i.e. mental activities used while engaging in translation. Different groups of subjects have been studied, including foreign language learners (Krings 1986; Lörcher, 1991), translation students (Jaaskilainen & Tikkonen-Condit, 1991), and professional translators (Mondahl, 1995). The language pairs studied to date are various, including German and English (Krings, 1986; Lörcher, 1991), and Finnish and English (Tirkkonen-Condit, 1991, 1997). Researchers have also investigated the translation process focusing on different aspects of the process, such as problem-solving strategies (Krings 1986; Lörcher 1991), cognitive planning (Hoelscher & Moehle, 1987), and affective and attitudinal factors (Laukkanen, 1996). The assumption underlying the think-aloud protocol method is that the verbalization of the learners' thoughts will not affect their producing some form of written text.

Based on the consideration of introspective methods, the think-aloud protocol is adopted as it is believed to yield rich data while other methods cannot always be relied on to produce data stemming directly from the subject's actual experience or thought processes (Seliger & Shohamy, 1989, p. 170). Since think-aloud protocol is a moment-by-moment description of an individual's thoughts and behaviors during the performance of a particular task (Gerloff, 1987), it is believed that it is useful to observe those normally invisible, as well as unconscious, processes undergone in the learners' minds. The think-aloud protocol can be used to investigate differences in the

problem-solving abilities between people, differences in difficulty between tasks, effects of instruction and other factors that have an effect on problem-solving (van Someren, Barnard & Sandberg, 1994, p. 9). Although think-aloud protocol cannot generally offer direct access to the processes we are looking for, it provides information that helps to discern underlying processes (Hoelscher & Moehle, 1987).

Using think-aloud protocol in the study, the subjects were asked to complete a translation task and verbalize their thought processes for solving lexical problems they had. Krings (1987) provided some ideas for using think-aloud protocol in translating.

Thinking aloud while translating is an almost natural type of activity to which most of the criticism leveled at verbal report does not apply....translating is often accompanied by “inner speech” as one can easily verify by self-observation or by observing the lips of a translating person when he or she is not “speaking”. One should, therefore, expect a high degree of validity for such data.

(Krings, 1987, p. 166)

However, there are some main problems with using think-aloud protocols: (1) the varied quantity and varied informative value of the data which makes the identification of procedures difficult, and, in the most unfortunate cases, leaves the analyst to infer on the basis of the procedures only (the written result of the translation task); (2) the difficulty in controlling psychological variables for thinking aloud; and (3) learners are not used to it and do not think aloud.

As these drawbacks are obvious when using think-aloud protocol for data collection, researchers usually do not rely on it alone. It is necessary to combine retrospective interview with the think-aloud protocols so as to obtain more reliable data.

### **3.1.2 Retrospective Interview**

Since think-aloud protocol has certain shortcomings, such as incomplete reporting, and protocols being difficult to interpret, this procedure is supplemented by a retrospective interview, although retrospective comments are not optimal either as

the literature indicates. Retrospective interviews are used “primarily in an attempt to explore learner’s thought processes and strategies by asking learners to reflect on their thoughts after they have carried out a predetermined activity” (Gass & Mackey, 2000, p. 37-38). It is known that the technique of think-aloud protocol is simply exploiting a universal feature of memory. Nevertheless, for most learners the task of thinking aloud and simultaneously having their thoughts recorded as they work is unusual and some may feel that it inhibits them. But it can be overcome by training the learners to do so. The purpose of collecting retrospective comments is to look into some of the statements made during the think-aloud and thus to improve the reliability of the protocol analysis. Even though retrospection is less useful than thinking aloud, adding little to the data yielded by the think-aloud method, the two techniques in combination should prove to be superior to either in isolation. This combination provides distinct advantages as Haastrup (1987) stated:

Firstly, the two sessions provide a larger quantity of data than either in isolation. Secondly, the quality of the data are improved in two ways: (1) by using informant-initiated data as the starting point and enriching them by eliciting additional information, and (2) by using pair work that invites the verbalization of thought, supplemented by deeper probing into the individual’s thought processes. By using the methods as complements, one has the best of both worlds, although for this particular study retrospection did not add a great deal of information.

(Haastrup, 1987, p. 211)

Retrospection has been criticized by a number of researchers for the gap between the event and the reporting will lead to unreliable data. It has also been claimed that if subjects know they will be required to provide a retrospective account, this will influence their performance of the task. Ericsson and Simon (1984, 1993, chapter 1) argue that the reliability of the data can be enhanced by ensuring that the data are collected as soon as possible after the task or event has taken place. If subjects are provided with sufficient contextual information, the reliability will also increase. Subjects should not be informed that they will be required to retrospect until after

they have completed the task. With respect to the translation task in the study, Krings's view (1987) of using retrospective interviews also provides evidence of implementing retrospection:

Retrospective verbalizations,..., refer to information processed at an earlier point in time; information that must be retrieved from long-term memory before being verbalized. Since the two memory types have different modes of access, one would expect the information retrieved from long-term memory not to be recalled in its original form but in a form altered by elaboration, abstraction, reduction or evaluation (cf. Norman & Rumelhart, 1975). Sometimes the information retrieved from long-term memory may not even be the original information at all but similar to it, processed at a different point in time. It is, therefore, not surprising that most previous criticism of verbal report data was made with the retrospective type of probing in mind, i.e. where the subjects had to verbalize their mental processes after completing the task. Taking these differences into account one would expect few, and quite unreliable, verbalizations from a retrospective type of probing (in the study of the translation process) where questions like "What did you think when you translated the word  $\times$ ?" might be asked half-an-hour after the event. Whereas one might expect much more, and more reliable, information from verbalizations immediately preceding or following the translation or made while searching for a possible equivalent.

(Krings, 1987, p. 165)

Even though the data are more reliable by supplementing retrospection, certain problems may occur when using retrospection such as (1) the data are only partly subject initiated; (2) it is difficult for the researcher to strike a balance between the too loose and too controlled interview; (3) learners may not remember what they have said, what they have intended to do or what strategies they have employed; and (4) learners even make up some strategies to please the researcher. Therefore, the combination of these two techniques should be superior to either in isolation when collecting data for the study.



## 3.2 The Design of the Experiment

### 3.2.1 Subjects

The study requires that the data should be collected from subjects at different proficiency levels. It was decided to divide the subjects into two proficiency groups. One group was advanced, another intermediate. In each group there would not be less than 10 subjects. In order to select the subjects and ensure the homogeneity of the two groups, a questionnaire (see appendix) was given to the potential subjects. The questionnaire covered the subjects' years of English learning, their scores on NGRE<sup>9</sup>, the place where they came from, courses that were taught by native speakers, etc, which were critical for distributing them into different proficiency groups. It was not anonymous because I had to identify those who met the experiment's criteria for selecting subjects and contact the subjects later for carrying out the experiment. Based on the questionnaire about the subjects' language learning background and language learning environment, it was confirmed that the group division was consistent with the subjects' linguistic proficiency.

To make sure that lexical strategies produced by the subjects in each of the two groups could be compared, all subjects were required to perform the same task designed for the study. The task should be difficult enough to elicit lexical strategies from both groups of learners. The proficiency level of subjects could not be set too low as they had to have enough language at their disposal to be able to complete the translation task successfully. Therefore, 38 Chinese learners of English were chosen, who majored in English language and literature full time in the department of foreign languages and literature at a Chinese university, and matched the criteria for selecting the subjects. All of them participated in this experiment voluntarily. Among them, 20 were female and 18 were male. 19 of them were in their third year of graduate study and were distributed to the advanced group according to their years of English

---

<sup>9</sup> It is called "the National Graduate Record Examination" which is held once in January or February annually before the Chinese New Year. The structure of the test includes listening, reading comprehension, use of English and writing. The total score is 100.

learning. Another 19 were in their first year of graduate study and were put into the intermediate group. The ages of the subjects were between 21 and 33. Table 3.2 gives general information on the subjects' proficiency level and age.

Proficiency level	Status	Years of English Learning	Age
Advanced	3 <sup>rd</sup> year graduates	13	25-33
Intermediate	1 <sup>st</sup> year graduates	10	21-25

Table 3. 2 Information on the proficiency levels and the ages of the subjects in the two experimental groups

Regarding the years of English learning, it is necessary to mention that the time of secondary school education is included. In China, the secondary school education takes 6 years. University education is 4 years and graduate study takes 3 years. Therefore, this table shows that the proficiency level of the subjects is sufficiently distinct from each other so that it is possible to compare the results from both groups.

### **3.2.2 Criteria for Selecting Subjects**

The subjects for carrying out the translation task were selected on the basis of certain criteria set beforehand in order to guarantee as much consistency as possible in the two proficiency groups: (1) The subject's general linguistic proficiency, (2) English language learning background, (3) the NGRE score and (4) teacher's judgments.

#### **3.2.2.1 The Subject's Linguistic Proficiency**

The linguistic proficiency level of the subjects played an important role in selecting subjects for the experiment. Two groups of proficiency, intermediate and advanced took part in the experiment. The subjects who have been learning English for 13 years (including secondary education) were assessed as advanced level while those who have been learning English for 10 years (including secondary education)

were distributed to the intermediate group. Years of English learning did not include elementary education because English learning usually starts during the secondary education phase in China. The only exceptions are coastal and developed areas where schools offer English learning courses during the elementary education phase. Compared to the average learning time in the whole country, the population learning English at elementary school is quite small.

At the time when the data were collected, the subjects in the advanced level group were in their third year of graduate study. They were preparing for their theses and graduation from university. They were required to submit their theses in English. The subjects in the intermediate group were in their first year of graduate study. They were taking fundamental courses for first year graduates offered by the foreign languages department of the university. All the subjects, no matter where they were from, had to pass a nationwide English examination established by the Education Commission of the People's Republic of China in order to be enrolled in the graduate program. In addition, they had to succeed in the subject examinations set by the department of the university. The nationwide examination usually is quite competitive due to the limited number of university places. Although the subjects came from different places in China with various backgrounds of foreign language learning, their English courses were very similar to each other throughout the country. None of the subjects had ever been to a foreign country but they all had native speakers of English teach them oral and written English and had attended some other optional courses offered at their universities.

Since the subjects' proficiency level was high enough, they were believed to produce effective strategies and to be competent enough to complete the task successfully.

### **3.2.2.2 English Language Learning Background**

The subjects chosen for this experiment actually had the same English language learning circumstances no matter where they came from. In their EFL instruction, they

had equal exposure to English through textbooks authorized by the government education office, similar teaching methods and standardized examinations organized by local, provincial and national education offices. During their education at school and university, they had received classroom instruction in English for 4 hours a week over a mean period of 6 years at the compulsory stage and 16 hours a week over a mean period of 4 years at the university stage. English learning at the compulsory stage is usually considered insufficient for the students to be able to communicate. They have only some knowledge of English but not an adequate ability to communicate since they do not have any opportunity to contact native speakers. Thus, when we talk about the English learning time, we usually only count the university period. But in this study, the hours at the compulsory stage are counted even though it is believed that the English learning time at compulsory stage does not affect the linguistic proficiency very much. English classes at university level do have an effect on the development of the learner's language ability, especially for those who major in English. When the English learning time is put together, all subjects in the two groups have an average time of English language learning of over 10 years but, as already mentioned, elementary and secondary learning does not actually have much effect on the students' language ability.

The subjects who learned English before entering university did not have a chance to talk to native speakers of English although they had some exposure to English. They have studied together with native speakers of English only at university. Their exposure to native speakers of English was very similar. Usually the native speakers of English teach them speaking and writing four hours per week. Most of their English exposure is still to English teachers of Chinese origin. When Chinese teachers instruct, the working language is largely Chinese instead of English. Therefore, the learners' exposure to native speakers of English is limited.

Even though the subjects for this task came from different places in the country with various dialects, they all speak standard Mandarin Chinese as their first language in the communities where they used to live. Furthermore, local vernaculars are believed to closely resemble Mandarin Chinese in terms of typology.

### **3.2.2.3 Scores on the National Graduate Record Examination**

The subjects' scores on the National Graduate Record Examination played an important role for selecting subjects to participate in the experiment. The reliability and validity of the examination are high. It has been found to discriminate well between Chinese learners of English. This examination, very similar to TOEFL<sup>10</sup> and IELTS<sup>11</sup>, is held by the National Examination Center for selecting graduate study candidates at universities. The NGRE consists of four parts assessing the participants' listening comprehension, use of English, reading comprehension and writing ability. The total possible score is 100. The time required to complete the examination is 150 minutes.

The subjects were not tested again with the old test papers released by the examination center of the previous years. They were given a questionnaire on which they also wrote down their scores of the NGRE. It was found that the average score of all subjects on their NGRE was 69.75 without considering the proficiency groups they belonged to. This was done because the universities throughout the country only admitted the students if they passed this test, apart from considering their scores on the tests of their major courses. By the time when the data were collected, the subjects' scores on the NGRE in the advanced group were three years old while the scores' of the subjects in the intermediate group had been only one year. Even though the scores on the NGRE were recorded at different times, the validity and reliability of the test were believed to be equivalent. They do not fluctuate as time goes by since the test was to examine the proficiency of the participants with reference to TOEFL and IELTS, which are standardized written tests of proficiency of English for foreign students who want to apply for the admission to universities in the USA, the UK, or other countries.

---

<sup>10</sup> TOEFL is held 4 times annually by the authorized test centers in Chinese universities.

<sup>11</sup> IELTS is organized by the Cambridge Local Examination Syndicate for testing the English language proficiency of foreign students who apply for the admission to universities in the UK or other universities in the English speaking countries who accept IELTS as an English language ability confirmation. In China, this examination is held by the authorized Chinese universities via the British Council.

### **3.2.2.4 Teachers' Judgments**

Although the fundamental proficiency level of the subjects was determined by the years of their English learning time and their scores on NGRE, it was still not sufficient enough to distribute them into different proficiency groups. In this case, the teachers' judgments were employed, based on the premise that they were quite familiar with the subjects' English abilities. Two teachers agreed to help judge the proficiency level of the subjects. One teacher was a Chinese professor who taught a course on translation. The other was a native speaker of English from the United States of America who was teaching western literature critique at the time of the data being collected. The teachers' judgments were based on the examinations and the quality of term papers the subjects had submitted. By the time the teachers' judgments were collected, both teachers had taught the subjects for at least two semesters and evaluated either their examinations or term papers. Both teachers evaluated the subjects orally with the name list offered since they have known the students for a while. The teachers' assessments were written down and then used to divide the subjects into two proficiency levels. The teachers were asked to indicate for each subject whether his or her general proficiency was "average" or "good" and group the subjects accordingly. Even though both teachers ranked the proficiency order of the subjects differently, they put the third year graduate students into the advanced group and the first year students into the intermediate group, which concurred with the design of the experiment. Therefore, the distribution of the proficiency groups on the basis of the criteria set for choosing subjects was reasonable and acceptable.

### **3.2.3 Translation Task**

A translation task was designed for collecting empirical data for the study. In order to obtain effective lexical strategies employed by Chinese learners of English whose L2 proficiency should be high enough to complete the designed task, all subjects were asked to translate the same Chinese text into English without using any dictionaries. Translating from L1 into L2 in written form without using dictionaries

has various advantages as Zimmermann (1987a) has pointed out:

- The intended meaning can usually be regarded as given for the translator.
- Lexical problems are often such that they necessitate (potentially) conscious planning, at least in texts of an advanced level.
- Subjects have enough time for fairly elaborate lexical strategies.
- Consequently, (some of) the interior processes during translations can be verbalized, thereby adding evidence to the results alone.
- In addition to these assumed advantages, ... the hypotheses that the strategies applied in solving lexical problems in written translation are in principle and quality very similar to those shaping lexical approximations in oral communication in an L2.

(Zimmermann, 1987a, p. 441)

### **3.2.3.1 Text in the Trial Session**

The selection of the Chinese text went through two rounds so as to get a suitable text for learners of both groups to translate that would force learners of proficiency levels to apply lexical strategies. The first round of the Chinese text selection was considered as the trial session. The second round of selecting the text was regarded as the real round for data collection in the study. The text was designed to be difficult enough, especially containing difficult words which would oblige the subjects to make an effort although their linguistic proficiency level is already high enough. Nevertheless, the content was not unfamiliar to the subjects.

As to the design of the experiment, the Chinese text used for data collection should result in an L2 text of comparable length and vocabulary verification, and also reflect the varying linguistic proficiency of the learners, intermediate and advanced. A trial round for selecting a Chinese text was carried out among the fourth year university students in order to test if the selected text appropriate for the experiment. A passage was excerpted from a classical Chinese novel "Dream of the Red Chamber" for the university students to translate. 34 fourth year university students took part in

this trial. The result of the trial session was not satisfactory, as the translation did not produce the expected results because the novel was well known among many Chinese people, even though it was written in classical Chinese. The story has been very popular for many centuries. The translated version of the subjects did not contain many lexical strategies because the drafts were so clean that they could not provide any clues for eliciting lexical strategies. Another point was that the subjects did not think aloud since they were not trained to think aloud when doing the translation. Therefore, the text excerpt did not yield useful information for the data analysis. The text used in this round was discarded and the selection of the Chinese text went into the second round, or the improved round namely.

### **3.2.3.2 Text in the Improved Round**

Since the trial round failed to obtain the expected results due to the inappropriateness of the Chinese text, another round of text selection was launched so as to obtain the expected information for data analysis. The text selected in this round was a newspaper article, which was unknown to the subjects. The text was subjected to a few changes: it was abbreviated, but the syntax remained unchanged. The text was chosen from a Singapore bilingual newspaper (August 11, 1998, *Lian He Zao Bao*). It was in Chinese and English. The excerpted text contained 249 words, among which 76 were function words and 173 content words. The content of the material was evaluated as not to be too familiar to Chinese learners but a little difficult, particularly some words which needed some effort to translate. The English version of the article was to be compared with the learners' translated version so as to determine strategies that the learners had used when translating. However, the newspaper translation did not help to clarify the strategies to some extent since it was translated loosely. I translated it into English almost literally. Then a German version was done by a German speaker<sup>12</sup>, who is a Chinese lecturer in the Chinese Institute at the

---

<sup>12</sup> I would like to express my gratitude to Jens Hürter, from the Chinese Institute at the Philipps-University Marburg. He lectures Chinese history in both German and Chinese. His generous help greatly aided in my research.



Philipps-University Marburg. On the basis of the German version, the text was translated into English by a native speaker of English<sup>13</sup> at the Philipps-University Marburg as an optimal version for clarifying lexical strategies.

Since the optimal English version of the Chinese text was referred to as a reference to identify the lexical strategies accordingly, it was expected that the content of the Chinese text should induce the learners of English to produce a text in L2 of comparable length and vocabulary use. The L2 text produced should also reflect the varying linguistic proficiency of the learners of English. As translation demands a version as close to the original as possible, the number of choices among available linguistic devices is restricted because the act of translation provides an ideal “window” on to both comprehension and production components of language use. Anyone translating a text is obliged both to understand what is written (the comprehension component to the process) and to subsequently reproduce it into their own words (the production component) (Gerloff, 1987, p. 137). Both elements must be present in order to obtain an effective use of lexical strategies from the Chinese learners of English.

### **3.3 The Experiment**

Once the Chinese text was decided upon and the subjects were also chosen, the preparation work had been done. The experiment was executed. The following stages were included in the experiment and each stage had specific aim(s):

Stage 1: Creating a relaxed atmosphere

Aim: To make the place where the experiment took place not very experimental. The subject should feel at ease when performing the task required.

Stage 2: Explaining the task

Aim: To let the subjects know how to do the task appropriately so as to obtain useful and expected information as much as possible.

---

<sup>13</sup> Here I would like to thank Ms Madeleine Kinsella of the Institute of English and American Studies at the Philipps-University Marburg. She translated this text based on Jens' German version.

### Stage 3: Training and practicing the think-aloud technique

Aim: (1) To tell the subjects what think-aloud protocol is and how to think aloud while performing the task.

(2) To make the subjects understand the requirements of the experiment and think aloud accordingly to obtain useful information for data analysis.

### Stage 4: Pilot Round Study

Aim: (1) To test the suitability of the selected Chinese text.

(2) To find out if the subjects can think aloud appropriately.

(3) To discover the suitable time for implementing retrospective interview.

(4) To decide if the time should be limited for doing the experiment.

### Stage 5: Real Round Study

Aim: (1) To compare the results of different proficiency groups.

(2) To elicit lexical strategies employed by L2 learners.

(3) To establish transcription convention.

### Stage 6: Carrying out the retrospective interview

Aim: To supplement the think-aloud protocols in order to increase the reliability of the data collected.

### Stage 7: Transcribing and coding the data

Aim: To process the data so as to determine lexical strategies applied by Chinese learners of English in the study.

### Stage 8: Ranking the translation quality

Aim: To reveal whether the proficiency level corresponds to the translation competence as commonly expected.

With reference to the stages of the experiment, the experiment was carried out accordingly.

### 3.3.1 Creating a Relaxed Atmosphere in the Office

When the experiment was launched, a relaxed atmosphere was created in the room where the experiment actually took place in order to make the subject feel at ease when doing the translation task. The think-aloud protocols and the retrospective interview were implemented in the same place. When the subject came in, I greeted him or her and talked about university life for a while so that they could feel relaxed while talking with me. I offered the subject a cup of tea because in the case of thinking aloud, it is assumed that an experiment is going to take quite some time and will be tiresome for the voice and throat of the subject. Each time, I gave the subject a pen as a souvenir. There was a soft chair in the room that the subject could sit on when he or she did the task. Draft paper was prepared so that the subject did not need to use his or her own paper. Before I told them, they did not know what they were going to do. Therefore, the atmosphere was not experimental. The setting of the room was shown in Figure 3.1.

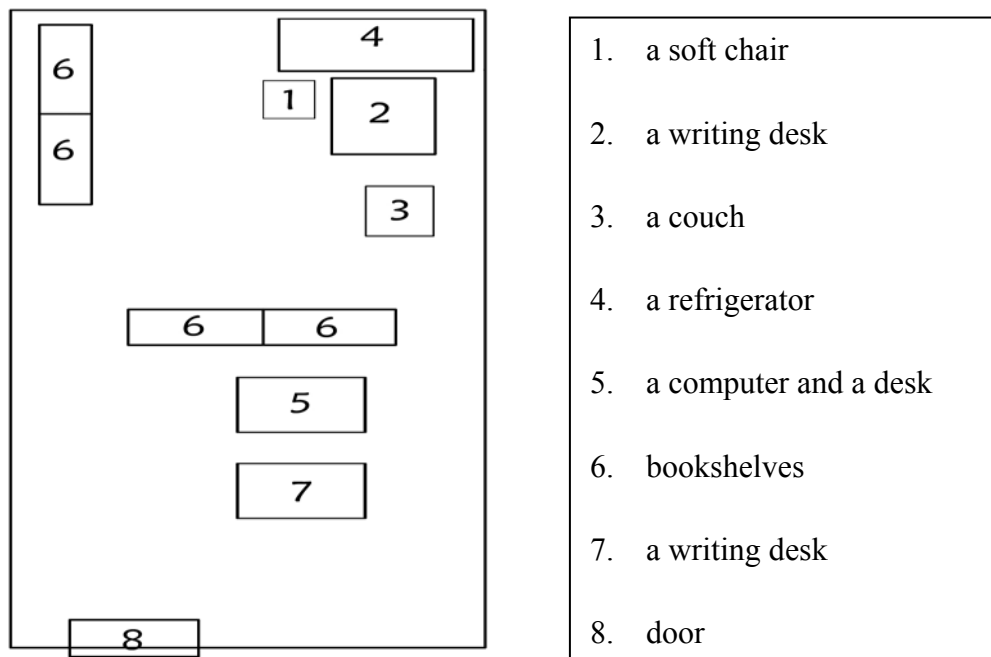


Figure 3. 1 A picture of the room where the experiment took place

### **3.3.2 Explaining the Task**

Before the task started, I explained it to the subjects and told them not to tell anybody else about it. I also promised that I would not show the result of the task to any other teachers, particularly those who were teaching them at the time when the experiment was implemented. Therefore, their anonymity was guaranteed. I told the subjects to translate a Chinese text into English and that they would work alone. They could not use any dictionaries especially online dictionaries to help them, since there was a computer in the office with internet access, or ask for any help from outside using the telephone in the office. Availability of dictionaries might have caused the subjects to resort to more L1 use because there would have been less necessity to aim at L2 solutions. After I made sure that the subjects understood what they were supposed to do, I left them alone and waited in another office.

### **3.3.3 Training and Practicing Think-Aloud Technique**

Since introspection has been chosen as a research method and based on the failure experience in the trial session of the text selection, it was necessary to train the subjects the method of thinking aloud. Regarding training the subjects to think aloud, there are different schools of thought as to whether training should be given or not. Faerch and Kasper (1987) and Dechert and Sandrock (1986) felt that training did not inhibit the range of verbalizations, rather to the contrary it could enrich them. Some Chinese researchers also advocate training the subjects to use the think-aloud method in order to collect data investigating the L2 writing process by Chinese learners of English. Wang Wenyu and Wen Qiufang (2002) trained 16 Chinese EFL writers to think aloud in order to investigate the L1 use in the L2 composing process. Wang Lurong's (2003) participants were trained to think aloud so as to find out the switching to first language among Chinese writers with differing second language proficiency. Other researchers (Krings, 1987; Smith, 1994, chapter 3) believe that it is not necessary to train thinking aloud. As pointed out by Smith (1994, p. 51), "no training in thinking-aloud was given in order to avoid the potential danger of the

students restricting their “thoughts” to the type they had seen modeled”. In most experiments, instructions and training should be distinguished. In many experiments, participants are generally provided with some form of instruction even though these instructions are usually brief. However, both instructions and training are clearly important. It is believed that online recalls, or think-alouds, are more difficult to carry out without training. When asked to vocalize their thoughts during a task, many people need some practice as well as a model to follow. Adequate direction is often needed to keep participants on track. Ericsson and Simon (1987) claimed that participant training did not affect the validity of the verbal reports and in effect only served to increase completeness. Gass and Mackey (2000) point out that it is necessary to be particularly vigilant about introducing potentially confounding input variables in the L2 context.

The training effect and the effect of memory interference on the recall data are both important issues that should not be underestimated and should be the focus of methodological investigation. In the absence of such detailed empirical work, it seems safe to say that participants should be trained if pilot studies have shown that they need such training in order to provide recalls and that the minimum training necessary should be provided to avoid influencing or affecting the subsequently recalled data.

(Gass & Mackey, 2000, p. 52)

The case of the present study proved that it was necessary to train the subjects how to think aloud and comment on recalls in order to obtain effective data. The selection of a Chinese text during the trial round and the pilot round of data collection illustrated the necessity of training subjects in thinking aloud.

I had a trial round for data collection with fourth year university students in order to find out whether the subjects could think aloud. The subjects were required to translate an excerpt from “Dream of the Red Chamber”, a classical Chinese novel very well-known by Chinese people into English. When they finished the task, I asked them if they spoke out their ideas or murmured their thoughts. None of the subjects did so because the subjects did not know how to think aloud. It seemed necessary to

train the subjects to do so.

In the pilot round, the experiment design was improved. Each time before the task was started, I asked them if they knew the method of thinking aloud. I introduced think-aloud protocols to the subjects. Before the task started, I told them to speak out or murmur whatever they had in their minds. I showed the subjects how this method worked. I did think-aloud once. Then I asked the subjects to practice it again until they could think aloud.

### **3.3.4 Pilot Round Study**

14 subjects participated in the pilot round study. They translated the text with a time limit of 50 minutes. When they did the translation task, they were given the instructions for the experiment. They were asked to submit their drafts when they had finished the task. They were trained to think aloud and not to use any reference aids, including online dictionaries when they translated. When the time was due, I came in and stopped the machine (Mini-Disc recorder). Retrospective interviews were carried out about half an hour after they had finished the task. Seven retrospective interviews were collected.

Data collected in this round was counted for data analysis. All 14 drafts were collected but only 12 think-aloud protocols were effective because two of the subjects did not say anything even though they were trained how to use this method. During this round of data collection, each subject was required not to tell anybody else anything about the experiment. It seemed that all subjects did follow the instruction because none of the subjects knew the content beforehand. It also turned out that it is better not to limit the time when the subjects did the translation task so that they could completely finish the task.

### **3.3.5 Real Round Study**

On the basis of the findings in the pilot round, the translation task in the real round was improved and adjusted so as to collect more effective and valid information. Instructions for the experiment were provided when the subjects started to do the translation task. There was no time limit. In this round of data collection, 24 subjects worked on the task as long as they could until they thought they had successfully finished. Each subject was asked to submit his or her draft and final copy of the translation. In the end, 22 think-aloud protocols and 24 final copies were collected. Retrospective interviews were implemented right after task performance. 23 were valid except one which was not recorded due to technical problems.

The material that the subjects were required to translate was the same used in the pilot round. The subjects were prepared in the same way as those in the pilot round. During this period, the subjects were asked to do the translation task individually and were required not to tell anybody else what he or she had done for the experiment because somebody else would be called for the experiment. In the end, it seemed that none of the subjects knew the content of the task beforehand. The subjects' anonymity was guaranteed in this way.

When the think aloud protocol was executed, the subjects were given an MD (Mini-Disc) machine for recording their think-aloud protocols. A microphone was installed in order to record the subjects' voices as clearly as possible. In order not to disturb the subjects during the task, I was not present in the room. The subjects stayed alone. In the pilot round, the subjects were instructed to finish the task within 50 minutes without submitting a final copy. In the actual experiment, the subjects were required to submit both drafts and clean copies without any time limit.

### **3.3.6 Carrying out the Retrospective Interview**

In order to increase the validity and reliability of the think-aloud protocols, retrospective interviews were implemented. In the pilot round it was a delayed retrospection because retrospective interviews were carried out about half an hour

after the task was finished. In the real round, the retrospective interviews were conducted immediately after the subjects completed their protocols. Both rounds of retrospective comments were taken into account for data analysis. The purpose of implementing retrospective interviews was to supplement the think-aloud protocols for collecting more reliable data. According to the literature reviewed in the previous sections, it has been found that only think-aloud protocol alone is not reliable enough to illustrate the findings of the experiment. When two methods are combined, the reliability will be increased.

Due to cultural differences, it is commonly believed that being asked to introspect is particularly difficult for Chinese L2 learners. In Chinese culture, the teacher or native speaker is considered the expert. Challenges to authority are not encouraged. When the subjects were asked to introspect about their actions after a teacher's procedural direction, some subjects might have felt uncomfortable conveying to researchers that they did not follow a teacher's instruction. If the subjects admitted not to follow a direction, even with this sort of motivation, it might be considered a direct challenge to the teacher's authority and it made the subject feel uneasy. Therefore, when retrospective interviews were carried out in the experiment, the subjects were put at ease. The subjects were not asked to do something very difficult or unnatural. I helped the subjects provide recall comments without challenging their preconceived notions of appropriateness and without leading them. The interviews were carried out in native language rather than a foreign language so both the subjects and I would feel at ease. As it is known, there are some variables and pitfalls when collecting retrospective data. The importance of careful preparation for carrying out retrospective interviews cannot be overemphasized.

### **3.4 Processing of the Data**

Once the data were collected, it was time to process the data. The stages of the processing of the data were largely motivated by Seliger & Shohamy (1989, chapter 9) but were modified to some extent in order to adapt to the experiment. The stages are



shown as follows:

- Stage 1: Establishing transcription conventions.
- Stage 2: Written transcriptions were made of the think-aloud protocols for each subject. All protocols and retrospective data were coded using transcription conventions.
- Stage 3: The protocols were carefully reviewed and notes made relating to processes involved in answering research questions.
- Stage 4: A comprehensive list of all strategies, processes, and information relevant to the research questions was compiled. The list was analyzed in an attempt to collapse and combine certain categories. A finite group of categories and subcategories was formulated. These categories then became the criteria by which each of the protocols was analyzed.
- Stage 5: Descriptive statistics (frequencies and percentages) were computed for each of the categories. (In this phase it is not always possible to observe or infer information in all cases. Intensive probing of a reluctant respondent would result in invalid information.)

### **3.4.1 Establishing the Transcription Rules**

Since all protocols need to be written down, some rules were set up for transcribing the think-aloud protocols and the retrospective data. Certain symbols were employed to mark pauses, repetitions, rising intonation, laughs and coughs in transcribing the data. Therefore, the transcription rules were established so as to process the data. Table 3.3 shows the transcription rules.

Transcribing conventions	Transcription codes
<p>(.X) = seconds</p> <p><b>Underlined letters/syllabus</b>= emphasized words or syllabuses exceptionally or irregularly stressed ones</p> <p><b>Capital letters</b> = spelling</p> <p><b>Repeated letters</b> = lengthened sound</p> <p>↗ = question</p> <p>/ / =exceptional or incorrect pronunciation</p> <p>/.../ = not clearly audible or omitted</p> <p>Paralinguistic features</p> <p>Reading</p> <p>Writing</p>	<p>Pause: value</p> <p>Emphasis: underline appearance</p> <p>Orthographic check</p> <p>Vowel stressed: emphasis</p> <p>Intonation: rise</p> <p>Omission</p> <p>Laugh</p> <p>Sigh</p> <p>Cough</p> <p>Whisper</p> <p>Throat clearance</p> <p>The original text is read.</p> <p>The sound of writing</p>

Table 3. 3 Transcription rules

### 3.4.2 Coding the Protocols

With these transcription rules, all think-aloud protocols and retrospective interviews from both rounds were coded. The transcription was orthographic and followed the format that the first line was think-aloud protocol, the second line a literal translation from Chinese into English and the third line the clarification of lexical strategies. Since the Chinese writing system is different from English, the presentation of Chinese words in the protocols was in PIN YIN without marking tones and put into square brackets. The part of speech of each morpheme was indicated in the right-bottom of the word. When morphemes were combined and became one word, the part of speech was indicated outside of the square bracket on the right-bottom.

Those articulations that were not related to the content of the text were indicated in italicized words but without indicating the part of speech. Literal translation underneath each Chinese morpheme was indicated in italicized words. Special care was taken to mark pauses, repetitions, rising intonation, laughs and coughs, or other paralinguistic features as these might be significant for the identification of the strategies. All protocol lines were numbered so as to make it easier to refer to the original transcripts when necessary. The transcriptions were typed up and saved on a computer in an A4 landscape layout. The following is an example of data coding:

- 1 (reads) [ai<sub>v</sub> guo<sub>n</sub> zhu<sub>adj</sub> yi<sub>n</sub>]<sub>n</sub> ai [ai<sub>v</sub> guo<sub>n</sub> zhu<sub>adj</sub> yi<sub>n</sub>]<sub>n</sub> [ai<sub>v</sub>  
*love country main meaning interj. love country main meaning love*  
 REP REP
- 2 guo<sub>n</sub> zhu<sub>adj</sub> yi<sub>n</sub>]<sub>n</sub> (reads) ai ya (.27) [ai<sub>v</sub> guo<sub>n</sub> zhu<sub>adj</sub> yi<sub>v</sub>]<sub>n</sub> [ai<sub>v</sub> guo<sub>n</sub>  
*country main meaning interj. love country main meaning love country*  
 REP REP REP
- 3 zhu<sub>adj</sub> yi<sub>n</sub>]<sub>n</sub> (.3) [ai<sub>v</sub> guo<sub>n</sub> zhu<sub>adj</sub> yi<sub>n</sub>]<sub>n</sub> (.4) [ai<sub>v</sub> guo<sub>n</sub> zhu<sub>adj</sub> yi<sub>n</sub>]<sub>n</sub>  
*main meaning love country main meaning love country main meaning*  
 REP REP REP
- 4 (.19) [ai<sub>v</sub> guo<sub>n</sub> zhu<sub>adj</sub> yi<sub>n</sub>]<sub>n</sub> love country (.14) (writing) [ai<sub>v</sub> guo<sub>n</sub> zhu<sub>adj</sub>  
*love country main meaning love country main*  
 REP RELEX / COMP REP
- 5 yi<sub>n</sub>]<sub>n</sub> dooctrine (.2) [nei<sub>n</sub> han<sub>v</sub>]<sub>n</sub> [nei<sub>n</sub> han<sub>v</sub>]<sub>n</sub> shi shen me ya □ ai  
*meaning inside include inside include is what part. interj.*  
 L2 REL CON REP REP DEFICIT
- 6 [nei<sub>n</sub> han<sub>v</sub>]<sub>n</sub> (.20) (reads) [bian<sub>v</sub> qian<sub>v</sub>]<sub>v</sub> yong change [bian<sub>v</sub> qian<sub>v</sub>]<sub>v</sub> yong  
*inside include change move use change move use*  
 REP RETR REP
- 7 change bi jiao hao ba (.90) patriotic (sighs) (.29) patri\_\_\_ (.3) (reads)  
*compare than good interj.*  
 RETR DEFICIT FO VAR FO VAR
- 8 patriotic (.3) doctrine (.33) of patriotiiotic /.../ (sighs) [gan<sub>v</sub> qing<sub>n</sub>]<sub>n</sub> (reads)  
*feel emotion*  
 FO VAR L2 REL CON FO VAR

### 3.4.3 Translation Quality Ranking

All translations done by the subjects in both rounds were ranked and ordered by a Chinese speaker and a native speaker of English. The purpose of doing so was to

find out whether the translation quality corresponds to the proficiency level besides lexical strategies. It was expected that the evaluation was not based on the proficiency level of the groups but as a relative whole. The results of the translation quality ranking will be discussed in chapter 5.

### **3.5 Summary**

This chapter has described the experiment designed for collecting empirical data to provide a foundation for answering the research questions of the study. The experiment was implemented through using introspection as a research method. The design of the experiment was described in detail so as to offer a clear outline of data collection. When the experiment was carried out, it fulfilled certain stages with specific aims. The data were processed to provide a basis for data analysis and discussion. Learners' translation outputs were evaluated by a native speaker of English and a Chinese speaker in order to find out whether the learner's translation competence corresponds to the proficiency level. In the following chapter, a taxonomy of lexical search strategies developed by analyzing data collected for this study is presented and discussed.

# Chapter 4 A Taxonomy of Lexical Strategies

This chapter presents a taxonomy of lexical search strategies developed by analyzing data. Section 4.1 will show the identification of lexical strategies based on existing literature, most notably Zimmermann (1989b) and Poulisse, Bongaerts and Kellerman (1990, chapter 6) but conceptually reorganized. The identification of lexical search strategies is described referring to think-aloud protocols, retrospective interviews, drafts and clean copies collected as data in the study. In section 4.2 the taxonomy will be demonstrated on the basis of illustrating the identification of lexical search strategies. Examples are provided for describing the identification of strategies and the taxonomy where necessary. Since the focus of the study is on the strategies learners use to solve lexical problems rather than error analysis, the examples given in the presentation “are deviant in some way, but nevertheless ‘errors’ should only be regarded as one kind of ‘solutions’”. This is another reason for calling them approximations: lexical approximations, as grammatical ones, can be correct by chance, ‘covert lexical errors’ in other words” (Zimmermann 1987c, p. 58).

## 4.1 Identifying Lexical Search Strategies

It is known that “it is easy to decide that speakers engage in a variety of strategies in order to communicate. It is not easy to decide how to identify when strategies have been used, what the strategies are, and why it is that they work (or do not work)” (Bialystok, 1990, p. 14). Therefore, before describing the nomenclature in the study, it is necessary to consider how lexical strategies are identified in the study on the basis of the data collected.

### 4.1.1 The Identification on the Basis of Think-Aloud Protocols

Think-aloud protocols, imperfect as they might be, are undoubtedly useful to uncover at least a part of the learners’ mental activities. The reason why think-aloud protocols are chosen as a base for identifying lexical strategies lies in their reliability.

#### **4.1.1.1 The Reliability of Think-Aloud Protocols**

Although there are only a few studies on the reliability and consistency of think-aloud protocols, Ericsson & Simon (1987) draw on some tentative generalizations from the studies examined and testify to the reliability of verbal reports. In order to ensure the reliability of the think-aloud protocols collected in this study, some safeguards were established. (1) Subjects selected for the research participate in the experiment voluntarily and their anonymity is guaranteed. In order to encourage subjects to be truthful in their responses and to minimize the chances of subjects intentionally supplying data they believe is being sought, the purpose and the method of the data collection used in the study are introduced clearly to them, especially what the subjects are required to do in the experiment, what will happen to the data, and how their anonymity will be ensured during and after the study. (2) Subjects are selected with certain criteria set beforehand. Special attention is paid to avoid generalizations of findings on the grounds that virtually all social and behavioral phenomena are context-bound. Thus it is not possible to come up with 'truth' statements that have general applicability. The descriptive statements and interpretation of a given context are content. However, findings may be transferable to a similar context. Towards that aim, criteria are employed in selecting test subjects, rather than seeking subjects who are representative or typical of a group. (3) Different methods such as questionnaires, interviews, and the analysis of documents are used. A native speaker of English and a non-native speaker of English are also asked to assess the subjects' translation quality. (4) Subjects are not interrupted while doing the performance task. Since an inquiry can be affected by a bewildering array of interlocking factor patterns and therefore pose formidable problems of interpretation, prolonged engagement is employed in order to overcome, as far as possible, distortions produced by the researcher's presence and to give the subjects opportunities to test their own biases and perceptions, as well. (5) A (near-) natural situation is created for experimenting. The experiment situation is kept as close to the subjects' 'normal' environment as possible. Any external interference or change

caused by the study is kept to a minimum. Van Someren, Barnard and Sandberg (1994, p. 41) believe that “the first thing to do when one wants to get a subject to think aloud is to make sure that the setting is such that the subject feels at ease. The subject should be settled comfortably”. (6) The description of the experiment is reported in detail. In order to enable judgments about how well the research context fits with other contexts, the descriptive data such as a rich and extensive set of details concerning methodology and context, is reported in the description of the research design. These safeguards for the reliability of think-aloud protocols on which the identification of lexical strategies depends in this study are roughly summarized in table 4.1 as follows:

<b>Research Stage</b>	<b>Safeguards of Reliability</b>
Data collection	Voluntary participation Anonymity assurance Subjects selection criteria Variety of methods Prolonged engagement (Near-) Natural situation
Data report	Detailed description
Application	Refrain from generalizing

Table 4. 1 Safeguards for the reliability of think-aloud protocols

#### **4.1.1.2 Using the Structure of Lexical Search**

In this project, Zimmermann’s (1989b) lexical search structure is adopted to identify the strategies used by the test subjects. In terms of lexical search structure, Zimmermann (1989b) illustrates both systematic and non-systematic aspects of lexical search that provide clues for identifying the strategies of lexical search for Chinese learners of English. The four levels of lexical search Zimmermann (1989b, p. 17) postulates are as follows:

- (1) Rounds: each renewed attempt to translate a whole text or passage is called a round.

- (2) Sequences: each attempt to find a solution to a (lexical) problem from its first recognition to the solution inside a round, whether interrupted by other problems or not, is called a sequence.
- (3) Turns: each continuous attempt to solve a (lexical) problem that is not interrupted by other problems, and not abandoned or postponed, is called a turn.
- (4) Moves: each instance of the application of a particular lexical strategy inside a turn as well as other ways of dealing with a problem, like meta-linguistic considerations, is called a move. Obviously some moves can reappear inside higher levels.

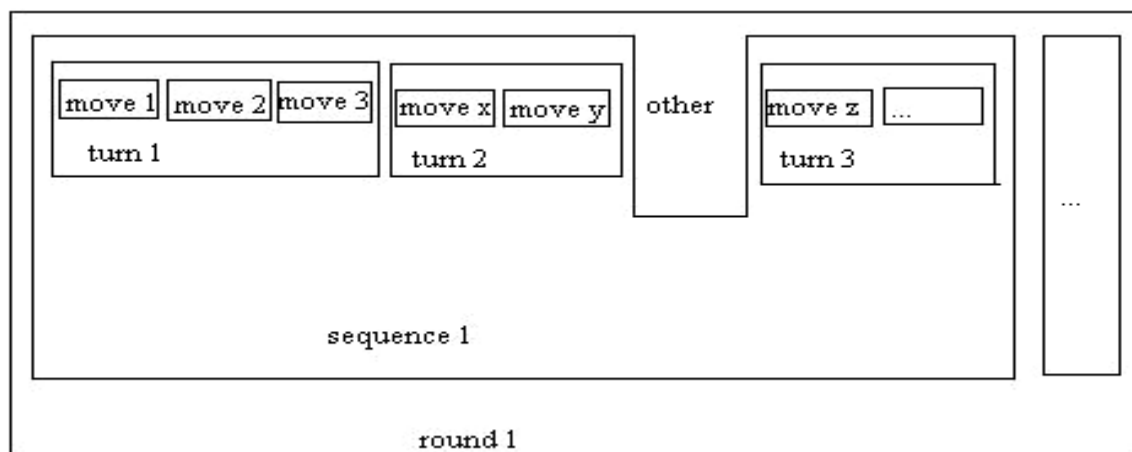


Table 4. 2 Levels of search

Source: R. Zimmermann, (1989b), "Introspective Evidence for Strategies of L2 Lexical Search", in J. Arabski (ed.), *Papers from the 2<sup>nd</sup> International Conference on Second/Foreign Language Acquisition*, Wroclaw: Ossolineum, p. 18.

Although Zimmermann's (1989b) structure of lexical search provides some clues for identifying lexical strategies in the data collected for the present study, it is not completely sufficient to illustrate the identification of the strategies used by Chinese learners of English. However, by combining Zimmermann's (1989b) theory with Poulisse, Bongaerts and Kellerman's (1990, p. 93-95) ideas of using strategy markers it is possible to recognize the strategies applied by Chinese learners of English more effectively.



### 4.1.1.3 Using Strategy Markers

Think-aloud protocols provide information about the subjects' thought processes that could not be obtained by simply looking at the results. The protocols give data about strategies and the knowledge the subjects use to solve lexical problems when translating. With respect to identifying strategies by using think-aloud protocols, strategy markers, also called "problem indicators" or "indicators for lexical insecurity" (Zimmermann, 1992a, p. 301), play an important role in the identification stage of most studies of communication techniques. Poulisse, Bongaerts and Kellerman (1990, p. 93) focus on implicit signals of uncertainty, such as filled and unfilled pauses, repeats, corrections, rising intonation, false starts, drawls, laughs and sighs in order to identify compensatory strategies used by Dutch learners of English without considering explicit and direct appeals for assistance since they are quite straight forward. Zimmermann (1992a) classifies 20 categories of indicators for lexical insecurity based on three points of view:

Which components of (lack of) lexical knowledge (in the sense of Ringbom 1987) can a phenomenon be indicative of? (2) To what — if any — extent can the occurrence of an indicator be classified unambiguously? (3) Since indicators of insecurity usually do not occur in isolation during a lexical search process, what typical combination of them can be observed?

(Zimmermann, 1992a, p. 301)

Zimmerman (1992a) further indicates that "the indicators of insecurity must be seen as forming a scale from covert to more or less overt and finally to completely explicit aspects of lexical insecurity. *Covert* refers to more or less 'normal' phenomena as we know from (oral) L1 productions: covert aspects are in principle indifferent as to the polarity of lexical and other planning problems" (p. 301).

It is clear from Poulisse, Bongaerts and Kellerman (1990, p. 93) and Zimmerman (1992a) that researchers are much more interested in implicit signals of uncertainty as it is argued that this kind of strategy marker serves the purpose of identifying

strategies more effectively. Of these indicators of insecurity, hesitation phenomena are the most prominent. Maclay and Osgood (1959, cited in Poulisse, Bongaerts & Kellerman, 1990, p. 93) maintain that pauses and repetitions tend to precede lexical words (nouns, verbs, adjectives and adverbs) rather than function words. A rising intonation is also a sign of uncertainty, which has the effect of turning an utterance into a question (Poulisse, Bongaerts & Kellerman 1990, p. 94). Laughs indicate that the speaker is just guessing and knows that the guesses are not correct and they can be used to fill pauses. They may also be indicative of communication strategy use. Sighs as strategy markers, which express anger, disgust or hopelessness, reveal that a strategy has more or less failed.

Non-verbal strategy markers are also useful as they facilitate the identification of strategies used by the learners such as gestures, averting one's gaze, raising the eyebrows, or facial expressions displaying sadness. Since there have been only a few studies of communication strategies in which data were videotaped, non-verbal problem markers have rarely been used in the identification of communication strategies (Poulisse, Bongaerts & Kellerman 1990, p. 94).

Poulisse, Bongaerts and Kellerman's (1990, p. 93-95) and Zimmerman's (1992a) works suggest that utilizing strategy markers as clues for identifying lexical strategies may prove beneficial. Strategy markers are pauses, repetitions, false starts, rising intonations, sighs, laughs and deficit statements indicated in think-aloud protocols and the retrospective comments. Although strategy markers constitute a valuable source of information to identify lexical strategies, they do not suffice in all situations. Just as Faerch and Kasper (1983, p. 224) comment: "no performance feature can itself be taken as unambiguous evidence for strategic planning — what indicates a communicative problem is the increased frequency and the co-occurrence of performance features, making it likely that the subsequent utterance is the result of a communication strategy". Therefore, strategy markers used for identifying lexical strategies are interpreted with care in the current study.

## **4.1.2 The Identification on the Basis of Retrospective Data**

Not only do the think-aloud protocols help identify lexical strategies, but also retrospective data play an important role in identifying lexical strategies in this study. Since Corder (1973) called for the use of intuitive data in second language acquisition research, there have been incremental attempts to incorporate introspective techniques into research methodology (Cohen, 1996; Faerch & Kasper, 1987; Gass & Mackey, 2000; Gerloff, 1987; Haastруп, 1991; Mondahl, 1995; Poulisse, Bongaerts & Kellerman, 1990; Tarone, 1977; Smith, 1994; Zimmermann & Schneider, 1987).

According to Zimmermann and Schneider (1987, p.179, p.194), delayed retrospection as a means to elicit data about the translation process is not only a source of information about actual strategies and preferred strategies, but can also shed light on the subject's knowledge of how to solve linguistic problems. Thus, what we can obtain information about when using retrospective comments is actual strategies, preferred strategies and the informant's knowledge of the language(s) concerned. When retrospective data is supplemented to the think-aloud protocols, it is believed that the reliability of the data collected will increase. Although controversial, if used in conjunction with other data, retrospective methodology is beneficial to identify lexical strategies employed by test subjects. Presently, the focus is on the reliability and the usefulness of retrospective data for identifying lexical strategies.

### **4.1.2.1 The Reliability of Retrospective Data**

Retrospective data is a reliable source of information when collected under specific conditions as suggested by Ericsson & Simon (1984, cited in Poulisse, Bongaerts & Kellerman, 1990, p. 97-98):

- (1) The data should be collected immediately after task performance, when memory is still fresh;
- (2) The subjects should be provided with contextual information to activate their memories;

- (3) All the information asked for must be directly retrievable, i.e. must have been heeded during task performance, so that the subjects are induced to generate responses based on inferences and generalizations;
- (4) For the same reason, the information asked for should relate to specific problems, or a specific situation;
- (5) No leading questions should be asked to minimize the effects of “researcher bias”;
- (6) The subjects should not be informed that they will be asked for retrospective comments until after task performance, so as not to affect their performance on the task.

( Poulisse, Bongaerts & Kellerman, 1990, p. 97-98)

The identification procedure adopted in the present study fulfills these six conditions for examining the task performance and the retrospective activities. After having finished the translation task, every subject was interviewed immediately while their memory was still fresh. This satisfied the first condition. The general idea of the text was explained to the subject after finishing the task in order to provide contextual information for the subject and aid in retrospection, thus fulfilling the requirements of condition two. The questions asked by the interviewer always related to a specific problem as prescribed by the fourth condition. During the interviews, subjects usually recalled how they dealt with a particular situation. Special care was taken that the questions did not suggest any potential answer or forced the subjects to base his or her answer on more than the information directly available to him or her from his or her own memory. By doing this, the requirements of condition five and condition three were met. Finally, the subject, when invited to do the translation task, did not receive any notice beforehand about a post-interview as advised by condition six. Having satisfied Ericsson and Simon’s conditions (1984, cited in Poulisse, Bongaerts & Kellerman, 1990, p. 97-98), the retrospective comments can be considered reliable information for assessing lexical strategies.

### 4.1.2.2 The Usefulness of Retrospective Data

The retrospective data can on the one hand increase the reliability of the data, on the other hand, it also helps uncovering an utterance as a lexical strategy which has been incorrectly marked in the think aloud protocols and the final solutions. The following examples<sup>14</sup> demonstrate in what specific ways such retrospective data can help solve problems related to the identification of lexical strategies. Since single Chinese morpheme can stand for one word alone, the meaning of the Chinese word is conveyed by combining two or more morphemes instead of a literal translation. The literal translation is used in order to offer an idea of the meaning of the single Chinese morpheme. When two or more morphemes are combined, the meaning of a word can be completely different from the literal translation of the single morpheme.

Example 1

**[feng<sub>v</sub> jian<sub>v</sub>]<sub>n</sub> [ge<sub>v</sub> ju<sub>v</sub>]<sub>n</sub> — *capitalism division* — ‘feudal  
*confer build cut occupy*  
separatist regimes’**

(Subject 6 Retro) A: I don’t work out [feng<sub>v</sub> jian<sub>v</sub>]<sub>n</sub> [ge<sub>v</sub> ju<sub>v</sub>]<sub>n</sub> (feudal  
*confer build cut occupy*  
separatist regimes). I don’t know how to say it. Is it  
‘capitalism division’?

Q: Well you use ‘capitalism division’ for [feng<sub>v</sub> jian<sub>v</sub>]<sub>n</sub> [ge<sub>v</sub>  
*confer build cut*  
ju<sub>v</sub>]<sub>n</sub> (feudal separatist regimes). Do you think of any other  
*occupy*  
words?

---

<sup>14</sup> When the examples are presented, Chinese words which elicit lexical strategies come first and are indicated in bold letters. Literal translation of each Chinese morpheme is demonstrated in italics underneath each Chinese word. Learner’s form(s) either L1 or L2 is (are) given in bold italics while the ideal/correct solutions and other English words are included in inverted commas. Then the excerpts of the think-aloud protocols or retrospection or final solutions are presented. In the excerpts, the subjects are numbered. The type of data follows the subject number. ‘Retro’ stands for retrospective interview, ‘TAP’ for think-aloud protocols and line number after colons, ‘F’ for the learner’s final solutions. The ideal solutions for Chinese words are put in the bracket. My rough translation may be found in the bracket beneath the whole excerpt where necessary.

A: (laugh) I don't know. Don't know. I think of one word like 'part'. What is it called? 'depart'?

In this retrospective session it is clear that the subject is aware of the problem he has translating the word 'feudal separatist regimes' ([feng<sub>v</sub> jian<sub>v</sub>]<sub>n</sub> [ge<sub>v</sub> ju<sub>v</sub>]<sub>n</sub>). He indicates that he knows the meaning of the text in his native language and he needs to find a suitable L2 word. However, he cannot find an appropriate L2 word to express his idea. Then he uses a compound to combine 'capitalism' and 'division' together since it is a method of forming new words in English. He also thinks these two L2 words have similar meanings to the one he wants to use. Later he thinks of another word 'depart' to substitute the compound. Although the subject does not hit the target word that the text requires, he is trying to search for the appropriate words to express his idea. His trial is considered strategic and meaningful. In the protocols, it is identified as L2-related concept. By analyzing retrospective comment, compounding and paraphrasing strategies are used.

The following example also illustrates the usefulness of the retrospective comments for the identification of lexical strategies in the data.

#### Example 2

[bian<sub>v</sub> qian<sub>v</sub>]<sub>n</sub> — *taking shape* — 'changes/developments'

*change move*

(Subject 3 Retro)A: I make some changes while I'm copying. I reword some.

Q: Then it means you have some other thinking.

A: For example, I change 'formed and developed' into 'take shape'.

Q: Well, why do you think of using 'taking shape'?

A: Well, these two words are [xing<sub>v</sub> cheng<sub>v</sub>]<sub>n</sub> (form) and [fa<sub>v</sub>

*form become develop*

zhan<sub>v</sub>]<sub>v</sub> (develop), but the original text only says [xing<sub>v</sub>

*stretch form*

cheng<sub>v</sub>]. For [xing<sub>v</sub> cheng<sub>v</sub>] I used ‘take shape’.

*become form become*

(I’m not sure if it’s right. I just feel it’s better here. Then the meaning could be a little clearer.)

Here the subject tries to make clear that he changes the word he originally used for ‘changes/developments’ ([xing<sub>v</sub> cheng<sub>v</sub>]). He prefers ‘taking shape’ for the translation as required by the text itself. What the subject thinks about selecting this word is regarded as paraphrasing but identified as compounding in the think-aloud protocols.

### Example 3

[xue<sub>n</sub> yuan<sub>n</sub>]<sub>n</sub> [guan<sub>v</sub> xi<sub>v</sub>]<sub>n</sub> — *ties of blood* — ‘family ties/blood ties’

*blood affinity close connect*

(Subject 4 Retro) Q: Why do you underline ‘blood’ here?

A: It’s not suitable to use it in here. I feel it’s better to use

‘ties of blood’ for [xue<sub>n</sub> yuan<sub>n</sub>]<sub>n</sub> [guan<sub>v</sub> xi<sub>v</sub>]<sub>n</sub>

*blood affinity close connect*

Q: Oh, you feel better to use ‘ties of blood’ instead of using

‘blood’. Then you underline it, don’t you?

A: Yes.

In the think-aloud protocol, this solution is marked as a retrieval, which indicates that the subject has no difficulties to hit the target word and this is not considered as a lexical strategy. But the retrospection shows that the subject has problems expressing the word ‘family ties/blood ties’ ([xue<sub>n</sub> yuan<sub>n</sub>]<sub>n</sub> [guan<sub>v</sub> xi<sub>v</sub>]<sub>n</sub>). It is clear that the subject is using the phrasal noun combination and writing down ‘ties of blood’, which is regarded as a lexical strategy.

Retrospective data also helps to confirm strategies which have been already identified but not very clearly marked as lexical strategies in the protocols and the

final solutions. In this way, the reliability of using retrospection is increased. For example:

Example 4

[feng<sub>v</sub> jian<sub>v</sub>]<sub>n</sub> [ge<sub>v</sub> ju<sub>v</sub>]<sub>n</sub> — *split* — ‘feudal separatist regimes’

*confer build cut occupy*

(Subject 3 Retro)Q: Here is a question mark in your draft. What do you think about this?

A: I want to use ‘split’ and ‘circulation’. But they refer to ‘sending out’ or ‘split’. Now it seems it’s better to use ‘separation’ for referring to ‘feudal separation’. But maybe it’s not so accurate. I translated it indirectly. I used ‘split’ to mean ‘dividing land and power’. Then I use ‘in feudal society’ but this term cannot explain the idea clearly, then I cross ‘circulation’ out and use ‘split’. Actually it’s better to use ‘separation’

Example 5

[que<sub>v</sub> bao<sub>v</sub>]<sub>v</sub> — *ensure* — ‘secure’

*assure protect*

(Subject 7 Retro)A: I don’t know how to translate it. I know one word ‘ensure’ but I don’t know how to use this verb (laugh).

Q: So you don’t write it down (laugh).

Example 6

[zhong<sub>adj</sub> cheng<sub>adj</sub>]<sub>n</sub> — *honor* — ‘loyalty/loyalties’

*loyal honest*

(Subject 10 Retro) Q: Then why do you cross out this one (loyalty/loyalties) and write like this (honor)?

A: I cannot spell this word. This spelling is just my impression.



Is it 'loyalty'? I cannot remember it clearly (laugh).

From the examples examined, it can be stated that, although retrospection is not the only source of information, it does play a very important role in identifying and determining lexical strategies, especially when it is used in conjunction with think-aloud protocols. Consequently, the reliability of introspection and retrospection increases.

## **4.2 The Taxonomy**

The identification of lexical search strategies provides a foundation for the taxonomy elicited through analyzing data. The taxonomy is presented in four major categories, with subcategories for three of them. The taxonomy is not regarded as exhaustive, nor does it present the ideal way of solving lexical problems (Haastrup, 1991, p. 92).

According to Bialystok (1990, p. 38, p. 47, p. 56), the structure of the taxonomy is based on an organizing feature selected by the researcher. Thus, it must be acknowledged that the strategies could change their assigned position if another feature were selected. Hence, it may not be assumed that the proposed structure of categories is in any sense 'in the head'. A different organizing principle might conceivably restructure the groupings. It is important to emphasize that all taxonomies are descriptions of linguistic utterances but are addressed to the problem of learner behavior. On the basis of the form of language produced, the claim is that the learner has used a particular strategy. The organization of utterances in taxonomies is based on various levels of inference concerning the underlying mental processes, or behavior, that produced them. Different researchers using different methodologies and studying different kinds of subjects have more or less agreed on the sorts of things that second language learners do in order to communicate.

Table 4.3 shows an overview of the main categories of the lexical search taxonomy. What follows are definitions and examples of each category in the

taxonomy. Examples provided are deviant in some way, but nevertheless ‘errors’ should only be regarded as one kind of ‘solutions’ or lexical approximations (Zimmermann, 1987c, p. 58) since the focus of the study is on strategies learners use to solve lexical problems rather than error analysis.

---

**I Retrieval**

**II Strategic activities**

A L1-based strategies

- 1 Form-oriented: Relexification
- 2 Content-oriented
  - (1) L1 synonym
  - (2) L1-related concept
  - (3) L1 decomposition
  - (4) L1 paraphrase
  - (5) L1 association

B L2-based strategies

- 1 Form-oriented: L2 form
- 2 Content-oriented
  - (1) L2 synonym
  - (2) L2-related concept
  - (3) L2 figurative expression
  - (4) Formal variation of L2 concept or synonym
  - (5) L2 paraphrase
  - (6) Word coinage
    - a Compounding
    - b Derivation
    - c Conversion
  - (7) Association

**III Non-strategic activities/Monitoring strategies**

- A Reflection
- B Metalinguistic Statements
- C Deficit statement
- D Orthographic check
- E L1 or L2 repetition

**IV Abandonment**

- A Problem avoidance
  - B Strategy avoidance
- 

Table 4. 3 Taxonomy of lexical search: overview

## 4.2.1 Retrieval

This strategy indicates that the subjects have a direct path to literal equivalents in the same word class without difficulties.

Example 7

[bian<sub>v</sub> qian<sub>v</sub>]<sub>n</sub> — *changes* — ‘changes/developments’

*change move*

(Subject 6 TAP: 3) [bian<sub>v</sub> qian<sub>v</sub>]<sub>n</sub> (.2) the ‘changes’ of the contents

*change move*

Such instances repeatedly occur in the subjects’ protocols and final solutions. Almost all subjects mentioned it. The subjects did not hesitate choosing ‘changes’ for [bian<sub>v</sub> qian<sub>v</sub>]<sub>n</sub>. It is clear that the word was selected from memory out of same word class without any difficulties. Therefore, it is not considered a linguistic strategy.

## 4.2.2 Strategic Activities

As is demonstrated in the identification of strategies, strategic behavior is distinguished from non-strategic behavior. In this part of the study the focus is on lexical strategies.

There are two main headings in this section. These are L1-based strategies and L2-based strategies, which have form-orientation and content-orientation as subheadings. With respect to form-orientation and content-orientation, there seems to be neither theoretical or analytical literature nor any other scholarly references to rely on. However, “form-orientation and content-orientation occur at different levels of language, it can be L1 or L2 oriented, it is a matter of degree and there can be instances of mixed sources” (Zimmermann, 1987c, p. 55). Before the taxonomy is explained in more detail, it is necessary to mention form-orientation and content-orientation briefly with reference to Zimmermann (1987c) and Zimmermann (1988) so as to illustrate the taxonomy more clearly because they are two important

subheadings for L1-based strategies and L2-based strategies.

When form-oriented strategies are implemented, it means that learners try to imitate the L1 or L2 form. When content-orientation strategies are used, learners usually paraphrase freely. Thus, strategies involving form-orientation and content-orientation occur at all levels, “as simplex and complex words and as phrasal renderings” (Zimmermann, 1987c, p. 61) in order to search in a semantic direction. Even though content-oriented strategies occur more often, the alternative of form-orientation is not forgotten. It is believed that form-oriented solutions cannot be obtained without considering content-orientated possibilities. Consequently, it is sometimes not possible to completely distinguish these two notions from each other (Zimmermann & Schneider, 1987, p. 190).

#### **4.2.2.1 L1-Based Strategies**

L1-based strategies in the taxonomy refer to those instances when learners draw on their native Chinese in order to solve lexical problems and translate them into L2. The strategies in this category contain form-orientation and content-orientation with subcategories.

##### **4.2.2.1.1 L1-Based Form-Orientation**

In this category, there is only one strategy, relexification. In this study, relexification means that the subject replaces L1 elements morpheme by morpheme with L2, maintaining the Chinese head-modifier structure, and basing his or her choice of words on other meanings of Chinese forms. Due to the language distance between Chinese and English, it is not very common for Chinese students of English to form the target word with a pure and similar structure in L2, but use more indirect form-orientation, which means that the words are searched via a loose synonym or an intermediate form erroneously taken as a synonym (Zimmermann, 1987c, p. 59).

Example 8

[**xing<sub>v</sub>** **wei<sub>v</sub>**]<sub>n</sub> [**zhun<sub>n</sub>** **ze<sub>n</sub>**]<sub>n</sub> — *act rule* — ‘behavioral norms’

*act behave norm rule*

(Subject 15 TAP: 34) the most people’s ‘act rule’ ↗ (.2) [xing<sub>v</sub> wei<sub>v</sub>]<sub>n</sub>

*act behave*

[zhun<sub>n</sub> ze<sub>n</sub>]<sub>n</sub>

*norm rule*

(the most people’s behavioral norms)

#### 4.2.2.1.2 L1-Based Content-Orientation

Under this category, the following subcategories are established in the taxonomy. Examples involving L1 forms are presented in bold italics.

- (1) L1 synonym: The subjects use indirect form-orientation to get the word they want to use. Or they employ a single L1 synonym or a complex L1 synonym for this strategy. Since absolute synonym hardly exists, the synonym is used in the sense of ‘near synonym’.

Example 9

[**yi<sub>num</sub>** **zhi<sub>v</sub>**]<sub>adj</sub> — [**yi<sub>num</sub>** **yang<sub>n</sub>**]<sub>adj</sub> — *same* — ‘match/concur with/consistent with’

*one correspond one type*

(Subject 17 TAP: 85) [yi<sub>num</sub> zhi<sub>v</sub>]<sub>adj</sub>      *jiu shi xian* [yi<sub>num</sub> yang<sub>n</sub>]<sub>adj</sub> (.2)

*one correspond adv. is first one type*

[yi<sub>num</sub> zhi<sub>v</sub>]<sub>adj</sub> *xiang dao shi* *same*

*one correspond*

In this example, the L1 form [yi<sub>num</sub> yang<sub>n</sub>]<sub>adj</sub> is considered the synonym of [yi<sub>num</sub> zhi<sub>v</sub>]<sub>adj</sub>. The subject translated the L1 form into L2 to get ‘same’ in the protocol.

(2) L1-related concept: The subjects use an L1 supernym, L1 heteronym or cohyponym.

Example 10

**[di<sub>n</sub> fang<sub>n</sub>]<sub>n</sub> — [di<sub>n</sub> yu<sub>n</sub>]<sub>n</sub> — *territory* — ‘local/regional’**

*place square earth region*

(Subject 16 TAP: 15) *zhe ge di fang qi shi shi* [di<sub>n</sub> yu<sub>n</sub>]<sub>n</sub>

*this M earth square actual real is earth region*

*de yi si* (.2) [di<sub>n</sub> yu<sub>n</sub>]<sub>n</sub> *territory*

*aux. mean think earth region*

(Here it actually refers to territory)

‘territory’ in the protocol was hit via translating the L1 form [di<sub>n</sub> yu<sub>n</sub>]<sub>n</sub> into L2. [di<sub>n</sub> yu<sub>n</sub>]<sub>n</sub> in Chinese is considered the supernym of [di<sub>n</sub> fang<sub>n</sub>]<sub>n</sub>.

(3) L1 decomposition: The subjects analyze L1 lexemes morpheme by morpheme according to the related meaning.

Example 11

**[yan<sub>v</sub> ji<sub>v</sub>]<sub>v</sub> — [yan<sub>v</sub> shen<sub>v</sub>]<sub>v</sub> — [da<sub>v</sub> dao<sub>v</sub>]<sub>v</sub> — *display* — ‘extend’**

*extend reach extend stretch arrive come*

**[yan]<sub>v</sub> — [yan<sub>v</sub> shen<sub>v</sub>]<sub>v</sub> — *stretch***

*extend extend stretch*

**[ji]<sub>v</sub> — [da<sub>v</sub> dao<sub>v</sub>]<sub>v</sub> — *reach***

*reach arrive come*

(Subject 17 TAP: 94-96) [yan<sub>v</sub> ji<sub>v</sub>]<sub>v</sub> *zen me li* *jie* (.4) [yan]<sub>v</sub>

*extend reach how part. understand explain extend*

*jiu shi* [yan<sub>v</sub> shen<sub>v</sub>]<sub>v</sub> (.3) [ji]<sub>v</sub> *jiu shi*

*adv. is extend stretch reach adv. is*

[da<sub>v</sub> dao<sub>v</sub>]<sub>v</sub> (.2) [yan<sub>v</sub> shen<sub>v</sub>]<sub>v</sub> [da<sub>v</sub> dao<sub>v</sub>]<sub>v</sub> ta men  
*arrive come extend stretch arrive come he plural*  
 shen shang (.3) ying gai jiu shi zai ta men  
*body on should part. adv. is in he plural*  
 shen shang [ti<sub>v</sub> xian<sub>v</sub>]<sub>v</sub> chu lai (.3) suo yi  
*body on realise show out come so part.*  
 yong display  
 use

(How to understand. [yan]<sub>v</sub> means ‘to stretch’ and [ji]<sub>v</sub> means ‘to reach’. ‘to stretch and reach’ means that something is reflected on them. Therefore, ‘display’ is used here.)

The subject analyzed the L1 form [yan<sub>v</sub> ji]<sub>v</sub> as [yan]<sub>v</sub> which has the L1 meaning of [yan<sub>v</sub> shen<sub>v</sub>]<sub>v</sub> and [ji]<sub>v</sub> with the L1 meaning [da<sub>v</sub> dao<sub>v</sub>]<sub>v</sub>. Thus the subject got [yan<sub>v</sub> shen<sub>v</sub>]<sub>v</sub> [da<sub>v</sub> dao<sub>v</sub>]<sub>v</sub> and translated into L2 form as ‘display’.

(4) L1 paraphrase: The subjects use semantic intension such as functional or formal or material characteristics. Hedged supernyms and heteronyms, or negated antonyms and heteronyms, are also employed.

Example 12

[xue<sub>n</sub> yuan<sub>n</sub>]<sub>n</sub> [guan<sub>v</sub> xi<sub>v</sub>]<sub>n</sub> — [qin<sub>adj</sub> qi<sub>n</sub>]<sub>n</sub> — *relatives* — ‘family (blood) ties’  
*blood affinity close connect close relative*

(Subject 12 TAP: 38) [xue<sub>n</sub> yuan<sub>n</sub>]<sub>n</sub> [guan<sub>v</sub> xi<sub>v</sub>]<sub>n</sub> ying gai shi  
*blood affinity close connect should part. is*  
 [qin<sub>adj</sub> qi<sub>n</sub>]<sub>n</sub> [guan<sub>v</sub> xi<sub>v</sub>]<sub>n</sub>  
*close relative close connect*

(family ties should mean close connection of relatives)

Here the L1 form [qin<sub>adj</sub> qi<sub>n</sub>]<sub>n</sub> was used to explain the meaning of [xue<sub>n</sub> yuan<sub>n</sub>]<sub>n</sub> [guan<sub>v</sub> xi<sub>v</sub>]<sub>n</sub>. The learner's form 'relative' was obtained by paraphrasing L1.

- (5) L1 association: The subjects use personal semantic associations from L1. Even L1 word is used randomly or unclassifiably.

Example 13

[**xing<sub>v</sub>** **cheng<sub>v</sub>**]<sub>v</sub> — [**zhu<sub>v</sub>** **bu<sub>n</sub>**]<sub>adv</sub> — *gradually* — 'form'

*form become follow step*

(Subject 004 TAP: 12) [xing<sub>v</sub> cheng<sub>v</sub>]<sub>v</sub> *de yong* (.16) [xing<sub>v</sub> cheng<sub>v</sub>]<sub>v</sub>

*form become aux. use form become*

*de* (.21) [zhu<sub>v</sub> bu<sub>n</sub>]<sub>v</sub> *de*

*aux. follow step aux.*

In this example the subject used the L1 word [zhu<sub>v</sub> bu<sub>n</sub>]<sub>adv</sub>, which is actually an adverb, to translate [xing<sub>v</sub> cheng<sub>v</sub>]<sub>v</sub>, which should be a verb in the target form. Here the L1 word was used randomly.

#### 4.2.2.2 L2-Based Strategies

This term means that learners rely on their L2 knowledge directly without recourse to their L1 to produce the desired lexical items. This heading also contains form-orientation and content-orientation with subcategories.

##### 4.2.2.2.1 L2-Based Form-Orientation

“L2 form” under this heading in the taxonomy means that the subjects use L2-like forms, similar to existing L2 words.

Example 14

[**xing<sub>v</sub>** **cheng<sub>v</sub>**]<sub>v</sub> — *formulated* — 'form'

*form become*



(Subject 17 TAP: 30) [xing<sub>v</sub> cheng<sub>v</sub>]<sub>v</sub> de (.2) shi yong ‘form’ huan shi  
*form become aux. is use or is*  
 yong ‘formulated’ ↗ (.2) ‘formulated’ ↗  
*use*

#### 4.2.2.2.2 L2-Based Content-Orientation

L2-based content-orientation strategies include L2 synonyms, L2-related concepts, L2 figurative expressions, formal variations of an L2 concept or synonym, L2 paraphrases, word formation (compounding, derivation and conversion) and association in the taxonomy. Definitions of L2-based content-orientation strategies are presented below and examples are provided for each strategy.

- (1) L2 synonym: The subjects employ single L2 synonyms or complex words with a similar meaning.

Example 15

[zhun<sub>n</sub> ze<sub>n</sub>]<sub>n</sub> — *criteria* — ‘norms’  
*norm rule*

(Subject 008 TAP: 15) [zhun<sub>n</sub> ze<sub>n</sub>]<sub>n</sub> (.8) which is a ‘criteria’ (.1) for  
*norm rule*  
 most of the people (.7) which is a ‘criteria’

- (2) L2-related concept: The subjects use L2 supernym, L2 heteronym, cohyponym or meronym.

Example 16

[zhong<sub>adj</sub> cheng<sub>adj</sub>]<sub>n</sub> — *dignity* — ‘loyalty/loyalties’  
*loyal honest*

(Subject 18 TAP: 8) [zhong<sub>adj</sub> cheng<sub>adj</sub>]<sub>n</sub> (.5) the ‘dignity’ ↗ (.5) ‘dignity’ to the local  
*loyal honest*

- (3) L2 figurative expression: The subjects use metaphor, metonym or simile in the target language.

Example 17

[**guo<sub>n</sub>** **jia<sub>n</sub>]<sub>n</sub> — *motherland* — ‘country’**

*country family*

(Subject 008 TAP: 42) love ‘motherland’ (.2) is love (.2) people (.9) love  
‘motherland’ is love the people the whole people

The subject did not use ‘country’ directly in this protocol. But ‘motherland’ as a metaphor to indicate that ‘country’ was chosen.

- (4) Formal variation of an L2 concept or synonym: The subjects use existing English words which are morphologically related but do not fit into the text, since they are not from an adequate word class.

Example 18

[**feng<sub>v</sub>** **jian<sub>v</sub>]<sub>n</sub> — *feudalism* — ‘feudal’**

*confer build*

(Subject 4 F) [**feng<sub>v</sub>** **jian<sub>v</sub>]<sub>n</sub> ‘feudalism’**

*confer build*

- (5) L2 paraphrase: The subjects use semantic intension such as functional or formal or material aspects. Hedged supernyms and heteronyms, or negated antonyms and heteronyms, are also employed.

Example 19

[**zheng<sub>v</sub>** **zhi<sub>v</sub>]<sub>n</sub> [**gong<sub>adj</sub>** **tong<sub>adj</sub>** **ti<sub>n</sub>]<sub>n</sub> — *commonwealth of politics* —****

*politics control common same body*

‘political community’

(Subject 22 TAP : 47) which is a ‘commonwealth of politics’ (.2)

[zheng<sub>v</sub> zhi<sub>v</sub>]<sub>n</sub> [gong<sub>adj</sub> tong<sub>adj</sub> ti<sub>n</sub>]<sub>n</sub>  
*politics control common same body*

(6) Compounding: The subjects use compounding to create non-existing words in English.

Example 20

[xing<sub>v</sub> wei<sub>v</sub>]<sub>n</sub> [zhun<sub>n</sub> ze<sub>n</sub>]<sub>n</sub>— *behavior principles* — ‘behavioral norms’  
*act behave norm rule*

(Subject 012 TAP: 15) principle (.2) in [xing<sub>v</sub> wei<sub>v</sub>]<sub>n</sub> (.1) behavior principles

*act behave*

(.2) *zhe ge jie ci yong shen*

*this M preposition word use what*

*me ↗ (.2) many peoples (.3) [xing<sub>v</sub> wei<sub>v</sub>]<sub>n</sub> behavior*

*part. act behave*

(.2) behavior principle

(7) Derivation: The subjects use derivation to create non-existing words in English.

Example 21

[ge<sub>v</sub> ju<sub>v</sub>]<sub>v</sub> — *dividance* — ‘separatist regimes’

*cut occupy*

(Subject 12 TAP: 43) and why the ‘dividance’ of the country become very popular

(8) Conversion: The subjects use conversion to create non-existing words in English.

Example 22

[**fen<sub>v</sub>** **feng<sub>v</sub>**]<sub>v</sub> — **titled** — ‘confer territories and fiefs’

*divide entitle*

(Subject 012 TAP: 28) [**fen<sub>v</sub>** **feng<sub>v</sub>**]<sub>v</sub> *jiu shi* (.2) ‘title’ (.1) ‘titled’

*divide entitle adv is*

[**fen<sub>v</sub>** **feng<sub>v</sub>**]<sub>v</sub> ‘titled’

*divide entitle*

When ‘title’ is used as a verb, it does not have the meaning of ‘confer’. In the protocol, the subject wants to indicate the meaning of ‘confer’ by using ‘title’ as a verb. Thus, it is conversion.

- (9) Association: The subjects use personal semantic associations of L2, resulting in a form that does not fit into the text. The words are existing English words but have no discernible semantic connection.

Example 23

[**deng<sub>v</sub>** **ji<sub>n</sub>**]<sub>v</sub> — **launch** — ‘succeeded to the throne’

*climb base*

(Subject 1 TAP: 14) [**wang<sub>n</sub>** **wei<sub>n</sub>**]<sub>n</sub> (.13) ‘launches’ (.5) after he ‘launched’

*king position*

(.3) position

### 4.2.3 Non-Strategic Activities——Monitoring Strategies

Non-strategic activities, also called monitoring strategies, occur throughout the protocols across proficiency levels. Monitoring strategies in the taxonomy contain five subcategories, which are defined as follows and examples are given accordingly.

### 4.2.3.1 Reflection

When the subjects feel uncertain about the lexical items, they use reflection to help them find the target word.

Example 24

(Subject 2 TAP: 5) *zhe li neng yong deep ma↗*  
*here part. can use interj.*  
(Can I use ‘deep’ here?)

### 4.2.3.2 Metalinguistic Statements

The subjects apply what they consider as rules according to L2 knowledge or processes of successful translation.

Example 25

[*ai<sub>v</sub> guo<sub>n</sub> zhu<sub>adj</sub> yi<sub>n</sub>]* — *lism* — ‘patriotism/nationalism’  
*love country main meaning*  
(Subject 004 TAP: 3) [*ai<sub>v</sub> guo<sub>n</sub> zhu<sub>adj</sub> yi<sub>n</sub>]* (.1) *ying gai shi shen*  
*love country main meaning should part. is what*  
*me lism*  
*part.*  
( ‘patriotism’ should be a word somewhat like ‘-lism’)

### 4.2.3.3 Deficit Statements

The subjects murmur the word or phrase. Almost all subjects did this when they thought aloud.

Example 26

(Subject 005 TAP: 6) *bi jiao nan fan yi ya yong*  
*compare than difficult turn translate interj. use*

*pu tong dian de*  
*ordinary through dot part.*

(well, comparatively it is difficult to translate just use a normal one)

#### 4.2.3.4 Orthographic Check

The subjects check the spelling but do not coarticulate. Then they write down the word they use.

Example 27

(Subject 5 TAP: 6) *xie shang* T-U-D-E

*write on*

(write on T-U-D-E)

Example 28

(Subject 6 TAP: 53) in social S-O-C-I-A-L society social in social

Such instances show that the subjects check their spelling of the words and then write them down when they feel the spelling is correct or when they are not very sure of the spelling.

#### 4.2.3.5 L1 and L2 Repetition

The subjects repeat the L1 and L2 words for getting the word they need. When subjects did the performance task, they kept repeating the words either in their native language or in English so as to try to access the needed words.

Example 29

(Subject 8 TAP: 29) [fen<sub>v</sub> feng<sub>v</sub>]<sub>v</sub> (.3) [fen<sub>v</sub> feng<sub>v</sub>]<sub>v</sub> ↗ (.2) [fen<sub>v</sub> feng<sub>v</sub>]<sub>v</sub>

*divide entitle divide entitle divide entitle*

When the subjects found the L1 words difficult to understand, they started repeating them until they found the words they thought appropriate. Otherwise, they abandoned the particular solutions.

However, sometimes the subjects just repeated the L2 words when they felt it was more convenient to do so in order to get lexical approximations.

Example 30

(Subject 009 TAP: 2) change (.3) and changes (.2) of patriotism patriotism  
patriootism(.2) patriotism

Here ‘change’ and ‘patriotism’ are repeated. In fact, ‘patriotism’ is repeated three times. It seems to help the subjects determine the approximations.

#### **4.2.4 Abandonment**

There are two subcategories belonging to this type of strategy in the taxonomy. One is problem avoidance and the other is strategy avoidance.

##### **4.2.4.1 Problem Avoidance**

Problem avoidance: The subjects do not want to continue, such as ‘I don’t know this’, ‘I don’t want to do this.’

Example 31

(Subject 7 TAP: 8) *qiang yu (.2) bu zhi dao zen me fan*  
*strong than not know to how part. trun*  
*yi qiang yu*  
*translate strong than*  
(don’t know how to translate ‘stronger than’)

Example 32

(Subject 20 TAP: 8) *wo bu zhi dao. o, wo bu zhi dao zhe ge*  
*I not know reach interj. I not know reach this M*  
(I don't know. Well, I don't know it.)

Both examples show that the subjects gave up their efforts to find lexical approximations due to a lack of competence (and confidence).

#### 4.2.4.2 Strategy Avoidance

The subjects try to use word formation processes to find the words but give up after several trials, saying ‘this is too hard for me’, ‘I’m not sure if it’s right.’

Example 33

(Subject 20 TAP: 11) *zhe ge tai nan wo bu xiang zuo zhe ge*  
*this M too hard I not want do this M*  
(This one is too difficult. I don't want to do it)

Example 34

(Subject 3 Retro) *wo bu zhi dao zhe yang zuo dui bu dui*  
*I not know reach this part. do right not right*  
*wo zhi jue de zhe ge bi jiao hao*  
*I just feel part. this M compare than good*  
*yi si ke neng hui qing chu yi*  
*mean think perhaps can be clear part. one*  
*dian*  
*dot*  
(I'm not sure if it's right. I just feel it's better here. Then the meaning could be a little clearer.)



### **4.3 Summary**

In this chapter, the procedure of identifying lexical strategies was introduced referring to Zimmermann (1989b) and Poulisse, Bongaerts and Kellerman (1990, chapter 6). The identification of lexical search strategies provides a foundation for the taxonomy elicited by analyzing the data. The relevant taxonomy can be divided into four major categories involving linguistic and non-linguistic strategies. Linguistic strategies with subcategories containing L1-based strategies and L2-based strategies are the focus of the study.

In the next chapter, the results of the data analysis will be presented referring to the taxonomy described in this chapter.

# Chapter 5 The Use of Lexical Strategies and Translation Quality Ranking

This chapter describes the results of the collected data in the pilot round and the real round, taking the think-aloud protocols, the drafts, the final solutions and retrospective interviews into account. The findings presented in this chapter provide evidence for the evaluation of the hypotheses formulated in this study. Section 5.1 demonstrates the frequencies of the use of lexical strategies. In addition to linguistic strategies employed by learners for solving lexical problems, learners also resort to non-linguistic strategies. Hence, section 5.2 briefly describes nonlinguistic strategies found in the data collection. Section 5.3 examines the discrepancy between the quality of the translation and proficiency levels. Although quite a lot of strategies are identified and illustrated in detail, some borderline cases occur in the data as can happen in any research project. Section 5.4 briefly presents some borderline cases found in the data. Examples from the transcripts are given. As mentioned in the previous chapter, examples are deviant in some way (Zimmermann, 1987c, p. 58). ‘Lexical approximations’ or ‘solutions’ are used interchangeably.

## 5.1 Frequency<sup>15</sup> of the Use of Lexical Search Strategies

The frequency of the use of lexical search strategies is counted on the basis of Zimmermann’s (1989b) guidelines determining the frequency of lexical strategies

- (1) In an overall fashion: how often is a strategy applied at all (number of moves over all data)?
- (2) In relation to particular lexical problems: what strategies are tried to overcome what kinds of problem; and how often are they (part of) the L2 form?
- (3) In relation to individual learners: preferred strategies.

(Zimmermann, 1989b, p. 25)

---

<sup>15</sup> Frequency is counted according to token of each strategy recognized in the data. When more than two strategies are identified for one instance, the frequency is counted half.

The data including the think-aloud protocols and the final solutions yielded a total of 2,051 instances of lexical strategies excluding non-linguistic ones, 1,568 in the protocols and 483 in the final solutions, of which 903 are L1-based and 1,148 are L2-based. Frequencies, the number of times relevant instances used in the data, are counted in order to relate to the subjects' proficiency levels. Table 5.1 shows the overall frequencies of L1-based and L2-based strategies in the think-aloud protocols and the final solutions by learners of different proficiency levels in both rounds of the data collection.

	Protocols		Solutions <sup>16</sup>		Total	
	L1-based	L2-based	L1-based	L2-based	L1-based	L2-based
Advanced	113	421.5	19	229	132	647
Intermediate	688.5	345.5	82.5	152.5	771	501
Total	801.5	767	101.5	381.5	903	1148

Table 5. 1 Frequencies of lexical strategies: overview

As might be expected, the number of instances of strategies obtained from the subjects varied from person to person. Some subjects thought aloud more than others partly due to the individual linguistic proficiency and extent of involvement in the translation task. A look at the frequency of proficiency level reveals that this difference is most prominent in the intermediate group. The intermediate proficiency learners thought comparatively more aloud in the protocols than the advanced learners.

### 5.1.1 The Use of L1-Based Strategies

L1-based strategies refer to those instances when learners draw on their native Chinese to solve lexical retrieval problems and translate them into L2. Such kinds of strategies are not very frequently reported in the literature regarding Chinese learners

<sup>16</sup> Frequency of L1-based strategies in solutions includes strategies recognized via L1 cognitive base.

of English using strategies to communicate due to a language-distance effect (Kellerman, 1995). In this study, however, it has been found that Chinese learners of English applied quite a large number of L1-based strategies to solve their lexical problems. As indicated in table 5.1, the frequency of L1-based strategies used by the intermediate learners is 771 while the advanced learners used L1-based strategies 132 times. What follows demonstrates the use of each L1-based lexical search strategy applied in both the learners' think-aloud protocols and the final solutions in terms of frequencies and percentages calculated for each strategy compared to the total number of strategies.

### **5.1.1.1 The Use of RELEX**

RELEX is the abbreviation for relexification.<sup>17</sup> In the data, it was reported repeatedly across proficiency groups. When using this strategy, learners translated an L1 element morpheme by morpheme into the L2. The findings of the study show that both advanced and intermediate learners of English used relexification to a certain extent in order to solve their lexical problems. However, relexification in this study generally refers to the words that are searched via a loose synonym or an intermediate form erroneously taken as a synonym (Zimmermann, 1987c, p. 59) instead of a pure similar structure in L2.

In the protocols the intermediate learners used this strategy 90 instances while advanced learners employed it 20 times. In the final solutions, the intermediate learners employed this strategy 28 times and the advanced learners only used it at their disposal with a frequency of 6.5 instances. When the frequencies of this strategy were converted into percentages over the total number of the L1 based strategies, it was found that the advanced learners used 2.2% (N=20) relexification and the intermediate learners used 10% (N=90) relexification in the protocols. In the final solutions, the advanced learners used this strategy 0.7% (N=6.5) and the intermediate learners used relexification 3.1% (N=28). The table below shows the frequencies and

---

<sup>17</sup> Strategies are all abbreviated. The optimal solution list for each strategy is documented in the Appendix IX.

percentages of the use of this strategy in both protocols and final solutions.

	Protocols	Percentage (%)	Solutions	Percentage (%)
Advanced	20	2.2	6.5	0.7
Intermediate	90	10	28	3.1

Table 5. 2 Frequencies and percentages of RELEX

The table shows that the intermediate learners use relexification more often than the advanced learners because they do not have a wide range of vocabulary that they can access from their memory. Consequently, they rely more heavily on their mother tongue.

These examples show how the learners use this strategy<sup>18</sup>. This strategy often goes along with other strategies.

#### Example 1

[**nei**<sub>n</sub>    **han**<sub>v</sub>]<sub>n</sub> — *inside* — ‘concept’

*inside include*

(Subject 011 TAP: 7) *yong* the (.2) *inside* meaning *huo zhe shi*(.2) *inside*

*use or part. is*

*meaning*

The subject used ‘inside’ in his protocol which relexifies the Chinese word [nei]<sub>n</sub>. It may be assumed that the learner uses relexification in the protocol to reach the approximation.

#### Example 2

[**ji**<sub>v</sub>        **fa**<sub>v</sub>]<sub>v</sub> — *pushed out* — ‘provoke’

*stimulate develop*

<sup>18</sup> The format of the examples given in this chapter is similar to the format in the previous chapter.

(Subject 21 TAP: 18) patrialism is pushed (.2) pushed out

The Chinese word [fa]<sub>v</sub> can also be used as a preposition with the meaning of ‘out’. Here the subject made the wrong use of the Chinese preposition [fa]<sub>prep</sub> in order to get ‘pushed out’ in the protocol. The subject relexified the Chinese word [fa]<sub>prep</sub>.

### 5.1.1.2 The Use of L1 SYN

L1 SYN stands for L1 synonym. Learners identified L2 words by searching via L1 synonyms. They thought of single L1 synonyms or complex L1 synonyms for the L2 words. Then they found the equivalent for the words retrieved and translated them into L2 words. Both groups of learners reported on this strategy but the divergence of using this strategy was dramatically prominent. There were 31 instances within the advanced group and 186 instances for intermediate learners in the protocols. In the final solutions, the intermediate learners used this strategy in 3 instances, while within the advanced learners’ the frequency was only 0.5. The intermediate protocol instances for L1 synonym use had a percentage of 20.6% (N=186) while advanced protocols had only 3.4% (N=31). Table 5.3 shows the frequencies and percentages of the use of L1 SYN.

	Protocols	Percentage (%)	Solutions	Percentage (%)
Advanced	31	3.4	0.5	0.06
Intermediate	186	20.6	3	0.3

Table 5. 3 Frequencies and percentages of L1 SYN

The intermediate learners used this strategy much more frequently in the protocol than the advanced learners. The table clearly shows that the intermediate learners rely more on their native language.

Example 3

[**que<sub>v</sub> bao<sub>v</sub>**]<sub>v</sub>—[**bao<sub>v</sub> zheng<sub>v</sub>**]<sub>v</sub> — *ensure* — ‘secure’

*assure protect protect guard*

(Subject 5 TAP: 26) [que<sub>v</sub> bao<sub>v</sub>]<sub>v</sub> le (.2) [bao<sub>v</sub> zheng<sub>v</sub>]<sub>v</sub> le (.2) [jia<sub>n</sub> zu<sub>n</sub>]<sub>n</sub>

*assure protect part. protect guard part. family clan*

The subject thought of a Chinese synonym [bao<sub>v</sub> zheng<sub>v</sub>]<sub>v</sub>, which has a meaning similar to ‘ensure’ and in the final solution, ‘ensure’ is used. The subject is then regarded as using an L1 synonym in the protocol.

Example 4

[**zhun<sub>n</sub> ze<sub>n</sub>**]<sub>n</sub>—[**biao<sub>n</sub> zhun<sub>n</sub>**]<sub>n</sub> — *standard* — ‘norms’

*norm rule standard norm*

(Subject 2 TAP: 25-26) [zhun<sub>n</sub> ze<sub>n</sub>]<sub>n</sub> (.9) shi yong norm ne ↗ hai shi

*norm rule is use interj. still is*

*yong standard (.1) standard ying gai shi yi*

*use should part. is one*

*zhong [biao<sub>n</sub> zhun<sub>n</sub>]<sub>n</sub> de*

*kind standard norm aux.*

(To use ‘norm’ or ‘standard’? It should be a kind of ‘standard’)

In this protocol, the subject thought [biao<sub>n</sub> zhun<sub>n</sub>]<sub>n</sub> is the synonym of [zhun<sub>n</sub> ze<sub>n</sub>]<sub>n</sub> in their native language. The process shows that the learner is using L1 synonyms to search for the appropriate words.

### 5.1.1.3 The Use of L1 REL CON

Regarding the use of L1-related concepts, it was found that by using this strategy, both groups of learners used L1 supernyms, heteronyms or cohyponyms in order to hit

the target words. This happened 134.5 times in the intermediate protocols and 19.5 times in the advanced protocols. In the final solutions, the advanced learners applied L1 REL CON only once but the intermediate learners employed it 14 times. In the protocols, 14.9% (N=134.5) of this strategy was employed by intermediate learners and 2.2% (N=19.5) by advanced learners compared to the total number of L1-based strategies. In the final solutions, the percentage of intermediate learners was 1.6% (N=14) and the advanced was 0.1% (N=1).

	Protocols	Percentage (%)	Solutions	Percentage (%)
Advanced	19.5	2.2	1	0.1
Intermediate	134.5	14.9	14	1.6

Table 5. 4 Frequencies and percentages of L1 REL CON

Example 5

[zhan<sub>v</sub> sheng<sub>v</sub>]<sub>v</sub>—[zheng<sub>v</sub> fu<sub>v</sub>]<sub>v</sub>—*conquer* — ‘overcome’

*fight defeat collect obey*

(Subject 005 TAP: 50) [zhan<sub>v</sub> sheng<sub>v</sub>]<sub>v</sub> *shi* (.1) [zheng<sub>v</sub> fu<sub>v</sub>]<sub>v</sub> (.2) *conquer*

*fight defeat is collect obey*

#### 5.1.1.4 The Use of L1 DECOMP

One advantage Chinese learners have is that they can analyze L1 lexemes morpheme by morpheme according to the related meaning in their L1 words since Chinese words are constructed by combining morphemes. Using this strategy makes Chinese learners feel at ease to decompose the given meaning using everyday language and end up with an L1 or L2 paraphrase, at times reminiscent of a dictionary definition (Zimmermann, 1988, p. 303). It is easy to decompose Chinese morphemes because they are all free morphemes. After the morphemes have been decomposed, the learners try to find equivalents for the decomposed parts in the L2. Both groups of learners used this strategy. Intermediate learners did not use this strategy as often as



advanced learners. The intermediate learners used it 18 times while the advanced learners used it 26 times in the protocols. In the final solutions, the frequency was 5 instances for intermediate learners and 7 instances for advanced learners. The following table shows the frequencies and percentages of the use of L1 decomposition.

	Protocols	Percentage (%)	Solutions	Percentage (%)
Advanced	26	2.9	7	0.8
Intermediate	18	2	5	0.6

Table 5. 5 Frequencies and percentages of L1 DECOMP

Example 6

**[nei<sub>n</sub> han<sub>v</sub>]<sub>n</sub>— [nei<sub>n</sub> bu<sub>n</sub>]<sub>n</sub>—[han<sub>v</sub> yi<sub>n</sub>]<sub>n</sub>—*inside meaning* —‘concept/phenomenon’**

*inside include inside part include meaning*

**[nei]<sub>n</sub> —[nei<sub>n</sub> bu<sub>n</sub>]<sub>n</sub> —*inside***

*inside inside part*

**[han<sub>v</sub>]<sub>n</sub> —[han<sub>v</sub> yi<sub>n</sub>]<sub>n</sub> —*meaning***

*include include meaning*

(Subject 8 TAP: 63) [nei<sub>n</sub> han<sub>v</sub>]<sub>n</sub> (.2) [nei]<sub>n</sub> [nei<sub>n</sub> bu<sub>n</sub>]<sub>n</sub> *shi* inside (.2) [han<sub>v</sub>]<sub>n</sub> (.1)

*inside include inside inside part is include*

[han<sub>v</sub> yi<sub>n</sub>]<sub>n</sub> (1.) the change of inside meaning

*include meaning*

In this protocol, the subject analyzed the meaning of the Chinese word [nei<sub>n</sub> han<sub>v</sub>]<sub>n</sub> as [nei]<sub>n</sub> which means [nei<sub>n</sub> bu<sub>n</sub>]<sub>n</sub> and [han<sub>v</sub>]<sub>n</sub> with a meaning of [han<sub>v</sub> yi<sub>n</sub>]<sub>n</sub>. The process shows that the subject is searching for the target word by using different words according to their related meaning.

### 5.1.1.5 The Use of L1 PARA

When using L1 paraphrase, learners paraphrased the L1 words in their mother tongue and then translated them into L2 words. This occurred 152 times in the intermediate learners' protocols and 13 times in the advanced learners' protocols. Over the total number of L1-based strategies, L1 PARA in the protocols was 1.4% (N=13) by advanced learners and 16.8% (N=152) by intermediate learners. In the final solutions, L1 paraphrase occurred 5 times among advanced learners and 11 times among intermediate learners as shown in the following table.

	Protocols	Percentage (%)	Solutions	Percentage (%)
Advanced	13	1.4	5	0.6
Intermediate	152	16.8	11	1.2

Table 5. 6 Frequencies and percentages of L1 PARA

Example 7

**[deng<sub>v</sub> ji<sub>n</sub>]<sub>v</sub> — [zhang<sub>v</sub> quan<sub>n</sub>]<sub>v</sub> — *in power* — ‘succeeded to the throne’**

*climb base take authority*

(Subject 007 TAP: 53) [deng<sub>v</sub> ji<sub>n</sub>]<sub>v</sub> *zuo huang di jiu shi* [zhang<sub>v</sub> quan<sub>n</sub>]<sub>v</sub>  
*climb base as emperor adv. is take authority*  
*ba jiu shi in power (.2) [zhang<sub>v</sub> quan<sub>n</sub>]<sub>v</sub>*

*interj. adv. is take authority*

The subject here used [zhang<sub>v</sub> quan<sub>n</sub>]<sub>v</sub> in order to search for the word which has a similar meaning to [deng<sub>v</sub> ji<sub>n</sub>]<sub>v</sub> as the word may have been difficult for the subject to translate. Using the paraphrase [zhang<sub>v</sub> quan<sub>n</sub>]<sub>v</sub> in Chinese, the subject found ‘in power’ has a similar meaning in L2. So the L1 paraphrase underlies the English text.

Example 8

[**da**<sub>adj</sub> **si**<sub>adj</sub>]<sub>adv</sub> — [**bu**<sub>adv</sub> **wei**<sub>prep</sub> **yu**<sub>adj</sub> **li**<sub>n</sub>] — **vigor** — ‘without scruples’

*big wanton not for extra force*

(Subject 17 TAP: 54 ) [**da**<sub>adj</sub> **si**<sub>adj</sub>]<sub>adv</sub> (.2) [**da**<sub>adj</sub> **si**<sub>adj</sub>]<sub>adv</sub> *jiu shi* [**bu**<sub>adv</sub> **wei**<sub>prep</sub>

*big wanton big wanton adv. is not for*

*yu*<sub>adj</sub> *li*<sub>n</sub>] *de* (.2) *yong vigor*

*extra force aux. use*

Here the subject used ‘vigor’ to translate [**da**<sub>adj</sub> **si**<sub>adj</sub>]<sub>adv</sub>. The subject thought of a Chinese phrase [**bu**<sub>adv</sub> **wei**<sub>prep</sub> **yu**<sub>adj</sub> **li**<sub>n</sub>], which has the meaning of doing one’s utmost. By this way, the subject paraphrased in L1 and found ‘vigor’ as his solution.

### 5.1.1.6 The Use of L1 ASSOC

When using this strategy, learners think of several L1 words with a similar meaning or within the same semantic field spontaneously. 24 instances were counted among advanced learners and 78 among intermediate learners in the protocols. In the final solutions, this strategy was used 3 times by advanced learners and 17 times by intermediate learners. The percentage of the instances was 2.7% (N=24) in the advanced group and 8.6% (N=78) in the intermediate group. 0.3% (N=3) L1 association was found in the solutions of advanced learners and 1.9% (N=17) were counted among intermediate learners. The following table shows the results.

	Protocols	Percentage (%)	Solutions	Percentage (%)
Advanced	24	2.7	3	0.3
Intermediate	78	8.6	17	1.9

Table 5. 7 Frequencies and percentages of L1 ASSOC

Example 9

[**ji**<sub>v</sub>        **fa**<sub>v</sub>]<sub>v</sub> — [**bei<sub>mod</sub> po**]<sub>v</sub> — **forced** — ‘provoke’

*stimulate develop Bei press*

(Subject 004 TAP: 78) [**ji**<sub>v</sub>        **fa**<sub>v</sub>]<sub>v</sub>    *chu lai jiu shi* [**bei<sub>mod</sub> po**]<sub>v</sub>

*stimulate develop out come adv. is Bei press*

*de yi si yong forced*

*aux. mean think use*

([**ji**<sub>v</sub> **fa**<sub>v</sub>]<sub>v</sub> has the meaning of [**bei<sub>mod</sub> po**]<sub>v</sub>. So ‘forced’ should be used.)

It is clear that the subject is trying to use his personal semantic associations for the L1 word [**ji**<sub>v</sub> **fa**<sub>v</sub>]<sub>v</sub>, which can not be classified clearly.

To sum up the use of the L1-based strategies relying on frequencies and percentages of the instances in the protocols and the final solutions, it has been found that the intermediate learners depend more on L1-based strategies to solve their lexical problems. It was difficult for them to access the L2 lexicon directly when needed since they do not have as large a vocabulary. These findings corresponded with the research question that the learners of lower linguistic proficiency apply more L1-based strategies than the more advanced learners. They have to depend largely on their L1 mental lexicons and translate them into L2 words. The following figures show the types and frequencies of L1-based strategies applied by both groups of learners in the think-aloud protocols and the final solutions. Figure 5.1 presents the frequencies of using L1-based strategies by intermediate and advanced learners in the protocols respectively.

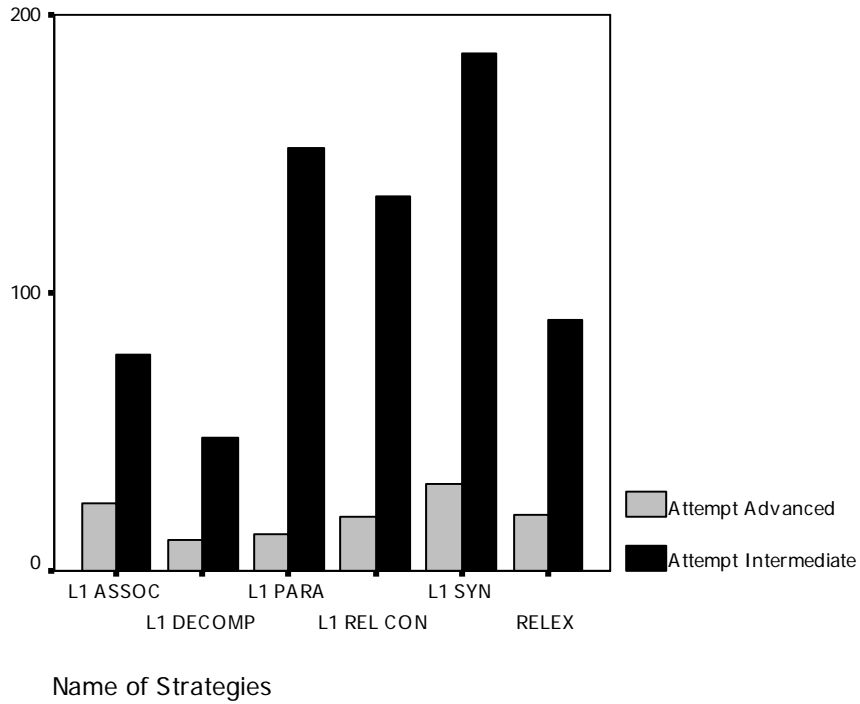


Figure 5. 1 The use of L1-based strategies in the protocols

Figure 5.2 indicates the frequency of L1-based strategies used by intermediate and advanced learners in the final solutions.

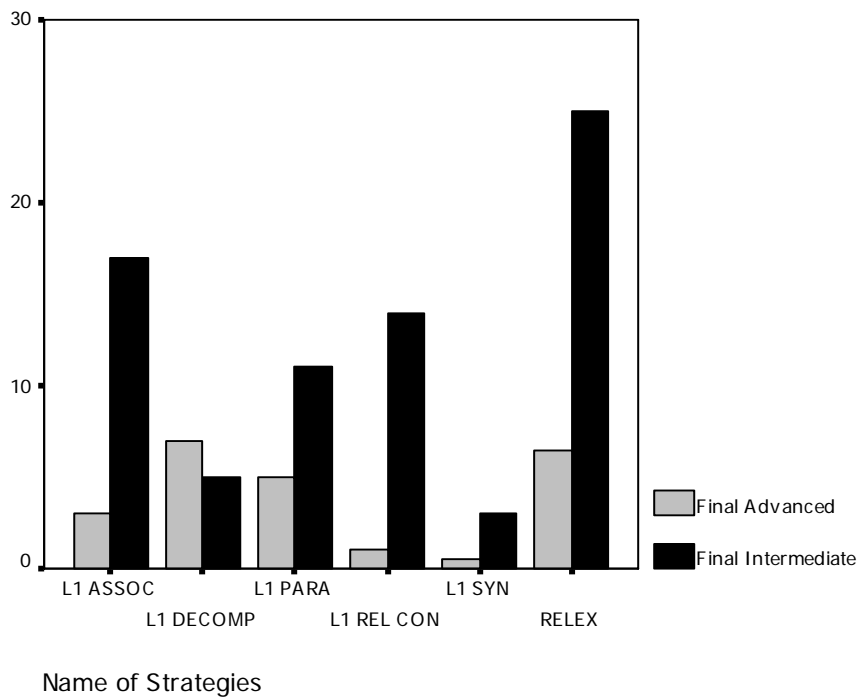


Figure 5. 2 The use of L1-based strategies in the finals

Comparing strategies used in the protocols with strategies in the final solutions, it is evident that these strategies were used much less in the final solutions. However, intermediate learners still used these strategies more often than the advanced learners except L1 decomposition, which was employed more by the advanced learners.

## 5.1.2 The Use of L2-Based Strategies

By using strategies from the L2-based categories of the taxonomy, learners rely on their L2 knowledge directly without taking recourse to their L1 to produce the desired lexical items. The findings show that learners of both groups employed many L2-based strategies due to having learned English for a long time. The presentation of the use of L2-based strategies follows the same routine as the presentation of L1-based strategies.

### 5.1.2.1 The Use of L2 FO

L2 FO refers to the use of L2 forms that look like existing L2 words. The advanced learners applied this strategy 19 times while the intermediate learners used it 91 times in the protocols. The situation in the final solution was similar as intermediate learners used this strategy five times more often than the advanced learners who relied on L2 FO for 14 times. When the frequency was converted into percentage, the intermediate learners used this strategy 8.1% (N=91) in the protocols and 1.7% (N=19) in the final solutions, while the advanced learners used it 1.7% (N=19) in the protocols and 1.2%(N=14) in the solutions. Table 5.9 shows the frequencies and percentages of the use of this strategy.

	Protocols	Percentage (%)	Solutions	Percentage (%)
Advanced	19	1.7	14	1.2
Intermediate	91	8.1	19	1.7

Table 5. 8 Frequencies and percentages of L2 FO

Example 10

[**xue<sub>n</sub>**    **yuan<sub>n</sub>]<sub>n</sub> — *bloodish* — ‘family (blood) ties’**

*blood*    *affinity*

(Subject 13 F) *bloodish*

In this example, ‘bloodish’ was formed by applying an existing word formation process but with an inadequate base. ‘-ish’ usually is attached to other noun types. The form used by the subject looks like an existing English word but actually is not an acceptable one.

Example 11

[**li<sub>n</sub>**    **yi<sub>n</sub>]<sub>n</sub> — *benift* — ‘interests’**

*profit*    *interest*

(Subject 14 F) *benift*

The solution in this example shows that the subject perhaps knows the word ‘benefit’ but temporarily cannot retrieve it. Thus, a form is used that looks similar to the optimal word.

### 5.1.2.2 The Use of L2 SYN

It was found that L2 synonym is the most frequently used strategy of all L2-based strategies for both advanced and intermediate learners in both protocols and final solutions. The learners searched for words via L2 synonyms from their L2 mental lexicon without taking recourse to the L1 mental lexicon. The frequency of the advanced learners’ use of this strategy was 132.5 times and 54.5 times in the intermediate learners’ protocols. In terms of percentage, 11.8%(N=132.5) were used by the advanced learners and 4.8% (N=54.5) by intermediate learners in the protocols. In the final solutions, the percentage was 8.3% (N=93.5) for the advanced learners and 4.5% (N=51) for intermediate learners. It is obvious that the advanced learners

used this strategy more often than the intermediate learners. One reason is that the advanced learners know more words and can express their ideas without too many difficulties for the most part.

	Protocols	Percentage (%)	Solutions	Percentage (%)
Advanced	132.5	11.8	93.5	8.3
Intermediate	54.5	4.8	51	4.5

Table 5. 9 Frequencies and percentages of L2 SYN

Example 12

[**que<sub>v</sub>** **bao<sub>v</sub>]**<sub>v</sub> — *protect* — ‘secure’

*assure protect*

(Subject 2 TAP: 47) protect (.2) *ying gai yong protect ↗*

*should part. use*

Example 13

[**ben<sub>n</sub>** **di<sub>n</sub>]**<sub>n</sub> — *locality* — ‘region’

*base place*

(Subject 15 TAP: 47) the faith on locality and relatives

Example 14

[**guan<sub>n</sub>** **yuan<sub>n</sub>]**<sub>n</sub> — *officer* — ‘officials’

*official member*

(Subject 8 TAP: 33) [**guan<sub>n</sub>** **yuan<sub>n</sub>]**<sub>n</sub> government officer

*official member*

These protocols show that approximations are searched via L2 synonyms without relying on L1. During the planning phase and for the final solutions, the learners only use their L2 mental lexicon to search for the target words.



### 5.1.2.3 The Use of L2 REL CON

The use of L2-related concepts is also one of the more popular strategies used regardless of proficiency levels. The advanced learners applied it 81.5 times. This is 7.2% of all instances of L2-based strategies, and the intermediate learners used it 36 times (3.2%) in the protocols. In the final solutions, the frequencies also demonstrate that the advanced learners used this strategy more often than the intermediate learners. Advanced learners used this strategy 5.7% (N=64.5) while the intermediate learners used this strategy 2.6% (N=29). Table 5.11 shows the frequencies and percentages of using this strategy.

	Protocols	Percentage (%)	Solutions	Percentage (%)
Advanced	81.5	7.2	64.5	5.7
Intermediate	36	3.2	29	2.6

Table 5. 10 Frequencies and percentages of L2 REL CON

Example 15

[zu]<sub>n</sub> — *natives* — ‘people’

*race*

(Subject 14 F) natives

It is found that when learners use L2 supernym, L2 heteronym, cohypnym or meronym, they use L2-related concepts. In the example, the subjects used ‘natives’ for ‘people’, ‘native’ being the hyponym of ‘people’. Then, L2-related concept is adopted.

### 5.1.2.4 The Use of L2 FIG

The use of L2 figurative expression did not occur as frequently as the other strategies. Intermediate learners tended to use it more often than advanced learners. It appeared 11 times in the protocols of the advanced group and 16.5 times in the

intermediate group. However, in the final solutions, the advanced learners used this strategy once and the intermediate used it 0.5 times. The advanced learners used 0.4% (N=5) figurative expression in the protocols and 0.09% (N=1) in the final solutions, while the intermediate learners used 1.5% (N=16.5) and 0.04% (N=0.5) in the protocols and solutions. Table 5.11 shows the findings.

	Protocols	Percentage (%)	Solutions	Percentage (%)
Advanced	5	0.4	1	0.09
Intermediate	16.5	1.5	0.5	0.04

Table 5. 11 Frequencies and percentages of L2 FIG

Example 16

[**guo<sub>n</sub>** **jia<sub>n</sub>**]<sub>n</sub> — *motherland* — ‘country’

*country family*

(Subject 15 TAP: 1) patrialism (.4) is a kind of (.3) deep affection (.9) to (.3) the motherland (.18) is a deep affection to the motherland

Chinese is a language that is highly metaphoric. In this protocol, the subject did not use ‘country’ for [guo<sub>n</sub> jia<sub>n</sub>]<sub>n</sub> but ‘motherland’ was used to refer to the own ‘country’. It can be inferred that the subject is trying to avoid the common word but found a metaphoric word to indicate the same meaning.

### 5.1.2.5 The Use of L2 Formal Variation

When learners use this strategy, they use existing English words but in the wrong word class. The following table shows frequencies and percentages of using this strategy. It was found that the intermediate learners used this strategy a little more often than the advanced learners.

	Protocols	Percentage (%)	Solutions	Percentage (%)
Advanced	11.5	1	4	0.4
Intermediate	25	2.2	9	0.8

Table 5. 12 Frequencies and percentages of FO VAR

Example 17

[feng<sub>v</sub> jian<sub>v</sub>]<sub>n</sub> — *feudalism* — ‘feudal’

*confer build*

(Subject 4 F) feudalism

Here it is clear that the ‘feudalism’ is an existing English word. But when it is used in the context, it does not fit into the context. This is a formal variation of an L2 concept or synonym.

### 5.1.2.6 The Use of L2 PARA

By using this strategy, learners paraphrased in the L2 without taking recourse to the L1. It is probably because both groups of learners have been learning English for over ten years (including high school education), and at the time of data collection they had native speakers teach them English. The frequency of this strategy was 69.5 times for the advanced learners and 12.5 times for the intermediate learners in the protocols. In the final solutions, advanced learners utilized this strategy 26.5 times while the intermediate learners only employed it 10.5 times. Accordingly, the advanced learners used this strategy 6.2% in the protocols and 2.4% in the final solutions, while the intermediate learners used this strategy 1.1% in the protocols and 0.9% in the final solutions. This tendency indicates that the advanced learners are able to access L2 words in memory with relative ease.

	Protocols	Percentage (%)	Solutions	Percentage (%)
Advanced	69.5	6.2	26.5	2.4
Intermediate	12.5	1.1	10.5	0.9

Table 5. 13 Frequencies and percentages of L2 PARA

Example 18

[**deng<sub>v</sub>** **ji<sub>n</sub>]**<sub>v</sub> — *became rulers* — ‘succeeded to the throne’

*climb base*

(Subject 8 TAP: 73) after they became rulers *tong zhi zhe*

*union control person*

Example 19

[**xing<sub>v</sub>** **wei<sub>v</sub>** **zhun<sub>n</sub>** **ze<sub>n</sub>]**<sub>n</sub> — *do’s and don’ts* — ‘behavioral norms’

*act behave norm rule*

(Subject 21 TAP: 11) do’s and that’s (.4) don’ts ↗ (.12) most of do’s and don’ts

Besides using semantic intensions to paraphrase the L1 words and then translating them into the corresponding L2 word, the subjects used their L2 semantic intensions to find words from their L2 mental lexicon directly when they thought they had the words they needed. These examples show the way in which they search the target words via paraphrasing in L2 directly.

### 5.1.2.7 The Use of Word Formation

The learners of both groups used word formation processes to search the appropriate words at their disposal depending on linguistic proficiency. Since word-formation plays an important role in learning a foreign language for Chinese learners, special attention was paid to discern whether learners of both proficiency groups used word-formation processes to search for words. The number of uses of

word-formation is calculated separately from the overall numbers for the sake of testing the hypothesis that lower proficiency learners applied learned rules more than the higher proficiency learners. The overall numbers of word-formations of both proficiency groups in the protocols and the final solutions altogether came to 175 instances. In the protocols, the advanced learners used 10% (N=17.5) compounding, 6.3% (N=11) derivation and 3.1% (N=5.5) conversion. The intermediate learners used 28.3% (N=49.5) compounding, 17.4% (N=30.5) derivation and 8.3% (N=14.5) conversion. In the final solutions, the advanced group of learners applied compounding with a percentage of 5.1% (N=9), 2.9% (N=5) for derivation and 1.1% (N=2) for conversion, while the intermediate learners used 8% (N=14) for compounding, 5.4% (N=9.5) for derivation and 3.7% (N=6.5) for conversion. Frequencies and percentages of word-formation are shown in the table below.

	Protocols				Solutions			
	Advanced Number	Percentage %	Intermediate Number	Percentage %	Advanced Number	Percentage %	Intermediate Number	Percentage %
Compound	17.5	10	49.5	28.3	9	5.1	14	8
Derivation	11	6.3	30.5	17.4	5	2.9	9.5	5.4
Conversion	5.5	3.1	14.5	8.3	2	1.1	6.5	3.7
Total	34		94.5		16		31	

Table 5. 14 Frequencies and percentages of the use of word formation

### Example 20

#### *Compounding*

[**xue<sub>n</sub>**    **yuan<sub>n</sub>]<sub>n</sub> — *blood relation* — ‘family (blood) ties’**

*blood affinity*

(Subject 6 TAP: 59) *zhe li ying gai shi* blood relation or blood relation

*here prep. should part. is*

contents

(Here it should be blood relation or blood relation contents)

The subject followed the formation process of compounding in Chinese and combined ‘blood’ and ‘relation’ together to get ‘blood relation’ which is a

non-existing but possible word in English. Thus, it is considered that the subject is using compounding here.

Example 21

*Derivation*

[**ai<sub>v</sub>** **guo<sub>n</sub>** **zhu<sub>adj</sub>** **yi<sub>n</sub>**]<sub>n</sub> — *nationism* — ‘patriotism/nationalism’

*love country main meaning*

(Subject 8 TAP: 6) nation (.1) nationism ↗ (.2) nationism

The suffix ‘-ism’ is used to form the word having the meaning of ‘the action or result of’ or ‘the state or quality of’ such as ‘criticism’, ‘racism’ and ‘Americanism’ etc. Since it is a common word-formation process for such kinds of words, the subject uses the rule of deriving the word with this suffix and comes to the approximation ‘nationism’ which does not actually exist in English.

Example 22

*Conversion*

[**zhong<sub>adj</sub>** **cheng<sub>adj</sub>**]<sub>n</sub> — *honest* — ‘loyalty/loyalties’

*loyal honest*

(Subject 002 TAP: 7) the honest to the race

‘honest’ is an adjective and cannot be used as a noun in this way. Here, the subject followed the way to convert the part of speech of one word into another part of speech to get a word which is not an existing English word.

### 5.1.2.8 The Use of L2 ASSOC

This strategy is also employed by both groups of learners in the protocols and the final solutions due to spontaneous occurrence of the L2 words with similar meaning. The advanced learners used this strategy 14.4% (N=162.5) in the protocols and 1.7% (N=19.5) in the solutions. The intermediate learners used it 7% (N=78.5) in the

protocols and 0.8% (N=9.5) in the final solutions. The frequency of the use of L2 association is indicated in the following table.

	Protocols	Percentage (%)	Solutions	Percentage (%)
Advanced	162.5	14.4	19.5	1.7
Intermediate	78.5	7	9.5	0.8

Table 5. 15 Frequencies and percentages of L2 ASSOC

Example 23

[**que<sub>v</sub>** **bao<sub>v</sub>**]<sub>v</sub> — *guaranteeing* — ‘secure’

*assure protect*

(Subject 22 TAP: 25) guuuaaraanteee (reads) only after (.3) guaranteeing ↗ (.6)  
guaranteeing their own benefits (.6) benefits

Example 24

[**yan<sub>v</sub>** **ji<sub>v</sub>**]<sub>v</sub> — *mention* — ‘extend’

*extend reach*

(Subject 18 TAP: 50) patriotism (.3) mention [yan<sub>v</sub> ji<sub>v</sub>]<sub>v</sub> ta men ye jiu  
*extend reach they plural too adv.*  
*shi* [she<sub>v</sub> ji<sub>v</sub>]<sub>v</sub> ta men ba (.2) mention them  
*is involve reach they plural interj.*

‘guaranteeing’ in example 23 and ‘mention’ in example 24 are existing words in English. When they are used in the protocols, they do not have a semantic connection to the target words and do not fit into the text. Learners just used their personal semantic association in the search for words.

Based on the illustration of the findings on the use of each strategy in the protocols and the final solutions within L2-based strategies, the overall frequencies of L2-based strategies are demonstrated in figures 5.3 and 5.4 accordingly.

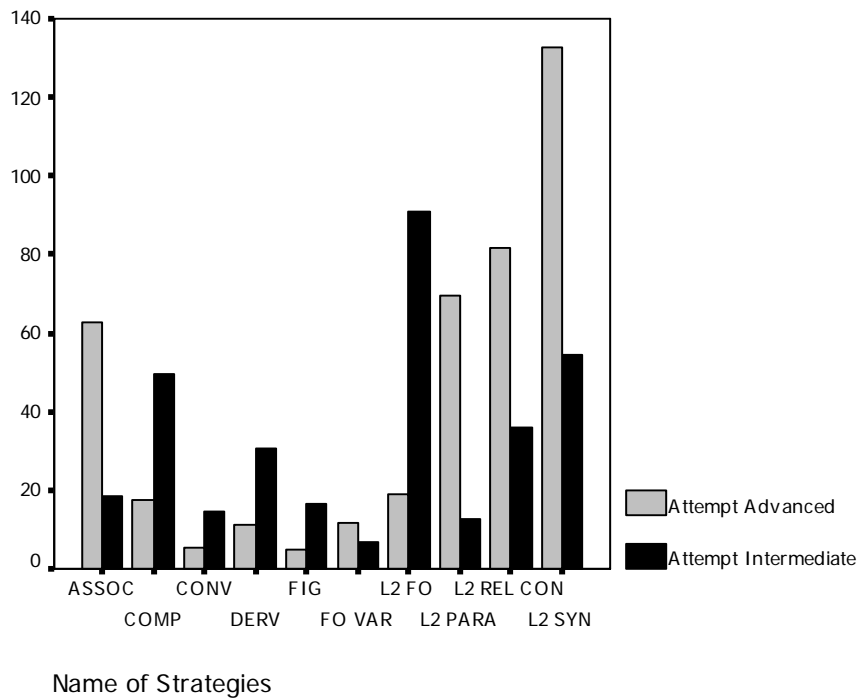


Figure 5. 3 The use of L2-based strategies in the protocols

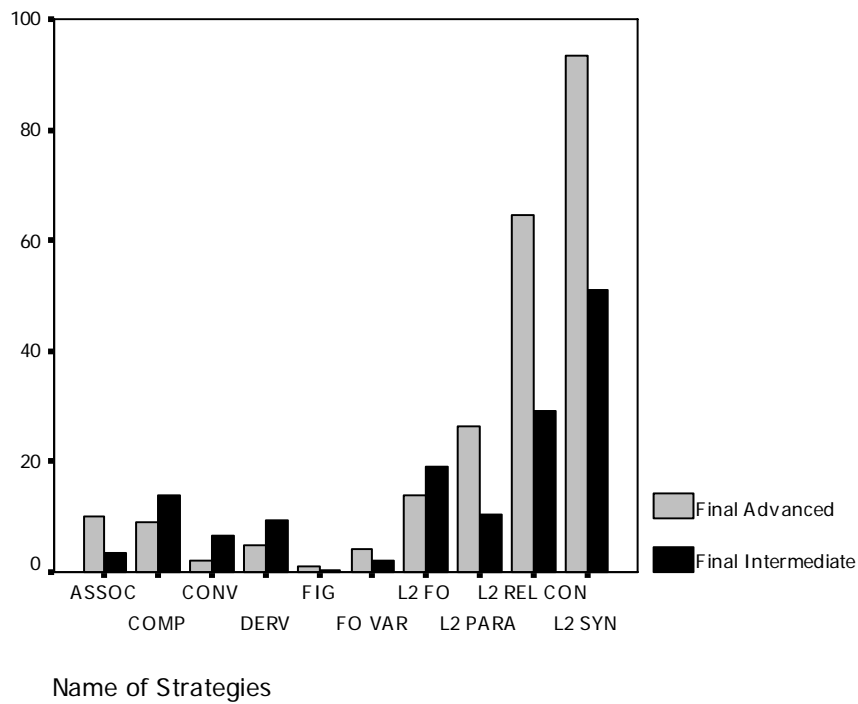


Figure 5. 4 The use of L2-based strategies in the solutions



The overall use of L1-based strategies and L2-based strategies used in think-aloud protocols across proficiency levels is shown in figure 5.5 while strategies used in the final solutions are indicated in figure 5.6.

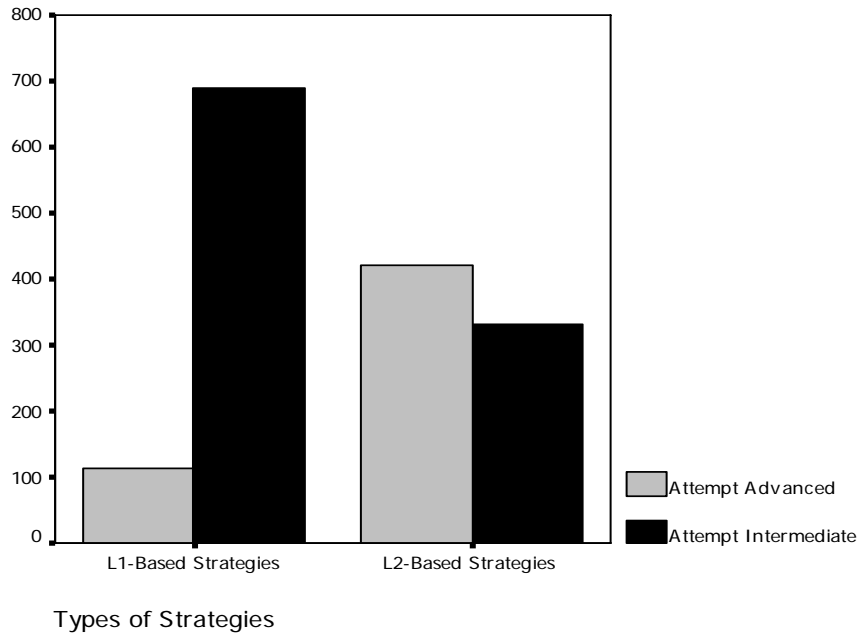


Figure 5. 5 The use of L1- and L2-based strategies in think-aloud protocols across proficiency levels

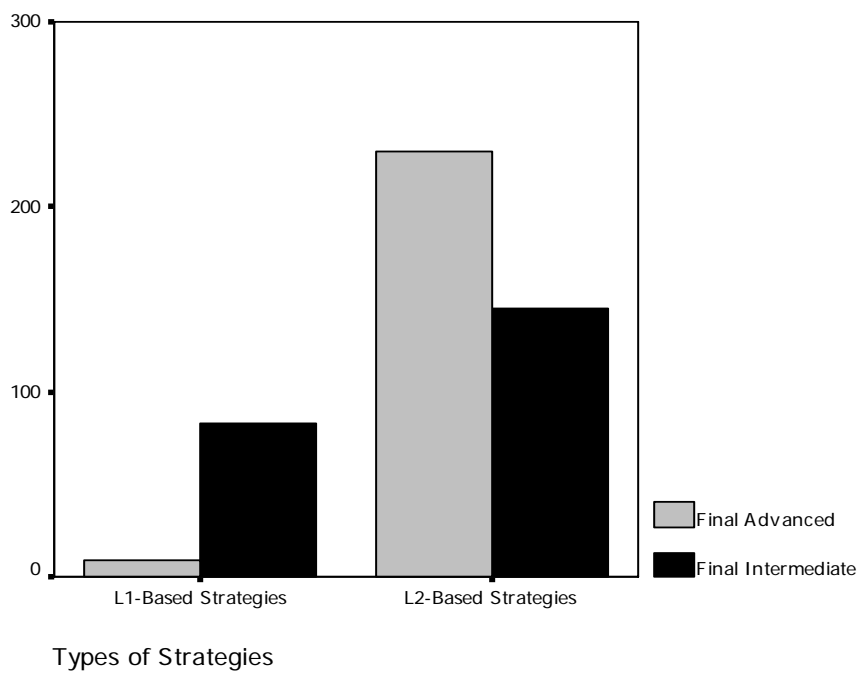


Figure 5. 6 The use of L1- and L2-based strategies in final solutions across proficiency levels

As the figures show, learners with a higher proficiency level in the target language are more likely to use strategies based on the target language than based on the source language. These figures only show overall frequencies of the findings of the use of strategies based on L1 and L2 forms. The significance and analysis of the findings will be demonstrated in more detail in the next chapter referring to the related literature reviewed.

## 5.2 Retrieval

When learners accessed the target words without any difficulties, they retrieved the target words. Retrieval occurred very frequently in the data even though most of the learners reported that the text was quite difficult for them. When the use of retrieval is calculated for the advanced and the intermediate group, the frequency clearly shows that the learners of the advanced group use more retrieval than the intermediate learners. It is obvious that the advanced learners retrieve the target word more easily since they have a large vocabulary. The following table shows the overall use of retrieval by advanced and intermediate learners.

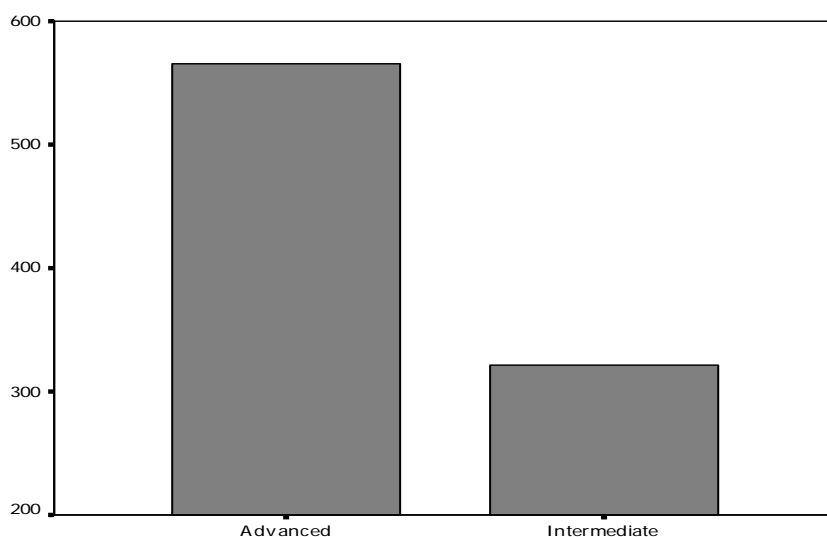


Figure 5. 7 The use of retrieval by advanced and intermediate learners

### 5.3 Monitoring Strategies

As it is shown in the taxonomy of the strategies, Chinese learners do not only use linguistic strategies displayed in the sections above, but also use monitoring strategies in order to solve the lexical problems encountered. When the frequencies of monitoring strategies were counted, it was found that the intermediate learners used monitoring strategies more often than the advanced learners although the frequencies vary across the proficiency levels. Figure 5.7 shows the use of monitoring strategies by the advanced and intermediate learners.

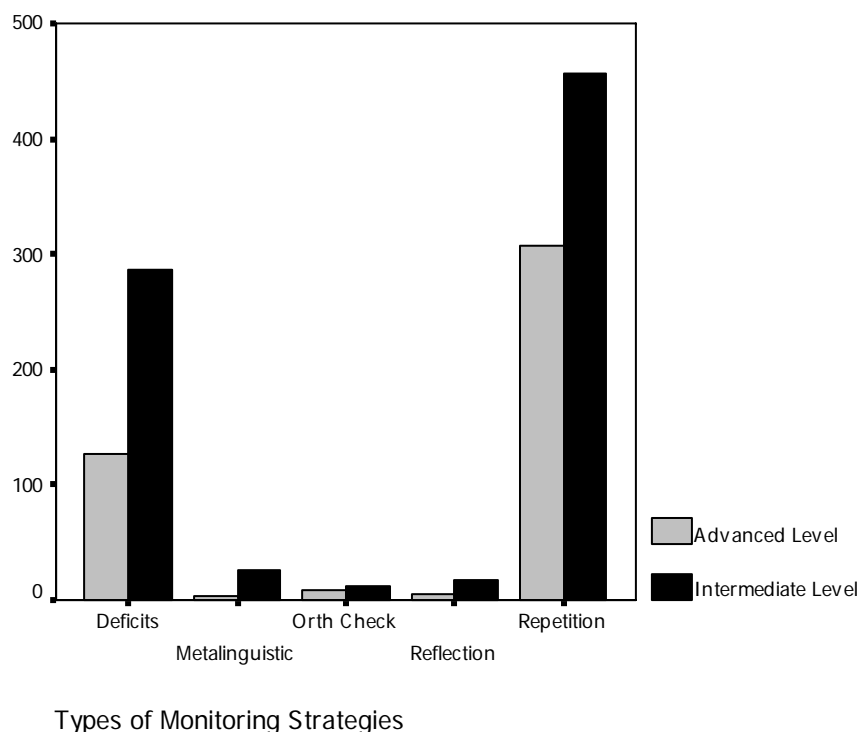


Figure 5. 8 The use of monitoring strategies across proficiency levels

### 5.4 Abandonment

No matter what linguistic proficiency level learners have, when they feel they cannot solve the lexical problems, they abandon the effort to search for approximations. Abandonment occurred across all proficiency levels but not very frequently. One reason could be that both groups of learners have been learning English for quite a long time and have enough competence to do the task. Another

reason could be that Chinese learners usually do not abandon their efforts to finish a task even though they have difficulties. Figure 5.9 shows the use of abandonment by advanced and intermediate learners.

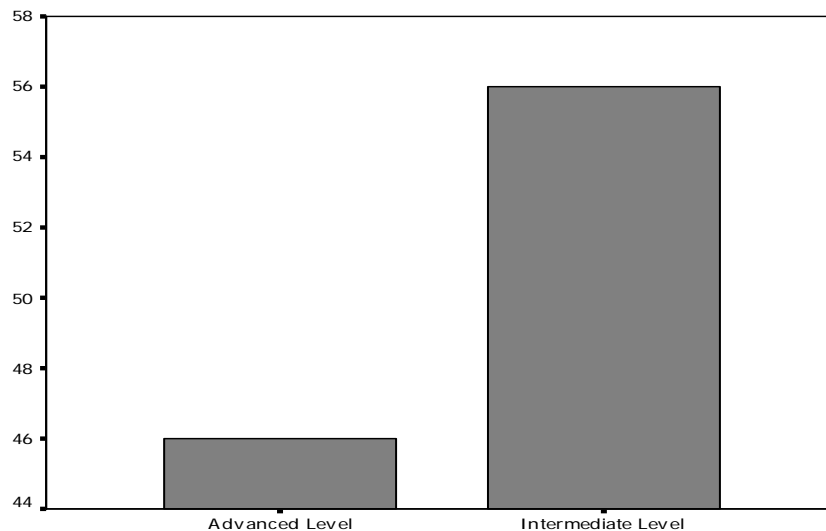


Figure 5. 9 The use of abandonment by advanced and intermediate learners

## **5.5 Discrepancy between Translation Competence and Linguistic Proficiency**

Through data analysis it has been found that the translation quality of learners does not correspond with the proficiency levels. It is usually believed that the higher the level of language proficiency learners have the better the translation produced. Without considering the proficiency groups the subjects belong to, their translation was ranked by a native speaker and a Chinese speaker, who is regarded as a near-native speaker of English. The optimal translation and the newspaper version of the text were given to the native speaker so that she could have a general idea of the Chinese text, while the Chinese speaker was given the original Chinese text without the optimal translation. Both evaluators worked on their own. Then their evaluations were compared and referred back to the subjects' proficiency groups. Afterwards, the evaluators provided the criteria for ranking the subjects' tasks. The native speaker considered content, grammar and style when she evaluated the translation. The

Chinese speaker held the idea to find out if the words are translated, if the grammar is correct, and if the translated meaning is equal to the original text. Both evaluators paid attention to grammar. Figure 5.10 shows the translation quality ranking by the two evaluators of the data in the real round of data collection.

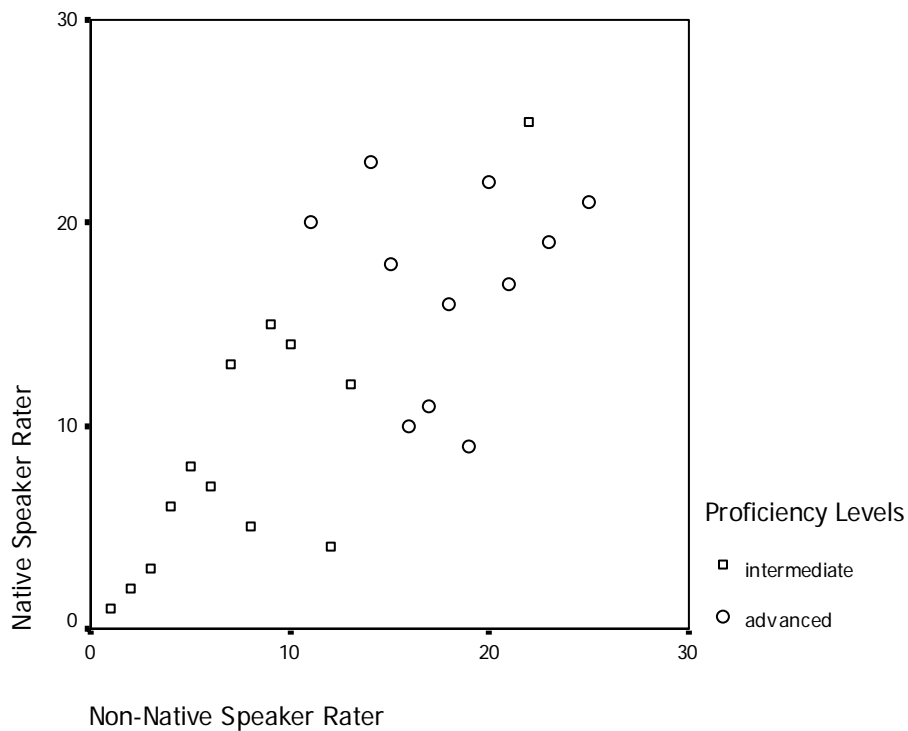


Figure 5. 10 Translation quality evaluation (real round)

Note: 24 subjects took part in the real round of data collection. The translation was evaluated by a native speaker and a Chinese speaker. The native speaker is from the United States of America and does not understand Chinese. Both the native speaker and the Chinese speaker ranked the translation without knowing the subjects' proficiency levels. Two subjects who belonged to the intermediate group did not submit their final copies since they did not think they could finish the translation task.

Altogether 24 subjects took part in the real round of data collection. 11 of them were judged as advanced learners. Eight of them were ranked between the second and the ninth place by the native speaker. Another three were put somewhere between the 14<sup>th</sup> and 15<sup>th</sup> place. Subject 19, who belonged to the intermediate group in the final phase, was ranked at the top of all learners by the native speaker. Four other intermediate learners' translations were evaluated better than the advanced learners'. This divergence shows that the translation quality can not correspond to the linguistic

proficiency level.

The Chinese speaker gave subject 19 the third place in the ranking table and one advanced learner fell out of the advanced group. The Chinese speaker's translation ranking was similar to the native speaker's although the Chinese speaker's ranking criteria were different from the native speaker's.

Not only the translation in the real round was ranked by both native and non-native speakers, but also the translation in the pilot round was judged by the same evaluators. The following figure shows the ranking in the pilot round.

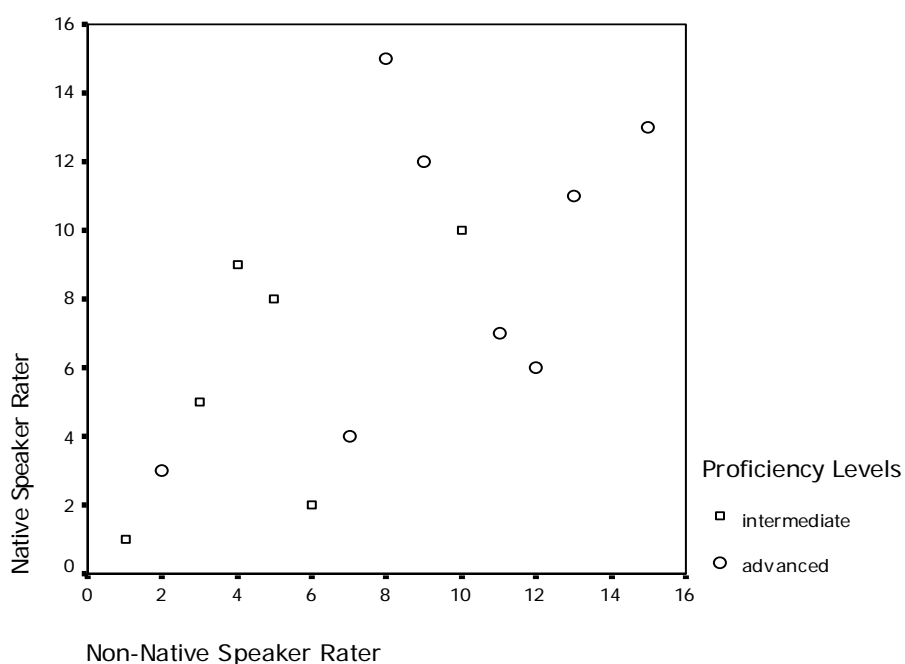


Figure 5. 11 Translation quality evaluation (pilot round)

Note: 14 subjects took part in the pilot round of data collection. The translation was evaluated by a native speaker and a Chinese speaker. The native speaker is from the United States of America and does not understand Chinese. Both the native speaker and the Chinese speaker ranked the translation without knowing the subjects' proficiency levels.

14 subjects participated in the pilot round and eight of them were advanced learners. Six subjects in this round belonged to the intermediate group. Four advanced learners' translations were evaluated as not as good as the intermediate learners' by the native speaker. Two of them were even placed quite low on the ranking order. The Chinese speaker placed two advanced learner's translations on the lower end of the

ranking order. This also proves that the translation competence does not correspond to the proficiency level.

## 5.6 Some Borderline Cases

Even though it has been found in the data that Chinese learners of English employ a certain amount of lexical search strategies to solve their lexical problems, as shown in the above sections, there are still some instances which are hard to classify. Since there has been little theoretical and analytical concern with lexical search strategies used by Chinese learners of English, it is hard to determine whether some instances are strategic or non-strategic. Accordingly, only such kinds of instances found in the data can be classified as borderline cases that need further investigation in the future. The following examples are borderline cases found in the data.

Case 1

[ren<sub>n</sub> lun<sub>n</sub>]<sub>n</sub> — *himself/oneself* — ‘interpersonal ethics’

*people ethics*

(Subject 009 TAP: 34) than that of himself (.5) oneself (.2) locality ↗ (.3) and  
blood (.1) relation blood family

Here, the target form of L2 should be ‘interpersonal ethics’, a lexical phrase consisting of an adjective and a noun. The subject chose ‘himself’ and ‘oneself’ which are pronouns in the protocol. Going back to the subject’s final solutions, ‘oneself’ was used. Compared with the taxonomy and the definitions of lexical strategies, it seems that this instance does not fall into any category. Consequently, it has been classified as a borderline case.

The following examples show similar situations that can not be put into any category of the taxonomy.

Case 2

[**yan**<sub>v</sub>     **ji**]<sub>v</sub> — *meaningful/accepting* — ‘extend’

*extend    reach*

(Subject 010 TAP: 41) [**yan**<sub>v</sub>    **ji**]<sub>v</sub>    *ta    men*(.7) is meaningful (.2) is (.3)

*extend   reach   they   plural*

[**yan**<sub>v</sub>    **ji**]<sub>v</sub> (.1) is accepting (.7) by them (.8) is

*extend   reach*

meaningful

([extend] them (.7) is meaningful (.2) is [extend] (.1) is  
accepting (.7) by them (.8) is meaningful

The subject in this protocol used ‘meaningful’ and ‘accepting’ for the optimal form ‘extend’. These words are no supernymy or heteronym or cohyponym or meronym of ‘extend’. It seems that the protocol words do not fall into the taxonomy.

Case 3

[**zhong**<sub>adj</sub>   **cheng**<sub>adj</sub>]<sub>n</sub> — *falial* — ‘loyalty/loyalties’

*loyal       honest*

(Subject 004 F) *falial*

This case occurred in the subject’s final solution. By going back to the protocols, it has been found that the subject kept repeating the L1 form of this word without trying to write it down. When it was necessary to put it into the categories of the taxonomy, it seemed hard to find a suitable category to which this word belongs to. As a result, it was classified as an unclear case.



Case 4

[ji<sub>v</sub>      fa<sub>v</sub>]<sub>v</sub> — *croused* — ‘provoke’

*stimulate develop*

(Subject 2 TAP: 81) [ji<sub>v</sub>      fa<sub>v</sub>]<sub>v</sub>    *ying      gai    yong*    *croused* (.2) love to

*stimulate arouse should    part. use*

the motherland is *croused* ↗

Apparently, the form ‘croused’ used by the subject was blocked by ‘arouse’. When going back to the final solutions, it was found that the subject used ‘croused’. The subject seemed to be quite certain about this solution. However, no strategies apply to it. Hence, this was an unclear case.

## 5.7 Summary

By analyzing the data it became apparent that all subjects across all proficiency levels used considerable numbers of lexical strategies to solve the lexical problems they encountered. The frequencies and percentages of the use of strategies show that learners at a lower proficiency level use more strategies based on their native language while learners at a higher proficiency level tend to use more strategies based on the target language.

Regarding the translation quality ranking, the results have shown that the translation production quality does not correspond with proficiency levels when the subjects’ translation was evaluated by a native speaker and a non-native speaker without considering the proficiency groups learners belonged to. Although quite a lot of strategies have been identified in the study, there were some borderline cases. Having presented the collected data, the subsequent chapter will be dedicated to fully interpreting the findings.

# **Chapter 6 Interpretation of the Results, Discussion and Conclusion**

In this chapter, the findings of this project will be discussed in the light of the research questions raised in this chapter. The hypotheses formulated in connection with the research questions will be put to the test. In Section 6.1, the relationship between the use of lexical search strategies and the learners' proficiency levels will be presented on the basis of the report on the frequencies demonstrated in the previous chapter. The hypotheses related to research question one will be tested. Section 6.2 discusses the blend of lexical strategies within proficient groups. The hypothesis raised for research question two will be tested. Section 6.3 discusses the effectiveness of lexical strategies with the purpose of forming a hypothesis rather than testing it. Section 6.4 interprets the phenomenon of transferring L1 noun compound structure into L2. Section 6.5 describes the discrepancy between translation competence and linguistic proficiency and discusses some characteristics which cause such a discrepancy. Section 6.6 highlights some implications of these results for teaching Chinese learners English. In section 6.7 conclusions and a brief evaluation of the study are included. Some suggestions for further research are offered in Section 6.8.

## **6.1 The Relationship between the Use of Lexical Strategies and Linguistic Proficiency**

Research question one is about the relationship between the learners' proficiency levels and their use of lexical search strategies. In order to test the hypothesis formulated for research question one, the L1-based and L2-based strategies are submitted to quantitative analysis. The results show that learners at a lower proficiency level use a larger number of lexical strategies than learners at a higher proficiency level. This observation can be explained as a consequence of the lower level learners' more limited command of the vocabulary of the target language. The reason why advanced

learners also employ a certain number of lexical strategies lies in that they may have set themselves higher communicative goals than lower level learners when they performed the task. They try to produce the target language employing more varieties of strategies. Their needs to use lexical strategies may have increased as a result of higher communicative goals setting. In what follows, two hypotheses related to research question one are tested through quantitative analysis.

### **6.1.1 Hypothesis 1: Learners who are less proficient in their L2 will employ more lexical search strategies than learners who are at a higher proficiency level**

A frequency count of the number of lexical strategies used by each group of learners is carried out in order to test this hypothesis. The results reveal differences between them in the number of lexical strategies they use for the accomplishment of the same performance tasks, but they do not substantiate the hypothesized inverse relationship between learners' degree of proficiency and frequency of lexical strategy use.

	Intermediate learners	Advanced learners
Number of lexical strategies	1269	782

Table 6. 1 Proficiency levels and number of lexical strategies

The frequency of the use of L1-based and L2-based strategies indicates that the intermediate group of learners uses a considerably larger number of strategies than the more proficient learners. These results initially confirm the assumption that, because of their more limited command of the target language's vocabulary, less proficient learners encounter greater lexical difficulties, thus needing to make use of a larger number of lexical strategies. The increase in the use of strategies at the intermediate level can be explained by the fact that the intermediate learners with less formal

mastery of the language need to rely more on lexical strategies as often as possible, while the advanced learners do not need to do so because they have greater formal mastery of the language. Another possible explanation for the increased strategy use at the intermediate level may have to do with the fact that intermediate learners can not better predict possible communication problems and find solutions to them by planning ahead.

Poulisse, Bongaerts and Kellerman (1990, chapter 8) suggest the untested possibility that more important than the total number of lexical strategies used in the accomplishment of a task is the relationship between lexical strategy instances and the amount of content provided. Given their nature the communicative tasks used to elicit the data allow a considerable degree of freedom regarding the amount and specificity of content to be communicated. On account of this, it is likely that advanced learners in their last year of English language learning at university, and therefore being expected to be on a high level, have a near native command of the English language and hence will set higher communicative goals for the accomplishment of the tasks than intermediate students; that is, they will try to produce more language with more varieties, thus encountering greater lexical difficulties at the same time.

The overall frequency of the use of strategies reveals the relationship between the use of strategies and learners' linguistic proficiency to some extent. But it does not indicate the relationship between the use of L1-based or L2-based strategies and the learners' proficiency levels. When frequencies of L1-based and L2-based strategies are counted and converted to percentages, the relationship between the use of L1-based or L2-based strategies and the learners' proficiency levels can be determined. The following table shows the percentages of L1-based and L2-based strategies.

Proficiency Level	Strategy Type	
	L1-Based	L2-Based
Advanced	6.5%	31.9%
Intermediate	38.3%	23.3%

Table 6. 2 Percentage of strategy use according to proficiency levels

This table shows that as the learners become more proficient in L2, they use fewer L1-based strategies and more L2-based strategies to solve the lexical problems encountered. When learners are not so proficient in their L2, they rely more on their mother tongue in order to reach lexical approximations. Figure 6.1 shows this developmental tendency.

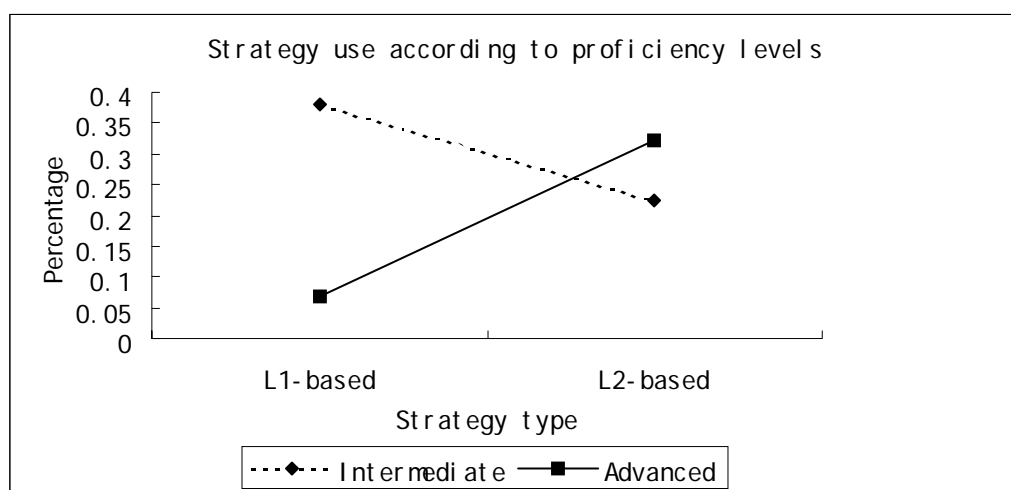


Figure 6. 1The use of L1- and L2-based strategies by advanced learners and intermediate learners

The figure indicates that L2-based strategies are applied more and L1-based strategies are used less as the proficiency level grows. The results may show that each learner at a different level of language proficiency has an individual repertoire of strategies for solving lexical problems and that task differences do not generally affect the strategies used. As it is indicated in the previous chapter, the range and effectiveness of the learner's personal repertoire vary from learner to learner. On the

basis of the findings, it appears that the number of strategies is infinite, because it cannot be determined that learners solved the lexical problems by using a strategy that is not included in the taxonomy elicited in the data. Bialystok (1990, p.12) comments: “Strategies are related to solutions in specific ways, and they are productive in solving the problem for reasons which theorists can articulate”. What Bialystok (1990, p. 12) points out does not mean that the use of a particular strategy inevitably leads to a successful outcome.

Although both groups of learners use a multitude of strategies to solve their lexical problems and the intermediate learners use more strategies than the advanced learners due to their limited command of the target language, it does not mean that they use the strategies systematically. This view differs from Bialystok’s (1990, p.12) statement that “strategies are systematic: learners do not create or stumble on the best strategy for solving a problem but uncover the strategy from their knowledge of the problem and apply it systematically”. This feature of strategies does not always apply as the data of the study shows. The learner’s strategy use appears to be spread along a continuum ranging from analytic to intuitive. Learners seem to employ certain strategies they think are effective for them to solve the lexical problems they encounter. Littlemore (2003, p.343) points out that “when faced with a gap in one’s target language lexis, it is better to provide relatively direct information about what the target item does and what it is for, rather than less directly describing things that it resembles”. Zimmermann (1999) distinguishes the difference between functional paraphrases and formal paraphrases and states that “depending on the concept in question they will be mostly functional, material, formal or otherwise characterized in perceptual terms” (p. 138). What Littlemore (2003) and Zimmermann (1999) suggest tells us that an individual learner may not solve what appear to be similar problems through the same strategy. The data indicates that solutions are reached by trial and error rather than through systematic searches drawing on the learner’s mental lexicon. Thus, it seems that the notion of strategies being applied systematically by learners is to a certain extent problematic.

Although the data do not elicit any definitive statements about why certain

strategies are used and when they are applied, they do show that the less proficient learners employ a wider range of strategic behaviors in order to compensate for linguistic deficiencies than the more proficient learners.

### **6.1.2 Hypothesis 2: Lower proficiency level learners will rely more on the learned rules of the foreign language to search lexical approximations than higher proficiency level learners**

Hypothesis 2 assumes that lower proficiency learners rely more on learned rules of the foreign language to solve their lexical problems than higher proficiency learners. Here, learned rules mainly refer to strategies elicited by using the word-formation rules such as compounding, derivation<sup>19</sup> and conversion without considering other grammatical rules. Since the English instruction method and time frame is almost the same for Chinese learners during the university period, it is assumed that the learned rules of the foreign language affect the learners' use of strategies. As is shown in the results, word-formation processes play a prominent role in applying lexical strategies. The following figure shows the use of compounding, derivation and conversion by learners across proficiency levels.

---

<sup>19</sup> Usually low level L2 learners do not apply derivation very often. It is necessary to clarify that the subjects of the intermediate group of L2 proficiency in the present study apply derivation to solve lexical problems encountered because their L2 proficiency level is fairly advanced due to a long time of English learning.

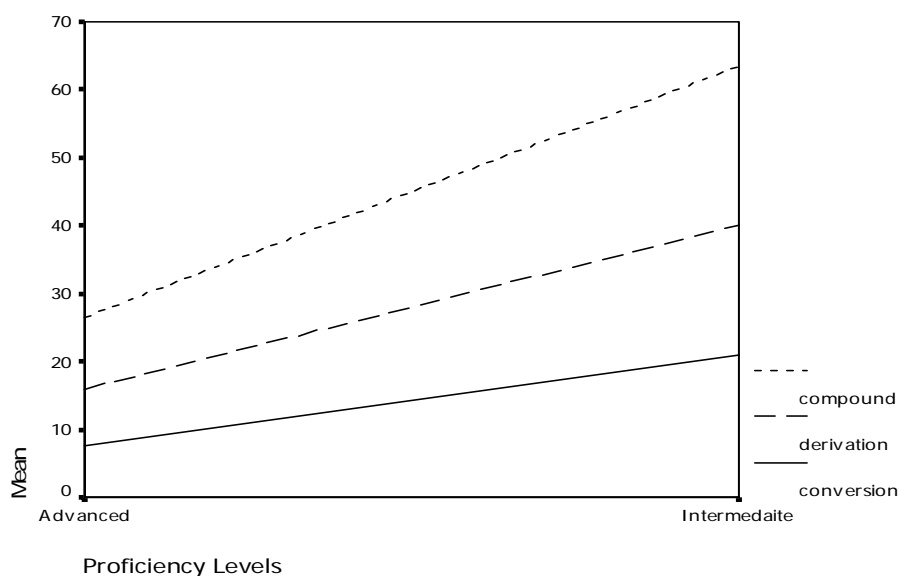


Figure 6. 2 The use of word-formation processes across proficiency levels

Figure 6.2 shows that as the proficiency level decreases, the use of word-formation processes is increasing. In order to test whether the use of word-formation processes are due to proficiency or simply chance, an analysis of variance (ANOVA) is performed on the data, using the sum of frequencies as the dependent variable and the linguistic proficiency as the independent variable. Table 6.3 shows the outcome. P-value is .05 and is regarded as significant.

Word-formation in comparison with L2-based preference					
Source of Variance	SS	df	MS	F	P-value
Word-formation Process					
Between Groups	35039.69	2	17519.85	3.545894	0.054822
Within Groups	74113.25	15	4940.883		

The mean difference is significant at  $p=.05$

Table 6. 3 The significance of word-formation process

The frequencies of word formation and the analysis of variance indicate that intermediate learners use word-formation processes to search for words more often than advanced learners in the protocols as well as in the final solutions. This finding contributes to the claim that the lower proficiency learners rely heavily on the learned



rules of the foreign language and tend to use word-formation rules to obtain the appropriate words. Since the intermediate learners have a limited range of vocabulary, word formation for them is a safe method to get access to the target words without violating the word-formation rules they know.

## **6.2 The Blend of Lexical Strategies**

Although the relationship between the use of lexical strategies and the learners' linguistic proficiency shows that intermediate learners use more strategies and rely more on L1-based strategies to solve lexical problems than advanced learners, there are some differences within the two groups when using different types of lexical strategies. Besides a shift from L2-based strategies to L1-based strategies as the proficiency level decreases, the overall proficiency level of the learners influences the choice of particular strategies as well. This part discusses the hypothesis related to research question two.

As the frequencies of the use of strategies show, the learners' proficiency level affects the choice of particular strategies. Within L1-based strategies, there is a decreased reliance on L1 decomposition and association and an increased use of relexification, L1 synonym, L1-related concepts and paraphrases. Within L2-based strategies, L2 synonym, L2-related concepts and L2 paraphrases tend to be used more. Word-formation processes, especially the use of compounds with a Chinese compounding structure, occurs at the intermediate level more than with advanced learners, who seem to prefer L2-based strategies. The following figures show the use of each strategy across proficiency levels in think-aloud protocols and final solutions.

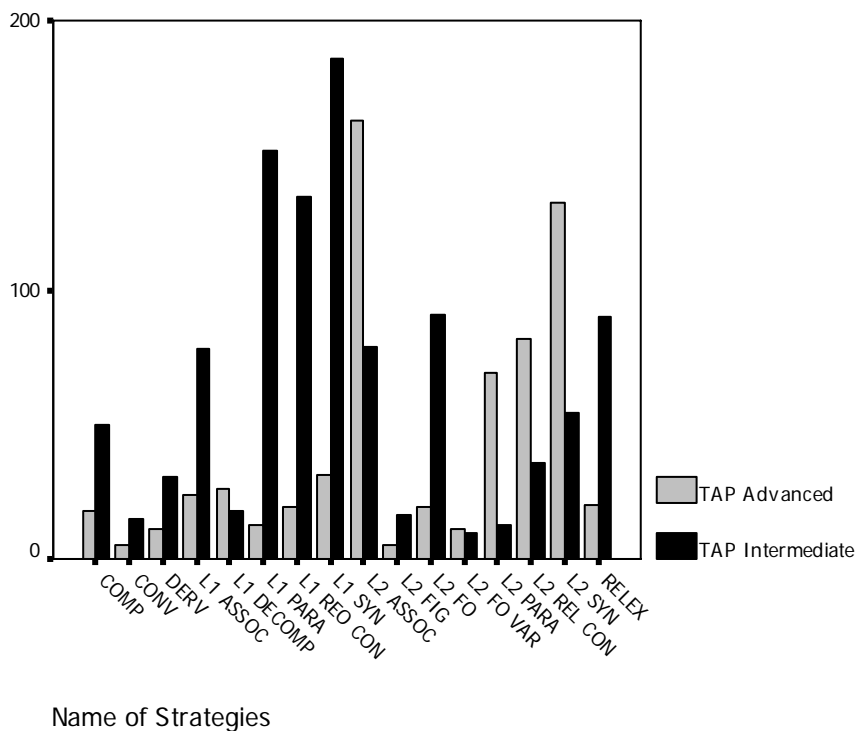


Figure 6. 3 The use of strategies across proficiency levels in think-aloud protocols

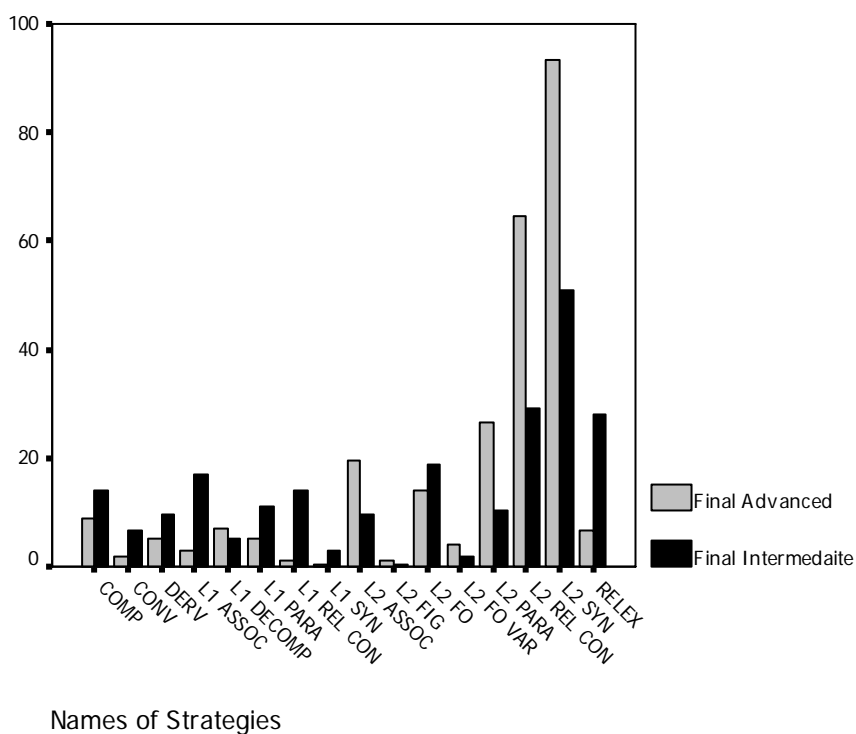


Figure 6. 4 The use of strategies across proficiency levels in the final solutions

These figures show the choice of strategies across proficiency levels in the

think-aloud protocols and the final solutions. In order to test whether the choice of strategies is really linked to learners' proficiency level or whether they are due to chance, analysis of variance (ANOVA) is applied as the statistical tool for data evaluation because it delivers results for values that reflect individual variation in the sum of frequencies. Therefore, two one-way ANOVAs are performed on the data, using the sum of frequencies as the dependent variables and the linguistic proficiency levels in terms of group membership as the independent variables. These ANOVAs reveal the role of proficiency in the distribution of L1-based and L2-based strategies in each learner group. Table 6.3 shows the results for L1-based and L2-based strategy preference. Both P-values are significant.

Source of Variance	SS	df	MS	F	P-value
L1-based strategies preferred					
Between Groups	359.6753	4	89.91881	3.301351	0.013305
Within Groups	3186.726	117	27.23698		
L2-based strategies preferred					
Between Groups	215.6098	7	30.8014	4.360115	0.000156
Within Groups	1476.45	209	7.064355		

The mean difference is significant at  $p < .05$

Table 6. 4 Choice of strategies across groups

Since there are only two groups of learners at different proficiency levels in the data collection, the T-test is also applied to test whether the choice of strategies is affected by linguistic proficiency or by chance. Table 6.5 shows the results of the T-test.

	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		df	Sig. (2-tailed)
				Lower	Upper		
Proficiency Level- L1-based	23.083	24.4241	4.0707	-31.347	-14.819 -5.671	35	.000
Proficiency Level- L2-based	28.162	12.6112	2.0733	-32.367	-23.957 -13.583	36	.000

Table 6. 5 Comparison of means of choice of strategies across groups

These results confirm the hypothesis, which states that the proficiency level affects the choice of strategies. The choice of lexical strategies varies according to proficiency levels in the target language when performing the same task. All learners in the study are assumed to have enough facility in the English language to make use of all the different categories of strategies identified in the taxonomy, but in differing proportions. Learners of the two groups have the tendency to apply strategies according to their linguistic proficiency. Learners of the advanced group use more L2-based strategies, of which semantic representation takes up the majority of overall strategies, occurring in both protocols and final solutions. Within L2-based strategies, the frequency of synonym, related concepts, paraphrase and association are higher than in others. Although L1-based strategies also occur in the advanced group, they are not as favored by high proficiency learners.

The intermediate learners apply L1-based strategies more prominently due to the convenience of easy access through the native language even though L2-based strategies also occur. But they are used not as frequently as by the advanced learners. Of all strategies demonstrated, the intermediate learners do not only rely heavily on semantic representation belonging to the L1-based strategies but also depend more often on word-formation processes out of the L2-based strategies. Intermediate learners prefer to use L1-based strategies such as relexification, synonym, related concept, paraphrase and association while L2 form and L2 synonym, compounding and derivation are also prominent among L2-based strategies.

Less proficient learners, compared with their more advanced counterparts, use a higher percentage of L1-based strategies; that is, when faced with lexical difficulties, they resort to their L1 lexical knowledge more often. As hypothesized, lower level learners, because of their more limited command of the target language, are not able to fully develop alternative means to convey their originally intended messages as frequently as more proficient learners.

A comparative analysis of the intermediate and advanced learners' performances confirms that the advanced learners' use of L2-based strategies is often the result of their attempts to provide highly accurate and detailed information. On the one hand, such attempts may cause them to encounter more, and sometimes complex, lexical problems. On the other hand, research on referential communication tasks (Yule, 1997, chapter 5) suggests that linguistically and cognitively highly demanding tasks distract the speakers' attention and therefore make the use of quite complex referential expressions, such as L2 paraphrase and L2-related concept, even more difficult.

As pointed out by Poulisse (1997a), when an item is not essential for the successful accomplishment of a task, speakers tend to put less effort into their strategies, they prefer to avoid it rather than spend their time and energy on developing a strategy. In other words, the Principle of Economy, which requires speakers to produce their messages with the least possible expenditure of effort, prevails over the Principle of Clarity, which requires them to produce clear, intelligible messages. This might explain why the advanced learners' use of L2-based strategies such as L2 paraphrase, L2-related concept and L2 synonym strategies occurs at a relatively high rate compared to intermediate learners.

Quantitative analysis of lexical strategies reveals that the figures obtained are in fact the result of the learners' different interpretation of the same performance task. An analysis of the amount and specificity of the content provided by each of the learners suggests that advanced learners, in the accomplishment of a relatively open and natural communicative task set higher communicative goals than lower level learners. They try to provide more complex and detailed accounts, thus encountering more lexical difficulties and needing to resort to a larger number of L2-based

strategies. When the use of lexical strategies is related to the number of words uttered and the amount and specificity of detail provided, the relationship between the choice of lexical strategies and proficiency levels becomes clear.

Furthermore, the results of the analyses of the data suggest that the perceived complexity of the performance task may interact with the influence the learner's proficiency has on his or her choice of specific lexical strategy types. An initial quantitative analysis of the learners' proportional use of L1-based and L2-based strategies provides definitive evidence of the hypothesized differences between advanced and intermediate learners. However, clear differences emerge when the choice of lexical strategies is analyzed in more qualitative terms, taking into account the lexical richness and complexity of the foreign language discourse. Advanced learners seem to be more conscious of the different communicative potential of each type of strategy and their choice between L1-based and L2-based strategies seems to be guided by a combination of the communicative value of the strategy and the perceived relevance of the item to be communicated.

In general, Chinese learners of English at different L2 proficiency levels may apply a combination of lexical strategies although overall proficiency will affect the choice of particular lexical strategies. Differences in the choice of a strategy between intermediate and advanced level learners become quite clear when the patterns of their choices of strategies are compared.

### **6.3 The Effectiveness of Lexical Strategies**

Research question three raised in this study concerns the effectiveness of various types of lexical strategies. Since most research already undertaken on communication strategies has concentrated exclusively on lexical strategies, Poulisse, Bongaerts and Kellerman (1990, chapter 10) examine the effectiveness of compensatory strategies. Littlemore (2003) tests the effectiveness of communication strategies on the basis of the Nijmegen group's taxonomy and Poulisse (1993). Since it seems that there has been very little attention paid to the topic, the discussion on this research question

should be considered as hypothesis-forming rather than hypothesis-testing.

When the effectiveness of communication strategies is mentioned, Littlemore's (2003) concept of the communicative effectiveness provides us with some ideas for better understanding the effectiveness of certain strategies.

The concept of communicative effectiveness is not at all straightforward, largely because the communication goals of a language user are likely to vary enormously from context to context. However, there are three aspects of communicative effectiveness, which can be said to broadly reflect common aims amongst most language learners. The first aspect is 'ease of comprehension'. For most language learners, most of the time, the main aim is to make themselves understood by their interlocutor. The second aspect concerns the stylishness of the language produced. As Cook (2000) points out, the communicative aims of language learners may not always be strictly instrumental. They may, at times, want to show off or play with the language in order to demonstrate or share creativity with their interlocutor. This playful use of language can serve an important relationship-building function. A third, much more instrumental goal, for many language learners is simply to pass an oral examination designed to measure their linguistic proficiency.

(Littlemore, 2003, p. 333)

According to Littlemore (2003, p. 343), "when faced with a gap in one's target language lexis, it is better to provide relatively direct information about what the target item does and what it is for, rather than less directly describing things that it resembles". Littlemore (2003, p. 333) puts forward the concept of determining the effectiveness of communicative strategies with the inclusion of ease of comprehension, the stylishness of the language produced and the learner's language proficiency.

Poulisse, Bongaerts and Kellerman (1990, chapter 10) give a very detailed description of the effectiveness of compensatory strategies. The main concern is the comprehensibility of the learner's outputs judged by native speakers. In their research, they illustrate the effectiveness of various types of communication strategies and conclude that on the one hand there are differences in the effectiveness of

combinations of strategies, on the other hand, “it is not very sensible to speak of effective or less effective Cps types” (Poulisse, Bongaerts & Kellerman 1990, p. 186).

Zimmermann (1999, p. 137) distinguishes the two notions of “productive” lexical strategies. The wider notion of “productive” strategies, noted as “natural” or “universal” lexical strategies, which can be expected to occur in a variety of situations, focuses on comprehensibility alone. The narrower notion concerns language-pair-specific productive lexical strategies and is noted to add formal acceptability to semantic productiveness (Zimmermann, 1999, p. 137). Based on the two notions, good comprehensible paraphrases, productive word formation processes and to a lesser extent loose synonyms are considered the most productive strategies as suggested by Zimmermann (1999, p. 140).

Littlemore (2003) tests the effectiveness of various types of communication strategies on the basis of the taxonomy documented by Poulisse, Bongaerts and Kellerman (1990, chapter 7) and Poulisse (1993) from a perspective of cognitive style of French learners of English. Three aspects of communicative effectiveness are employed: ease of comprehension, stylishness of expression and the perceived level of proficiency. The results show that the strategies favored by analytic learners are more communicatively effective than those favored by holistic learners (Littlemore, 2003).

By applying the theories of the above-mentioned researches, the effectiveness of lexical strategies in the present study is determined, although it seems a little tenuous to do so. This is the reason why the discussion of effectiveness is not treated as hypothesis testing in terms of implications for foreign language learning and teaching but rather as hypothesis forming. The following figure shows the use of strategies employed by learners across proficiency levels.



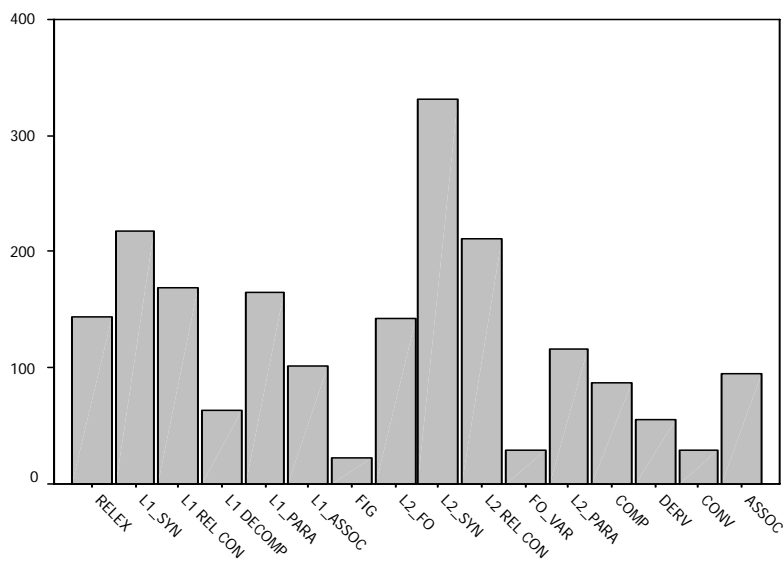


Figure 6. 5 The use of each strategy across proficiency levels

Based on the results of the use of each strategy, L2 synonym, L2-related concept and L1 synonym translated into L2 are the most effective strategies of all. Relexification, L1-related concept, L1 paraphrase and L2 paraphrase and L2 form are less frequently used than the ones mentioned before but more often employed than L1 decomposition, L2 figurative expression, L2 formal variation and L2 association. As the results show, in order to achieve the communicative purpose, learners have to substitute the target items with synonyms or loose synonyms and related concepts which can help them find suitable approximations. By doing this, learners usually need to analyze the components of the target item. Hence, it seems that componential analysis has been in effect in order to make strategies of synonyms and related concepts the most successful. The reason probably is that it leaves little room for misunderstanding: cross-cultural differences are likely to be minimal when describing the physical components of items (Littlemore 2003, p. 343). Thus, synonyms or loose synonyms and related concepts are the most effective strategies of all.

The second most effective strategies are relexification, paraphrase and association. The reason why they are not the most effective is probably that they cannot be easily understood. When paraphrase is used, more superordinates are employed. Although superordinates are useful, they may not provide enough precise

information about the target items. Accordingly, these strategies seem not as effective to reach the expected approximations.

L2 figurative expression and formal variation are considered the least successful strategies. The findings in this study suggest that the use of them appears to make people difficult to understand and it gives the impression that they are low-level learners, whereas these two strategies simply make a learner sound unstylish.

The effectiveness of lexical strategies based on Littlemore's (2003) concept of communicative effectiveness and the use of each strategy only seems to lack convincing support. In order to determine the effectiveness of lexical strategies more reasonably, it might be useful to examine the learner's translation output quality and the learner's translation processes. Zimmermann and Schneider (1987, p. 177-178) provide quite strong evidence for this point. It runs as follows:

Despite the well-known fact that translating is in many ways an artificial form of L2 communication, at least as compared to everyday conversation, it seems to be the safest source of information about processes of lexical search, more so than reproductive exercises: the original intended meaning is mostly given for the analyst (except for misinterpretations of the source text); therefore (some aspects of ) learners' strategies can be pinned down with higher certainty....lexical search in oral communication shares major aspects of the better-monitored search in translation, particularly so where the subject-matter of L2 conversation is non-trivial and lexical deficits become more or less conscious.

(Zimmermann & Schneider, 1987, p. 177-178)

## **6.4 Transfer of Chinese Noun Compounding Structure**

Since English is learned mainly in a classroom setting in China, learners of English on the one hand rely on learned rules and, and on the other hand, transfer their native language structures to the target language. The data in the present study show that Chinese learners are more likely to choose the noun plus noun compound structure over phrasal noun combinations in their translation from L1 into L2. This kind of transfer occurs because Chinese language favors noun plus noun compound.

It is not surprising that the structural transfer of noun compounds is frequent in the data because “learners consistently favored lexical/semantic structure that had close equivalent in their native language” (Bongartz, 2002, p. 144).

The results of word-formation processes show that noun plus noun compounds are favored overwhelmingly over phrasal noun combinations by Chinese learners of English across proficiency levels. It is the native language typology that motivates preferences for noun compounds since noun plus noun compounds are the most productive method to form compound nouns in Chinese. When such a kind of transfer occurs, “either L2 items are combined according to the pattern of L1 combinations, or the semantic structure of an L1 word is transferred to the L2 word, without any formal similarity necessarily being involved” (Ringbom, 1986, p.157-158). By examining the data, it has been found that the patterns of noun plus noun compounds are transferred most often due to closely related structures of noun combination.

Among Chinese learners across proficiency levels, the results show that the frequency of applying noun plus noun compounds is increasing as the proficiency decreases. Chinese learners of English use partial translation equivalents depending on the exact meaning or the context when they use noun plus noun compound structure. They avoid using certain semantically diffuse English words because they find them quite difficult. When cross-language equivalents do not belong to the same part of speech, L1 influence becomes more obvious, especially among intermediate learners. What they all do is to memorize words and their translation from a Chinese-English dictionary and put them together according to the Chinese compound formation process. Thus, a compound has been formed on the basis of the equivalent compound in L1. “Previously known lexical items in L2 are combined into compounds or phrases which either do not exist in L2 or have a different meaning from the intended one” (Ringbom, 1986, p. 158). The lexical transfer found in the data shows that the learner has selected one primary counterpart to the L1 item and used it in accordance with the L1 pattern. The word the learner has employed in the context may be a translation equivalent, but the dependence on L1 causes the deviant in that particular context (Ringbom, 1986, p.158). Therefore, L1 transfer of noun

compound is “almost without exception L1-based” (Ringbom, 1986, p.158).

Due to the limit of space in the dissertation, it is not possible to consider all cases of interactions between language background and target items. The focus of transfer is only on the structures of Chinese noun combinations which have similar patterns to English. As Ard and Homburg (1992, p. 55, p. 63) pointed out, “most studies of language transfer are restricted to forms and constructions which a researcher felt should or could induce transfer”. “Definitions of language transfer have been needlessly restrictive, eliminating much of what is most important.... The devices used for measuring native language influence have been too subjective, too crude, and not sufficiently verifiable”.

Although transfer occurs less often as the learner proficiency increases, it does not mean that the L1 effects on L2 disappear. The L1 effects are also exhibited in the performance of advanced learners as shown in the data. Example 20 in chapter 4 and example 20 in chapter 5 show the transfer of Chinese noun compounding structure to English. More examples can be found in the list of lexical strategies employed by learners of the advanced and intermediate groups in Appendix IX.

## **6.5 Discrepancy between Translation Quality and L2 Proficiency**

The translation quality evaluated by a native speaker of English and a non-native speaker of English is not completely consistent with the learners’ proficiency levels as is demonstrated in the data. Both raters’ criteria of evaluation are to some extent subjective, but they still help them evaluate the translation outputs by the learners in the pilot round as well as the real round of the data collection. Although most of the learners’ translations fall within their L2 proficiency group, the use of lexical strategies does not seem to be linked to proficiency groups. L2 proficiency level is not the only factor that determines the quality of the translation. They are much more individualized. After examining the results, the discrepancy is considered to be caused by the cognitive style of individual learners and the learner’s experience within and outside the classroom. The translation production also reveals the characteristics of

thinking and lexical strategies.

### **6.5.1 Learner's Cognitive Style**

The learner's cognitive style can be considered one of the factors causing the discrepancy between translation competence and linguistic proficiency. It is important for the learners to have very good formal mastery of the target language in order to produce better outputs. The translation quality ranking demonstrates that the translation competence does not only depend on the use of one's linguistic knowledge, but also on the learner's individual cognitive style. The results show that the learners whose translation is evaluated better than that of others are considered to have reflective cognitive style. Those who fall out of their proficiency group are more impulsive (Poulisse, Bongaertz & Kellerman 1990, p. 137, p.152). It is clear that the individual factor plays a role in producing the different quality of the translation. At the same time, the quality of the translation reflects the use of lexical strategies depending on the learner's personality or cognitive style and strategic behavior. When learners do the translation task within their cognitive framework they will activate three kinds of models of knowledge representation such as know-why (knowledge-based), know-how (experience-based), or know-when (skill-based) knowledge depending on the learners' translation competence (Mondahl, 1995, p. 185). Since the subjects who participated in the study were selected on the basis of their L2 proficiency level, but not on the basis of their learner-characteristics, it is not possible to systematically examine the relationship between the use of lexical strategies and cognitive style. This conclusion seems tenuous since there is not much investigation on this.

### **6.5.2 Learner's Experience**

The learner's experience plays a role in causing the mentioned discrepancy. Even though all learners who took part in the research have been learning English for over ten years with a similar exposure to English, their learning experience differs from

each other. They do not only learn English in the classroom, but also carry out various kinds of activities learning English outside the classroom. Lam (2002) compared the activities carried out by 193 English major learners and 214 non-English majors and found that reading English newspapers for English-major students at the universities was the most popular activities outside the classroom. Reading books, listening to the radio, practicing with tapes and checking the dictionaries are also very common for English-major students at the universities. The following figure conceptually based on Lam (2002) but changed to a large extent shows the popularity of activities of English major learners outside the classroom.

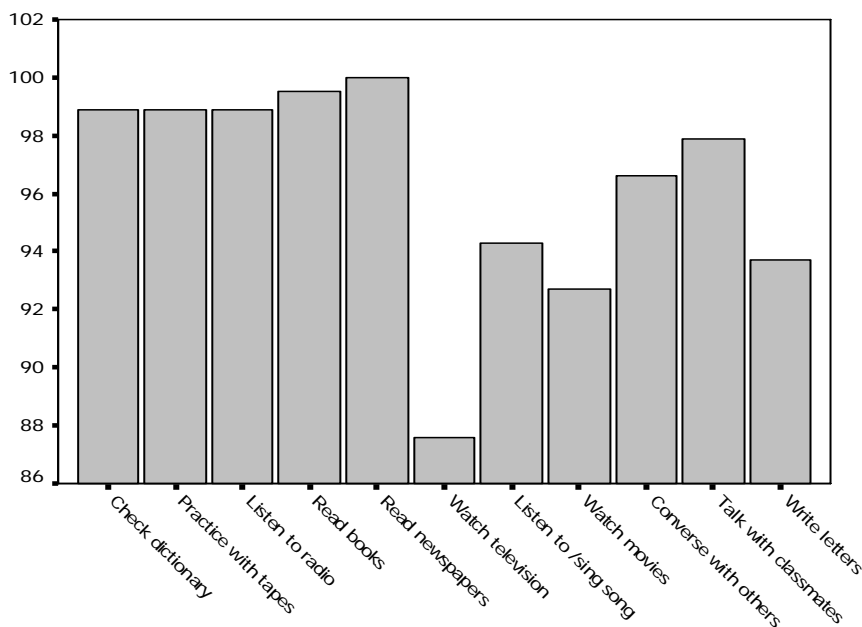


Figure 6. 6 The popularity of activities of learning English outside the classroom

As shown in the table, learners employed certain activities more than others in order to improve their English outside the classroom. A learner’s linguistic competence depends largely on the individual’s learning experience. In order to learn English well, “learners have to invest a lot of time and effort within and outside the classroom. When they do, it is possible to learn English successfully in China though English is not widely used in everyday life there. Breakthroughs in learning seem to happen at times of intense use and practice along with self-motivation” (Lam, 2002, p. 255). For instance, subject 19 in the real round, whose proficiency level belongs to the

intermediate group while his translation is ranked the top position, has to do quite a lot of translation work outside the classroom and recognizes that it is important for improving his language skills. However, subject 11 in the pilot round and subject 22 in the real round who belong to the advanced group fell out of their corresponding proficiency group due to a lack of contact with English as they admitted. Since it is not possible to investigate such differences caused by all subjects, only some cases are mentioned here briefly.

### **6.5.3 Characteristics of Learner's Thinking**

By examining the think-aloud protocols and retrospective interviews of the learners, on the one hand, it can be concluded that the characteristics of the learner's thinking plays a role in deciding which lexical strategies to use. Usually learners try to find the equivalent words from their mental lexicons. These words have an equivalent linking with the target words in their mental lexicons through bilingual dictionaries, textbooks and vocabulary exercises. When they cannot find the suitable equivalent words, they will search for related linking words from their mental lexicons although the words usually have no semantic relations among one another. If they still cannot find the satisfactory target words, the subjects will try to use their controlled words to translate literally or paraphrase. For most subjects, literal translation occurs before paraphrasing. Literal translation has to be abandoned because of negative evaluation by the instructors in the classroom. Translating with the help of paraphrasing is done by explaining the source language via the equivalent words or phrases in the native language. Some subjects occasionally create the words by themselves but then abandon them. Thus, strategic abandonment is employed. When some words are considered as not so important, skip translation is used. Even some subjects admit that they do not know what to do with certain words and then have to skip them. When the skip translation occurs, it is obvious that message abandonment is in effect. Therefore, the subjects' thinking processes follow the principle of effective strategies and controlled active lexicons.

On the other hand, the subject's lexical strategies reflect the way of the lexical association that they use when they are in the process of thinking. It is known that the association of words in different languages is different from the lexical association in the same language. Nattinger (1988, p.72-75) illustrates four kinds of lexical association such as (1) situational sets, (2) semantic sets, (3) metaphor sets and (4) collocations. Situational sets are linked through the textual subject, purpose or construction. Semantic sets can be further divided into synonyms, superordinates and subordinates. Therefore, it is clear that learners use either situational sets or semantic sets more or less, whereas they ignore the use of metaphor sets and collocations.

#### **6.5.4 Characteristics of Lexical Strategies**

The findings and translation quality demonstrate some characteristics of lexical strategies used by learners. When translating, the subjects use the lexical strategies flexibly. The communicative difficulties due to lexical deficiency can be overcome through compensatory strategies so as to achieve the purpose of communication.

The translation quality shows that translation outputs tend to be simplified. The problems occurring during the process of translating can be solved through these procedures: (1) searching in the information net of the memory, (2) producing temporary answers and (3) trying to optimize the target language. In order to optimize the output, learners need to have the accurate and hierarchical lexical linking network so as to choose the words that express the intentions of the source words. However, most of the subjects in the study only have simple lexical expression since they thought they could not revise the originally translated text. Laufer's active vocabulary threshold hypothesis points out that "our productive lexicon will grow only until it reaches the average level of the group in which we are required to function" (Laufer 1991, p. 445). The main factor to prevent the productive lexicon from changing input into intake is lexical simplification. Learners will avoid using words they think difficult. They prefer not to use uncommon words and tend to use normal words. Here, the use of L2 vocabulary is simplified (Levenston & Blum-Kulka, 1983). For the



subjects in this study an important factor is that they lack the need to change their lexical situation although they have been learning English for quite a long time.

## **6.6 Implications for Teaching**

When the study was launched, it was expected to provide some teaching implications for foreign language teaching from the findings. As far as teaching is concerned, it is very important that lexical strategies should be addressed alongside other components of the target language since it is difficult to separate the use of strategies from the formal mastery of the language (Thompson, 1989). When learners try to solve their lexical problems during the course of communication, not only the learners at a lower proficiency level employ a wide range of strategies, but also advanced learners use them quite a lot. Since effective strategies used to overcome communication difficulties are of crucial importance for L2 learners, L2 learners might benefit from instruction on how to cope with such difficulties.

The results of the study have shown that the use of lexical strategies is subject to general principles of communication. In recent years, foreign language teachers have become increasingly interested in lexical strategies employed by learners of English at different proficiency levels. Yule and Tarone (1997) and Zimmermann (1999) have summed up “the reasons advanced pro and con the inclusion of lexical strategies in foreign language teaching” (Zimmermann, 1999, p. 134). Foreign language teachers want to know how the use of strategies can be promoted, whether learners require instruction and practice in the use of lexical strategies, whether some types of lexical strategies are more useful than others and what sort of exercises learners should use (Poullisse, Bongaerts & Kellerman, 1990, p. 197).

It is evident that no individual’s linguistic repertoire or control of language is perfect. Both non-native and native speakers of a given language sometimes struggle to find the appropriate expression or grammatical construction when attempting to communicate their meaning. The findings of this study add to the understanding of lexical strategy use while translating and have a number of implications for English

teaching, particularly vocabulary instruction. Implications for teaching will be provided in the present study in terms of (1) expanding vocabulary through reading, (2) developing L2 lexical networks in a classroom setting, (3) improving vocabulary knowledge in a classroom context and (4) teaching lexical strategies through translating.

### **6.6.1 Expanding Vocabulary through Reading**

The first implication for teaching is to expand the learner's vocabulary through reading various types of texts. The findings have shown that when learners have a considerable vocabulary, they can communicate more fluently and accurately. As it is shown in the translation quality evaluation, the larger the amount of words learners know, the better the translation output they produce. The subject who did better translation chose to use lexical strategies according to the context and translated more freely, whereas the ones that were not so good produced a more literal translation. "Direct translation" occurs now and then since learners are afraid of making mistakes. The reason for this lies in that the subjects who do good translations have a larger mental lexicon and translate more freely based on the context of the source text. Once the translator has the macro-structure of the source text, it is easier for the translator to avoid the interference of the source text structure. Therefore, it is necessary for learners to expand their vocabulary when communicating in writing or speech. It is known that the size of the vocabulary influences several aspects of language performance such as reading comprehension (Qian, 1999), writing ability (Engber, 1995), and academic achievement (Saville-Troike, 1984). The size of the vocabulary will not only influence communication strategies but also lexical strategies.

When learners want to expand their vocabulary, reading can be a useful approach. Three issues concerning vocabulary expansion through reading are postulated by Paribakht and Wesche (1999), which can be useful for teachers to take into account:

- (1) The importance of selecting appropriate texts: Criteria include interest and relevance of topics, as well as a manageable difficulty level. ... The rather technical, science-oriented text proved to be of little interest and

considerable difficulty for ...students who had no background in environmental issues, and the result was lack of persistence in trying to understand it. Theme-related texts appear useful because words appear repeatedly and take on salience and importance, thereby enriching the meanings from varied contexts.

(2) The importance of setting appropriate tasks—that is, tasks that assure that learners do what they need to do in order to develop their vocabulary knowledge (i.e., involving deeper, varied processing): In this case it would mean setting tasks requiring word-level as well as global text comprehension and calling attention to words of particular instructional interest.

(3) The potential usefulness of building learner awareness of how new vocabulary knowledge may be accessed through reading and related activities.

(Paribakht & Wesche, 1999, p. 216)

## **6.6.2 Developing L2 Lexical Networks in a Classroom Setting**

Another implication for teaching is to develop L2 lexical networks in a classroom setting. It is considered an effective way to learn vocabulary in a foreign language through lexical networks. Since learning English for Chinese students mainly takes place in a classroom setting, it is very necessary to build up lexical networks in order to develop L2 vocabulary for Chinese learners. Word association is often recommended for developing L2 lexical networks in the Chinese classroom situation. When using this approach the learners are told the meaning of an L2 word by providing its L1 translation. The meaning is not discovered by the learners themselves. This does not emphasize the provision of contextualized input, at least initially, and is more likely to encourage the learners' tendency to rely on L1. A well-built lexical network aids real time language use, as suggested by Meara (1996). The task of building up a semantic-oriented network for Chinese learners of English is an arduous one, especially since the exposure to the target language is limited.

In the light of the actual language learning environment, as well as the nature of L2 lexical network building, it is meaningful to emphasize the use of appropriate

vocabulary learning techniques to speed up the process of searching through mental lexicons. Evidence of the current study has revealed that Chinese learners of English are using certain vocabulary learning techniques to establish links among words that have no semantic relations to one another. One commonly adopted activity in the classroom setting which helps to establish links among words that have no semantic relations is asking learners to complete a text based on some isolated words, such as story telling or letter writing. Other activities such as brainstorming words that share some common fields, or linking new words with learned words using personal life experience are useful ones that create links among words sharing no semantic relationships. In fact, the use of vocabulary learning techniques to build links among words that have no semantic relations in classroom teaching is desirable for English learning in China. Such techniques also have important pedagogical implications for English teaching and learning in China although it is considered more dependent on L1.

### **6.6.3 Improving Vocabulary Knowledge in a Classroom Context**

The third implication for teaching is to improve the learners' vocabulary knowledge in a classroom context. To the majority of Chinese learners of English, the acquisition of L2 vocabulary knowledge takes place mainly in a classroom environment although more learners are trying to have a longer and better exposure to L2 language input outside the classroom. Therefore, the contextualized approach can help learners develop L2 vocabulary knowledge, which concerns the phonological, orthographic, morpho-syntactic, semantic and pragmatic information of words.

This approach emphasizes the learning of L2 words in a context and providing contextualized exposure to new words, mostly through reading. It advances the inference of meaning from context (Haastруп, 1991, chapter 8). Since this approach encourages inference and attempts to minimize the reliance on L1, it seems to provide better conditions for the development of lexical competence.

#### **6.6.4 Teaching Lexical Strategies through Translating**

Teaching lexical strategies through translating is considered the final implication for teaching in the present study. Since Chinese learners of English rely more on their L1 when learning English, translation can be considered an efficient way to teach and implement lexical strategies for learners. Through examining translation quality and planning phase of learners, it is worthwhile to teach lexical strategies to learners who have been learning English for quite a long time even though they are still at different proficiency levels. Zimmermann (1999) provides some suggestions for teaching lexical strategies as follows:

If the preceding assumptions are valid, the teaching of the following lexical and referential strategies seems worthwhile: based on a focus on a subtechnical vocabulary with a wide range of application it will be particularly three types of lexical and referential strategies which deserve being taught to advanced learners of English, namely paraphrases, productive word-formation processes, and, to a lesser extent, loose synonyms, all properly hedged.

(Zimmermann, 1999, p. 140)

However, even though it is worthwhile to teach effective strategies to learners, translation can be done only among learners who master the target language comparatively well. When teaching translation, most teachers realize that the improvement of the learners' linguistic competence to a larger extent depends on the learners' grasp of vocabulary once they have the basic phonological knowledge. Vocabulary teaching is paid a lot of attention to all the time. Therefore, productive vocabulary should be taught explicitly so as to compensate the deficiencies of lexical strategies.

Usually, not every bilingual is good at translating. The translation quality evaluation in the study shows three aspects of a translator's competence: (1) L1 competence, (2) L2 competence and (3) supercompetence, i.e. the competence transferring between L1 and L2. Based on this perception, teachers can organize some

activities such as think-aloud and retrospection in order to train learners to use lexical strategies so as to achieve better translation on the one hand, and on the other hand, to let learners realize the thinking activities and find appropriate ways to solve problems.

## **6.7 Conclusion**

Through adopting think-aloud protocols and retrospection as research methods for collecting empirical data, lexical strategies of Chinese learners of English are identified and examined in this study. The findings of the study reveal that the uses of lexical strategies are different between learners with a large lexicon and those with a small lexicon, and that learners with a large lexicon tend to use psychologically more demanding communication strategies. This may be because such demanding communicative strategies are unfeasible for learners with a small lexicon because they have to concentrate on textual production itself. This study also implies that an increase in vocabulary knowledge may induce the verification mechanism to be more sensitive in lexical retrieval.

Based on the frequencies of strategies used by Chinese learners of English and the percentages of strategy distribution, the more advanced learners employ more L2-based strategies to solve their lexical problems, while the lower proficiency learners rely more heavily on their mother tongue to reach lexical approximations. Both groups of learners apply a combination of different types of lexical strategies but reveal their preferences for using certain strategies to solve lexical problems according to their proficiency levels. Their preference of strategy use is confirmed through applying statistical methodology. There are changes in the strategies used in the selection of strategies within both L1-based and L2-based categories of lexical strategies. Those strategies result in 'ease of comprehension' (Littlemore, 2003) of L2 lexical approximations are regarded as effective or fairly effective. Even though Chinese and English are typologically non-related languages, noun-plus-noun compounds are used more by the lower level proficiency learners due to the fact that Chinese language favors this structure of compounding. In addition to linguistic

strategies employed by learners for solving lexical problems, learners also resort to non-linguistic strategies.

Taking translation quality ranking into consideration, the translation production quality does not correspond to the proficiency levels when the subjects' translation is evaluated by a native speaker of English and a non-native speaker of English without considering the proficiency groups learners belong to. L2 proficiency level is not the only factor that determines the quality of the translation. The translation quality discrepancy shows that the cognitive style of individual learners and their experience within and outside the classroom play a role in causing such result. Furthermore, translation quality ranking reveals the characteristics of thinking and lexical strategies used by Chinese learners of English.

The findings of the study provide some implications for teaching Chinese learners of English. They are (1) expanding learners' vocabulary, (2) developing L2 lexical networks, (3) improving vocabulary knowledge, and (4) translating L1 into L2 in terms of paraphrases, productive word-formation and loose synonyms.

Although the findings of the study may contribute to a better understanding of L2 acquisition and bilingualism, the scope of the study is definitely limited and its findings cannot be generalized to all language learners in all situations. Firstly, the Chinese text used for collecting data includes some abstract concepts, which are expected to elicit the use of strategies from learners, and different strategies may be more effective for items from other fields. As abstract concepts that are often defined through metaphor (Lakoff & Johnson, 1980, p. 106-125), may therefore be conveyed more effectively by using a combination of lexical strategies. For languages that are more lexically similar (for example Dutch and English), the strategy of transfer may prove more effective (Littlemore, 2003). For languages that rely heavily on compound words (for example Chinese), the use of morphological creativity may prove useful.

Secondly, the study only focuses on lexical strategies employed by Chinese learners of English in forward translation and retrospection afterward without investigating lexical strategies used by Chinese learners of English in backward translation. It would be better to carry out backward translation so as to investigate the

lexical strategies employed and compare the strategy use between forward translation and backward translation.

Thirdly, for such a study it would probably be more appropriate to use some other methods such as a questionnaire or diary (Nunan, 1992, chapter 6) or pair work think-aloud protocols (Haastrup, 1991, chapter 4), which would allow for unpredictable responses and topic changes on the part of the language learner.

Finally, translation quality assessment is done on the basis of two English speakers. One is a native speaker of English and another one is a non-native speaker of English. The results seem tenuous since the assessment is largely based on the raters' subjective impression of the outputs of learners. In order to avoid such subjectivity, it would be better to have more native speakers and non-native speakers to rank the translation quality and for certain criteria for the raters to implement should also be provided.

Despite the limitations of this exploration, however, this study may have provided a meaningful preliminary investigation into lexical search strategies employed by Chinese learners of English and raised interesting questions for further investigation.

## **6.8 Suggestions for Further Research**

The results of this study have revealed a number of new questions that deserve further investigation. Since the present study did not examine every aspect of the processes underlying the use of lexical strategies, it would be worthwhile to further investigate more precisely how different types of lexical strategies are integrated into the language production process. It would be interesting to know whether learners first decompose the meaning of an L1 item into a related set of words or meaning components, or what information appears in the L1 paraphrases and what in L2 paraphrases, whether some learners form L2 paraphrases without recourse to their native language, or what psychologically underlies the cause of the borderline cases which are unclassifiable.



Regarding preferences for lexical strategies by learners of differing proficiency, it would be useful to investigate what causes a learner to choose a particular lexical strategy in terms of cognitive style. Since the use of lexical strategies does not only vary between different proficiency groups, but also among individual learners, it might be worthwhile to investigate the relationship between cognitive style and the use of lexical strategies by individual learners. It would be necessary to investigate whether or not different cognitive styles are associated with a tendency to use different types of lexical strategies. One other concern regarding preference of lexical strategies is whether or not a language learners' L1 influences the types of lexical strategies that they use. As well as their L1, it is highly likely that an individual's psychological characteristics would lead them to adopt different types of lexical strategies.

With respect to the effectiveness of lexical strategies, the relationships between the type of strategy used and the effectiveness of lexical strategies would probably be less clear-cut. It would be interesting to investigate if contextual variables intervene as well as cognitive style and personality variables. Judgments of native speakers should be utilized to test the learners' outputs in terms of acceptability, comprehensibility and stylishness. Since the communicative effectiveness of lexical strategies is difficult to handle quantitatively, when using native speakers to judge the correlation with the measure of strategy use, it would be better for the judges to follow certain instructions established beforehand for determining "whether or not a particular utterance would be considered successful and result in the correct item" (Bialystok, 1983, p. 112). Furthermore, since the problem of effectiveness is much more complex than expected and "cannot be handled without losing some objectivity and certainly not without recruiting native speakers to provide their own perspective to at least supplement our objective decisions" (Bialystok, 1983, p.112), it would be better to have more native speakers to judge the acceptability, comprehensibility and stylishness of the outputs of learners fairly.

Since the subjects' proficiency level in this study is high enough, the strategies used by them may not be suitable for other subjects who are at an even lower

proficiency level. Therefore, it is necessary to investigate the strategies employed by subjects who can be representative for more general learners of English. It is possible to ask the first year university students or even senior high school students to do such a kind of task so as to investigate lexical strategies that can be used by a more normal population.

# References

- Aitchison, J. (1994), *Words in the Mind*, Oxford: Blackwell.
- Aitchison, J. (1996), "Taming the Wilderness: Words in the Mental Lexicon", in G. Anderman & M. Rogers (eds.), *Words, Words, Words: the Translator and the Language Learner*, Clevedon: Multilingual Matters Ltd, p. 15-26.
- Aitchison, J. & Staff, M. (1982), "Lexical Storage and Retrieval: A Developing Skill", in A. Cutler (ed.), *Slips of the Tongue and Language Production*, The Hague: Mouton, p.197-241.
- Al-Qinai, J. (2000), "Translation Quality Assessment: Strategies, Parameters and Procedures", *Meta*, XLV (3), p. 479-519.
- Altarriba, J. (1992), "The Representation of Translation Equivalents in Bilingual Memory", in R. J. Harris (ed.), *Cognitive Processing in Bilinguals*, Amsterdam: Elsevier, p.157-173.
- Altman, R. (1997), "Oral Production of Vocabulary: A Case Study", in Y. Coady & T. Huckin (eds.), *Second Language Vocabulary Acquisition*, Cambridge: Cambridge University Press, p. 69-97.
- Anderman, G. & Rogers, M. (1996), *Words, Words, Words: the Translator and the Language Learner*, Clevedon: Multilingual Matters Ltd.
- Anderson, R. (1983), "Transfer to Somewhere", in S. Gass & L. Selinker (eds.), *Language Transfer in Language Learning*, Rowley, MA: Newbury House, p. 177-201.
- Ard, J. & Homburg, T. (1992), "Verification of Language Transfer", in S. Gass & L. Selinker (eds.), *Language Transfer in Language Learning*, Amsterdam/Philadelphia: John Benjamins Publishing Company, p. 47-70.
- Arnaud, P. & Savignon, S. (1997), "Rare Words, Complex Lexical Units and the Advanced Learner", in Y. Coady & T. Huckin (eds.), *Second Language Vocabulary Acquisition*, Cambridge: Cambridge University Press, p. 157-173.
- Beauvillain, C. & Grainger, J. (1987), "Accessing Interlexical Homographs: Some Limitations of a Language-Selective Access", *Journal of Memory and Language* 26, p. 658-672.
- Bernardini, S. (2001), "Think Aloud Protocols in Translation Research: Achievements, Limits, Future Prospects", *Target* 13 (2), p. 241-263.

- Beylard-Ozeroff, R. (ed.), (1998), *Translator's Strategies and Creativity*, Amsterdam/Philadelphia: John Benjamins Publishing Company.
- Bialystok, E. (1981), "The Role of Conscious Strategies in Second Language Proficiency", *The Modern Language Journal* 65 (1), p. 24-35.
- Bialystok, E. (1982), "On the Relationship between Knowing and Using Linguistic Forms", *Applied Linguistics* 3 (3), p.181-206.
- Bialystok, E. (1983), "Some Factors in the Selection and Implementation of Communication Strategies", in C. Faerch & G. Kasper (eds.), *Strategies in Interlanguage Communication*, London: Longman, p. 110-118.
- Bialystok, E. (1984), "Strategies in Interlanguage Learning and Performance", in A. Davis, C. Cripser & A. Howatt (eds.), *Interlanguage: Papers in Honor of S. Pit Corder*, Edinburgh: Edinburgh University Press, p.37-48.
- Bialystok, E. (1985), "Psycholinguistic Dimensions of Second Language Proficiency", in W. Rutherford & M. Sharwood Smith (eds.), *Grammar and Second Language Teaching*, New York: Newbury House, p.31-50.
- Bialystok, E. (1990), *Communication Strategies: A Psychological Analysis of Second-Language Use*, Oxford: Blackwell.
- Bialystok, E. (1992), "Selective Attention in Cognitive Processing: the Bilingual Edge", in R. Harris (ed.), *Cognitive Processing in Bilinguals*, Amsterdam: North Holland, p.501-513.
- Bialystok, E. (1994), "Analysis and Control in the Development of Second Language Proficiency", *Studies in Second Language Acquisition* 16, p.157-168.
- Bialystok, E. (2001), *Bilingualism in Development*, Cambridge: Cambridge University Press.
- Bialystok, E. & Froelich, M. (1980), "Oral Communication Strategies for Lexical Difficulties", *Interlanguage Studies Bulletin* 5 (1), p. 3-29.
- Biskup, D. (1992), "L1 Influence on Learner's 'Renderings of English Collocations: a Polish/German Empirical Study", in P. Arnaud & H. Bejoint (eds.): *Vocabulary and Applied Linguistics*, Houndmills: Macmillan, p.85-93.
- Blum-Kulka, S. & Levenston, E.A. (1983), "Universal of Lexical Simplification", in C. Faerch & G. Kasper (eds.), *Strategies in Interlanguage Communication*, London: Longman, p.119-139.

- Boers, F. (2000), "Metaphor Awareness and Vocabulary Retention", *Applied Linguistics* 21 (4), p. 553-571.
- Boersch, S. (1986), "Introspective Methods in Research on Interlingual and Interlingual Communications", in J. House & S. Blum-Kulka (eds.), *Interlingual and Intercultural Communication: Discourse and Cognition in Translation and Second Language Acquisition Studies*, Tuebingen: Gunter Narr Verlag, p.195-210.
- Bogarrds, P. (2001), "Lexical Units and the Learning of Foreign Language", *Studies in Second Language Acquisition* 23 (3), p. 321-343.
- Bongaerts, T. & Poulisse, N. (1989), "Communication Strategies in L1 and L2: Same or Different?", *Applied Linguistics* 19 (3), p. 253-268.
- Bongaerts, T., Kellerman, E. & Bentlage, A. (1987), "Perspective and Proficiency in L2 Referential Communication", *Studies in Second Language Acquisition* 9, p. 171-200.
- Bongartz, C. M. (2002), *Noun Combination in Interlanguage: Typology Effects in Complex Determiner Phrases*, Tuebingen: Max Niemeyer Verlag.
- Brooks, F. (1992), "Can We Talk?" *Foreign Language Annals* 25 (1), p. 59-71.
- Brown, H.D. (1987), *Principles of Language Learning and Teaching*, Englewood Cliffs, NJ: Prentice Hall Regents.
- Canale, M. & Swain, M. (1980), "Theoretical Bases Communicative Approaches to Second Language Teaching and Testing", *Applied Linguistics* 1 (1), p.1-47.
- Cao, D. (1996), "Towards a Model of Translation Proficiency", *Target* 8 (2), p. 325-340.
- Carrol, D. W. (1986), *Psychology of Language*, California: Books/Cole Publishing Company.
- Carter, R. & McCarthy, M. (eds.), (1988), *Vocabulary and Language Teaching*, London: Longman.
- Cavalcanti, M. C. (1987), "Investigating Reading Performance through Pause Protocols", in C. Faerch & G. Kasper (eds.), *Introspection in Second Language Research*, Clevedon: Multilingual Matters Ltd, p. 230-250.
- Cenoz, J. (2001), "The Effect of Linguistic Distance, L2 Status and Age on Cross-Linguistic Influence in Third Language Acquisition", in J. Cenoz, B. Hufeisen & U. Jessner (eds.), *Crosslinguistic Influence in Third Language Acquisition: Psycholinguistic Perspectives*, Clevedon: Multilingual Matters Ltd, p. 8-20.

- Chan, Alice Y.W. (2004), "Syntactic Transfer: Evidence from the Interlanguage of Hong Kong Chinese ESL Learners", *The Modern Language Journal* 88, p. 56-74.
- Channell, J. (1988), "Psycholinguistic Considerations in the Studies of L2 Vocabulary Acquisition", in R. Carter & M. McCarthy (eds.), *Vocabulary and Language Teaching*, London: Longman, p. 83-96.
- Chen, H. C. (1990), "Lexical Processing in a Non-Native Language: Effects of Language Proficiency and Learning Strategy", *Memory and Cognition* 18 (3), p. 279-288.
- Chen, H. C. & Leung, Y. S. (1989), "Patterns of Lexical Processing in a Non-Native Language", *Journal of Experimental Psychology: Learning, Memory, & Cognition* 15, p. 316-325.
- Chen, H. C. & Ng, M. L. (1989), "Semantic Facilitation and Translation Priming Effects in Chinese-English Bilinguals", *Memory and Cognition* 17, p. 454-462.
- Chen, S.Q. (1990), "A Study of Communicative Strategies in Interlanguage Production by Chinese EFL Learners", *Language Learning* 40 (2), p. 155-187.
- Cheng, Z.X. (2002), "English Departments in Chinese Universities: Purpose and Function", *World Englishes: Journal of English as an International and Intranational Language* 21 (2), p. 257-267.
- Chesterman, A. (1998), "Communication Strategies, Learning Strategies & Translation Strategies", in K. Malmkjaer (ed.), *Translation & Language Teaching: Language Teaching & Translation*, Manchester: St. Jerome Publishing, p. 135-144.
- Chinese Government, (1981), *Zhong Hua Ren Min Gong He Guo Xue Wei Tiao Li Zan Xing Shi Shi Ban Fa* [Measures for Implementing the Regulations for Academic Degrees of the PRC], <http://www.edu.cn/20010906/300457.shtml>.
- Cieślicka, A. (2000), "The Effect of Language Proficiency and L2 Vocabulary Learning Strategies on Patterns of Bilingual Lexical Processing", *PSiCL* 36, p. 27-53.
- Clark, E. (1993), *The Lexicon in Acquisition*, Cambridge: Cambridge University Press.
- Coday, J. (1997a), "L2 Vocabulary Acquisition Through Extensive Reading", in Y. Coady & T. Huckin (eds.), *Second Language Vocabulary Acquisition*, Cambridge: Cambridge University Press, p. 225-237.
- Coday, J. (1997b), "L2 Vocabulary Acquisition: A Synthesis of the Research", in Y. Coady & T. Huckin (eds.), *Second Language Vocabulary Acquisition*, Cambridge: Cambridge University Press, p.273-290.

- Coady, Y. & Huckin, T. (eds.) (1997), *Second Language Vocabulary Acquisition*, Cambridge: Cambridge University Press.
- Cohen, A. & Hosenfeld, C. (1981), "Some Use of Mentalistic Data in Second Language Research", *Language Learning* 31 (2), p. 285-314.
- Cohen, A. (1984), "Studying Second-Language Learning Strategies: How do We Get the Information?", *Applied Linguistics* 5 (2), p. 101-112.
- Cohen, A. (1987a), "Studying Learner Strategies: How We Get the Information", in A. Wenden & J. Rubin (eds.), *Learner Strategies in Language Learning*, Englewood, New Jersey: Prentice-Hall International, p. 31-42.
- Cohen, A. (1987b), "Using Verbal Reports in Research on Language Learning", in C. Faerch & G. Kasper (eds.), *Introspection in Second Language Research*, Clevedon: Multilingual Matters Ltd, p. 82-95.
- Cohen, A. (1996), "Verbal Reports as a Source of Insights into Second Language Learner Strategies", *Applied Language Learning* 7, p. 5-24.
- Cohen, A. (1998), *Strategies in Learning Using a Second Language*, London: Longman.
- Cook, V. (1992), "Evidence for Multicompetence", *Language Learning* 42 (4), p.557-591.
- Cook, V. (1993), *Linguistics and Second Language Acquisition*, London: Macmillan.
- Corder, S. P. (1973), "The Elicitation of Interlanguage", in J. Svartvik (ed.), *Errata: Papers in Error Analysis*, Lund: Glerup, p. 36-47.
- Corder, S. P. (1974), "The Significance of Learners' Errors", in J. Richards (ed.). *Error Analysis*, London: Longman, p. 19-30.
- Corder, S. P. (1981), *Error Analysis and Interlanguage*, Oxford: Oxford University Press.
- Corder, S. P. (1983), "Strategies of Communication", in C. Faerch & G. Kasper (eds.), *Strategies in Interlanguage Communication*, London: Longman, p.16-19.
- Corder, S. P. (1992), "A Role for the Mother Tongue", in S. Gass & L. Selinker (eds.), *Language Transfer in Language Learning*, Amsterdam/Philadelphia: John Benjamins Publishing Company, p.18-31.
- Costa, A., Miozzo, M. & Caramazza, A. (1999), "Lexical Selection in Bilinguals: Do Words in the Bilingual's Two Lexicons Compete for Selection?", *Journal of Memory and*

*Language* 41, p. 365–397.

- Cui, Q. M. (2004), *Yu Yan Qian Yi Yu Ying Yu Jiao Xue Qian Yi* [Language Transfer and English Teaching], *Journal of Wuhan Technology University (Social Sciences)* 2, p. 98-101.
- Dai, M. C. (2000), “Theoretical Bases of Second Language Vocabulary Acquisition”, *Foreign Language Teaching and Research* 32 (2), p. 138-144.
- De Angelis, G. & Selinker, L. (2001). “Interlanguage Transfer and Competing Linguistic Systems in the Multilingual Mind”, in J. Cenoz, B. Hufeisen & U. Jessner (eds.), *Cross-Linguistic Influence in Third Language Acquisition: Psycholinguistic Perspectives*, Clevedon: Multilingual Matters Ltd, p. 42-58.
- De Bot, K. (1992), “A Bilingual Production Model: Levelt’s ‘Speaking’ Model Adapted”, *Applied Linguistics* 13 (1), p.1-24.
- De Bot, K. (1993), “Word Production and the Bilingual Lexicon”, in R. Schreuder & B. Weltens (eds.), *The Bilingual Lexicon*, Amsterdam/Philadelphia: John Benjamins Publishing Company, p. 191-214.
- De Bot, K., Cox, A., Schaufeli, S. & Weltens, B. (1995), “Lexical Processing in Bilinguals”, *Second Language Research* 11 (1), p. 14-32.
- De Bot, K., Paribakht, T. & Wesche, M. (1997), “Toward a Lexical Processing Model for the Study of Second Language Vocabulary Acquisition: Evidence from ESL Reading”, *Studies in Second Language Acquisition* 19, p. 309-329.
- De Groot, A.M.B. (1992), “Determinants of Word Translation”, *Journal of Experimental Psychology: Learning, Memory and Cognition* 18, p. 1000-1018.
- De Groot, A.M.B. (1993), “Word-Type Effects in Bilingual Processing Tasks: Support for a Mixed Representational System”, in R. Schreuder & B. Weltens (eds.), *The Bilingual Lexicon*, Amsterdam/Philadelphia: John Benjamins Publishing Company, p. 27-51.
- De Groot, A.M.B. & Comijs, H. (1995), “Translation Recognition and Translation Production: Comparing a New and an Old Tool in the Study of Bilingualism”, *Language Learning* 45 (3), p. 467-509.
- De Groot, A.M.B. & Hoeks, C. (1995), “The Development of Bilingual Memory : Evidence from Word Translation by Trilinguals”, *Language Learning* 45 (4), p. 683-724.
- De Groot, A.M.B. & Kroll, J. F. (eds.) (1997), *Tutorials in Bilingualism: Psycholinguistic Perspectives*, Mahwah, NJ: Lawrence Erlbaum Associates Publishers.



- De Groot, A.M.B. & Nas, G. (1991), "Lexical Representation of Cognates and Noncognates in Compound Bilinguals", *Journal of Memory and Language* 30, p. 90-123.
- De Groot, A.M.B. & Poot, R. (1997), "Word Translation at Three Levels of Proficiency in a Second Language: The Ubiquitous Involvement of Conceptual Memory", *Language Learning* 47 (2), p.215-264.
- De Groot, A.M.B., Dannenburg, L. & van Hell, J. (1994), "Forward and Backward Translation by Bilinguals", *Journal of Memory and Language* 33, p. 600-629.
- Dechert, H. W. (1983), "How a Story is Done in a Second Language", in C. Faerch & G. Kasper (eds.), *Strategies in Interlanguage Communication*, London: Longman, p.175-195.
- Dechert, H. W. (1987), "Analysing Language Processing through Verbal Protocols", in C. Faerch & G. Kasper (eds.), *Introspection in Second Language Research*, Clevedon: Multilingual Matters Ltd, p. 96-112.
- Dechert, H. W. & Sandrock, U. (1986), "Thinking-Aloud Protocols: the Decomposition of Language Processing ", in V. Cook (ed.), *Experimental Approaches to Second Language Learning*, Oxford: Oxford University Press, p. 111-126.
- Dewaele, J. (1998), "Lexical Inventions: French Interlanguage as L2 versus L3", *Applied Linguistics*, 19 (4), p. 471-490.
- Dewaele, J. (2001), "Activation or Inhibition? The Interaction of L1, L2 and L3 on the Language Mode Continuum", in J. Cenoz, B. Hufeisen & U. Jessner (eds.), *Cross-Linguistic Influence in Third Language Acquisition: Psycholinguistic Perspectives*, Clevedon: Multilingual Matters Ltd, p. 69-89.
- Dijkstra, T. (2003), "Lexical Storage and Retrieval in Bilinguals", R. van Hout (ed.), *The Lexicon-Syntax Interface in Second Language Acquisition*, Amsterdam / Philadelphia: John Benjamins Publishing Company, p. 129-150.
- Dijkstra, T. & Van Heuven, W. J. B. (1998), "The BIA Model and Bilingual Word Recognition", in J. Grainger & A. Jacobs (eds.), *Localist Connectionist Approaches to Human Cognition*, Mahwah, NJ: Erlbaum, p. 189-225.
- Ding, R. (1993), *Tan Tan Ying Han Zhu Yu De Cha Bie* [On the Difference of English and Chinese Subject], *Journal of Sichuan Foreign Language Institute* 3, p. 76-84.
- Dörnyei, Z. (1995), "On the Teachability of Communication Strategies", *TESOL Quarterly*, 29 (1), p. 55-85.

- Dörnyei, Z. & Kormos, J. (1998), "Problem-Solving Mechanism in L2 Communication: a Psycholinguistic Perspective", *Studies in Second Language Acquisition* 20, p. 349-385.
- Dörnyei, Z. & Scott, M. L. (1997), "Review Article: Communication Strategies in a Second Language: Definitions and Taxonomies", *Language Learning* 47 (1), p. 173-210.
- Dörnyei, Z. & Thurrell, S. (1991), "Strategic Competence and How to Teach It", *ELT Journal*, 45 (1), p. 16-23.
- Dörnyei, Z. & Thurrell, S. (1992), *Conversation and Dialogues in Action*, New York: Prentice Hall.
- Dörnyei, Z. & Thurrell, S. (1994), "Teaching Conversational Skills Intensively: Course Content and Rationale", *ELT Journal*, 48 (1), p. 40-49.
- Dufour, R. & Kroll, J. (1995). "Matching Words to Concepts in Two Languages", *Memory and Cognition* 23, p. 166-180.
- Dulay, H. C. & Burt, M. K. (1974), "You Can't Learn with Goofing", in J. Richards (ed.), *Error Analysis: Perspectives on Second Language Acquisition*, London: Longman, p. 95-123.
- Ellis, N. (1997), "Vocabulary Acquisition: Word Structure, Collocation, Word-Class, and Meaning", in N. Schmitt & M. McCarthy (eds.), *Vocabulary: Description, Acquisition and Pedagogy*, Cambridge: Cambridge University Press, p. 122-139.
- Ellis, R. (1985), *Understanding Second Language Acquisition*, Oxford: Oxford University Press.
- Ellis, R. (1994), *The Study of Second Language Acquisition*, Oxford: Oxford University Press.
- Ellis, R. (1999), "Factors in the Incidental Acquisition of Second Language Vocabulary from Oral Input", in R. Ellis (ed.), *Learning a Second Language through Interaction*, Amsterdam/Philadelphia: John Benjamins Publishing Company, p. 33-54.
- Engber, C. A. (1995), "The Relationship of Lexical Proficiency to the Quality of ESL Compositions", *Journal of Second Language Writing* 4 (2), p. 139-155.
- Ericsson, K.A. & Simon, H. A. (1980), "Verbal Reports as Data", *Psychological Review* 87 (3), p. 25-251.
- Ericsson, K.A. & Simon, H. A. (1987), "Verbal Reports on Thinking", in C. Faerch & G. Kasper (eds.), *Introspection in Second Language Research*, Clevedon: Multilingual

Matters Ltd, p. 24-53.

- Ericsson, K. A. & Simon, H.A. (1993), *Protocol Analysis: Verbal Report as Data*, Cambridge, MA: MIT Press.
- Faerch, C. & Kasper, G. (1980), "Processes and Strategies in Foreign Language Learning and Communication", *Interlanguage Studies Bulletin* 5 (1), p. 47-118.
- Faerch, C. & Kasper, G. (eds.) (1983), *Strategies in Interlanguage Communication*, London: Longman.
- Faerch, C. & Kasper, G. (1984a), "Pragmatic Knowledge: Rules and Procedures", *Applied Linguistics* 5 (3), p. 214-225.
- Faerch, C. & Kasper, G. (1984b), "Two Ways of Defining Communication Strategies", *Language Learning* 24 (1), p. 45- 63.
- Faerch, C. & Kasper, G. (1986), "One Learner- Two Languages: Investigating Types of Interlanguage Knowledge", in J. House & S. Blum-Kulka (eds.), *Interlingual and Intercultural Communication: Discourse and Cognition in Translation*, Tuebingen: Gunter Narr Verlag, p. 211-228.
- Faerch, C. & Kasper, G. (eds.) (1987), *Introspection in Second Language Research*, Clevedon: Multilingual Matters Ltd.
- Fathman, A. K. & LoCoco, V. (1989), "Word Order Constraints and Production in Three Target Languages", in H. W. Dechert & R. Raupach (eds.), *Transfer in Language Production*, Norwood, NJ: Ablex Publishing Cooperation, p. 159-170.
- Faucette, P. (2001), "A Pedagogical Perspective on Communication Strategies: Benefits of Training and Analysis of English Language Teaching Materials", *Second Language Studies* 19 (2), p. 1-40.
- Feldman, U. & Stemmer, B. (1987), "Thin-, aloud a-, retrospective da- in C-te-, taking: diffe-, languages-diff-learner.sa-, approaches?", in C. Faerch & G. Kasper (eds.), *Introspection in Second Language Research*, Clevedon: Multilingual Matters Ltd, p. 251-266.
- Fraser, C. (1999), "Lexical Processing Strategy Use and Vocabulary Learning through Reading", *Studies in Second Language Acquisition* 21 (2), p. 225-241.
- Fraser, S. (1995), "The Organization of the Mental Lexicon", *Studies in English Language Education: A Bulletin for Teachers of English as a Foreign Language* 37, p. 27-45.
- Fuller, J. (1999), "Between Three Languages: Composite Structure in Interlanguage", *Applied*

*Linguistics* 20 (4), p. 534-561.

Gass, S. (1983), "Language Transfer and Universal Grammatical Relations", in S. Gass & L. Selinker (eds.), *Language Transfer in Language Learning*, Rowley, MA: Newbury House, p. 69-82.

Gass, S. (1984), "A Review of Interlanguage Syntax: Language Transfer and Language Universals", *Language Learning* 34 (2), p.115-131.

Gass, S. & Mackey, A. (2000), *Stimulated Recall Methodology in Second Language Research*, Mahwah, NJ: Lawrence Erlbaum Associates, Inc.

Gass, S. & Selinker, L. (eds.) (1992), *Language Transfer in Language Learning*, Amsterdam/Philadelphia: John Benjamins Publishing Company.

Gass, S. & Selinker, L. (2001), *Second Language Acquisition: An Introductory Course*, Mahwah, New Jersey/London: Lawrence Erlbaum Associates, Publishers.

Gass, S., Sorace, A. & Selinker, L. (eds.) (1999), *Second Language Learning Data Analysis*, Mahwah, NJ: Lawrence Erlbaum Associates Publishers.

Gerloff, P. A. (1986), "Second Language Learners Reports on the Interpretive Process: Talk-aloud Protocols of Translation", in J. House & S. Blum-Kulka (eds.), *Interlingual and Intercultural Communication: Discourse and Cognition in Translation*, Tuebingen: Gunter Narr Verlag, p. 243-262.

Gerloff, P. A. (1988), *From French to English: A Look at the Translation Processes in Studies, Bilinguals, and Professional Translation*, MiMeo: Harvard University.

Glahn, E. (1980), "Introspection as a Method of Elicitation in Interlanguage Studies", *Interlanguage Studies Bulletin* 5, p. 119-128.

Gollan, T. & Kroll, J. F. (2001), "Bilingual Lexical Access", in B. Rapp (ed.), *The Handbook of Cognitive Neuropsychology: What Deficits Reveal about the Human Mind*, Philadelphia: Psychology Press, p. 321-348.

Grabe, W. & Stoller, F. (1997), "Reading and Vocabulary Development in a Second Language: A Case Study", Y. Coady & T. Huckin (eds.), *Second Language Vocabulary Acquisition*, Cambridge: Cambridge University Press, p. 98-121.

Grainger, J. & Beauvillain, C. (1987), "Languages Blocking and Lexical Access in Bilinguals", *Quarterly Journal of Experimental Psychology* 39 A, p. 295-319.

Grainger, J. & Dijkstra, T. (1992), "On the Representation and Use of Language Information

- in Bilinguals”, in R. J. Harris (ed.), *Cognitive Processing in Bilinguals*, Amsterdam: Elsevier, p. 207-220.
- Green, D. W. (1986), “Control, Activation and Resource: A Framework and a Model for the Control of Speech in Bilinguals”, *Brain and Language* 27, p. 210–223.
- Green, D. W. (1993), “Toward a Model of L2 Comprehension and Production”, in R. Schreuder & B. Weltens (eds.), *The Bilingual Lexicon*, Amsterdam/Philadelphia: John Benjamins Publishing Company, p. 249-277.
- Gu, P. Y. & Johnson, R. K. (1996), “Vocabulary Learning Strategies and Language Learning Outcomes”, *Language Learning* 46 (4), p. 643-679.
- Guba, E.G. (1981), “Criteria for Assessing the Trustworthiness of Naturalistic Inquiries”, *Educational Communications and Technology Journal* 29, p.75–92.
- Gui, S. C. (2000), “Practice and Memory”, *Language and Use* 33 (1), p. 63-71.
- Gundel, J. K. & Tarone, E. (1992), “Language Transfer and the Acquisition of Pronouns”, in S. Gass & L. Selinker (eds.), *Language Transfer in Language Learning*, Amsterdam/Philadelphia: John Benjamins Publishing Company, p. 87-100.
- Haastrup, K. (1987), “Using Thinking Aloud and Retrospection to Uncover Learners’ Lexical Inferencing Research”, in C. Faerch & G. Kasper (eds.), *Introspection in Second Language Research*, Clevedon: Multilingual Matters Ltd, p. 197-212.
- Haastrup, K. (1990), “Developing Learners Procedural Knowledge in Comprehension”, in R. Phillipson, E. Kellerman, L. Selinker, M. Sharwood & M. Swain (eds.), *Foreign/Second Language Pedagogy Research*, Clevedon: Multilingual Matters Ltd, p. 120-133.
- Haastrup, K. (1991), *Lexical Inferencing Procedures or Talking about Words*, Tuebingen: Gunter Narr Verlag.
- Haastrup, K. & Phillipson, R. (1983), “Achievement Strategies in Learner / Native Speaker Interaction”, in C. Faerch & G. Kasper (eds.), *Strategies in Interlanguage Communication*, London: Longman, p. 140-158.
- Hammarberg, B. (2001), “Roles of L1 and L2 in L3 Production and Acquisition”, in J. Cenoz, B. Hufeisen & U. Jessner (eds.), *Cross-Linguistic Influence in Third Language Acquisition: Psycholinguistic Perspectives*, Clevedon: Multilingual Matters Ltd, p. 21-41.
- Harley, B. (1989), “Transfer in the Written Compositions of French Immersion Students”, in H. W. Dechert & R. Raupach (eds.), *Transfer in Language Production*, Norwood, NJ:

Ablex Publishing Cooperation, p. 3-20.

Harley, B. (1995), *Lexical Issues in Language Learning*, Amsterdam/Philadelphia: John Benjamins Publishing Company.

Hatim, B. & Mason, I. (1997), *The Translator as Communicator*, London: Routledge.

Hazenberg, S. & Hulstijn, J. (1996), "Defining a Minimal Receptive Second-Language Vocabulary for Non-Native University Students: An Empirical Investigation", *Applied Linguistics* 17 (2), p. 145-163.

Henriksen, B. (1999), "Three Dimensions of Vocabulary Development", *Studies in Second Language Acquisition* 21, p. 303-317.

Hoelscher, A. & Moehle, D. (1987), "Cognitive Plans in Translation", in C. Faerch & G. Kasper (eds.), *Introspection in second language research*, Clevedon, Multilingual Matters, p. 113-134.

House, J. (1981), *A Model for Translation Quality Assessment*, Tuebingen: Gunter Narr Verlag.

House, J. (1997), *Translation Quality Assessment: A Model Revisited*, Tuebingen: Gunter Narr Verlag.

House, J. & Blum-Kulka, S. (eds.) (1986), *Interlingual and Intercultural Communication: Discourse and Cognition in Translation and Second Language Acquisition Studies*, Tuebingen: Gunter Narr Verlag.

Huang, S. F. (1998), "Chinese as a Headless Language in Compounding Morphology", in J. L. Packard (ed.), *New Approaches to Chinese Word Formation*, Berlin/New York: Mouton de Gruyter, p. 261-284.

Hulstijn, J. (1997), "Mnemonic Methods in Foreign Language Vocabulary Learning: Theoretical Considerations and Pedagogical Implications", Y. Coady & T. Huckin (eds.), *Second Language Vocabulary Acquisition*, Cambridge: Cambridge University Press, p. 203-224.

Hummel, K.M. (1993), "Bilingual Memory Research: From Storage to Processing Issues", *Applied Psycholinguistics* 14, p. 267-284.

Hyde, J. (1982), "The Identification of Communication Strategies in the Interlanguage of Spanish Speakers of English", *Anglo-American Studies* 2 (1), p. 13-30.

Jaaskilainen, R. & Tikkonen-Condit, S. (1991), "Automatised Processes in Professional

- Versus Non-Professional Translation: A Think Aloud Protocol Study”, in S. Tirkkonen-Condit (ed.), *Empirical Research in Translation and Intercultural Studies*, Tuebingen: Gunter Narr Verlag, p. 89-111.
- Jarvis, S. (2000), “Methodological Rigor in the Study of Transfer: Identifying L1 Influence on the Interlanguage Lexicon”, *Language Learning* 50, p. 245-309.
- Jarvis, S. & Odlin, T. (2000), “Morphological Type, Spatial reference and Language Transfer”, *Studies in Second Language Acquisition* 22, p. 535-556.
- Jessner, U. (1997), “Towards a Dynamic View of Multilingualism”, in M. Puetz (ed.), *Language Choices: Conditions, Constraints and Consequences*, Amsterdam/Philadelphia: John Benjamins Publishing Company, p.17-30.
- Jia, Y. D. (1994), *Zhong Xi Chang Yong Qin Shu Ci De Yu Yi Dui Bi Yan Jiu* [The Comparative Study of the Kinship Words between Chinese and English], *The Global Chinese Teaching* 1, p. 9-16.
- Jiang, H. (2003), *Qian Xi Da Xue Ying Yu Si Ji Kao Shi Ying Yu Zuo Wen Zhong De Yu Yan Qian Yi Xian Xiang* [Language Transfer in the Writing of College English Band Four Examination], *Journal of Changji College* 2, p. 99-102.
- Jiang, N. (2000), “Lexical Representation and Development in a Second Language”, *Applied Linguistics* 21 (1), p. 47-77.
- Jiang, N. (2004), “Semantic Transfer and Its Implications for Vocabulary Learning in a Second Language”, *The Modern Language Journal* 88 (3), p. 416-432.
- Jiang, N. & Forster, K. (2001), “Cross-Language Priming Asymmetries in Lexical Decision and Episodic Recognition”, *Journal of Memory and Language* 44, p. 32–51.
- Jing, Z. H. (1997), *Yu Yan Qian Yi Yu Wai Yu Jiao Xue* [Language Transfer and Foreign Language Teaching], *Journal of North China University (Social Sciences)* 6, p.74-75.
- Jourdain, S. (2000), “A Native-Like Ability to Circumlocute”, *The Modern Language Journal* 84 (2), p. 185-195.
- Kasper, G. & Kellerman, E. (1997), *Communication Strategies: Psycholinguistic and Sociolinguistic Perspectives*, London/New York: Longman.
- Kellerman, E. (1983), “Now You See It, Now You Don’t”, in S. Gass & L. Selinker (eds.), *Language Transfer in Language Learning*, Rowley, MA: Newbury House, p. 112-134.
- Kellerman, E. (1984), “The Empirical Evidence for the Influence of the L1 in Interlanguage”,

- in A. Davis, C. Cripser & A. Howatte (eds.), *Interlanguage: Papers in Honor of S. Pit Corder*, Edinburgh: Edinburgh University Press, p. 98-122.
- Kellerman, E. (1986), "An Eye for an Eye: Crosslinguistic Constraints on the Development of the L2 Lexicon", in E. Kellerman, M. Sharwood Smith (eds.), *Crosslinguistic Influence in Second Language Acquisition*, New York/Oxford: Pergamon Press, p. 35-48.
- Kellerman, E. (1991), "Compensatory Strategies in Second Language Research: A Critique, a Revision, and Some (non-)implications for the Classroom", in R. Phillipson, E. Kellerman, L. Selinker, M. Sharwood Smith & M. Swain (eds.), *Foreign/Second Language Pedagogy Research*, Clevedon: Multilingual Matters Ltd, p.142-161.
- Kellerman, E. (1995), "Crosslinguistic Influence: Transfer to Nowhere?" *Annual Review of Applied Linguistics* 15, p. 125-150.
- Kellerman, E., Bongaerts, T. & Poulishse, N. (1987), "Strategy and System in L2 Referential Communication", in R. Ellis (ed.), *Second Language Acquisition in Context*, Englewood Cliffs, NJ: Prentice Hall, p.100-112.
- Kellerman, E & Sharwood Smith, M. (eds.), *Crosslinguistic Influence in Second Language Acquisition*, New York/Oxford: Pergamon Press.
- Kellerman, E., Ammerlaan, T., Bongaerts, T. & Poulishse, N. (1990), "System and Hierarchy in L2 Compensatory Strategies", in R. Scarcella, E. Andersen & S. Krashen (eds.), *Developing Communicative Competence in a Second Language*, New York: New Burry House, p.163-178.
- Kenny, D. (1998). "Creatures of Habit? What Translators Usually Do with Words", *Meta*, XLIII (4), p.1-9.
- Kess, J. F. (1992), *Psycholinguistics: Psychology, Linguistics and the Study of Natural Language*, Amsterdam/Philadelphia: John Benjamins Publishing Company.
- Khanji, R. (1993), "Interlanguage Talk: the Relation between Task Types and CS among EFL Arab Learners", *Georgetown University Round Table on Language and Linguistics 1993*, Washington D.C.: Georgetown University Press, p. 428-436.
- Koda, K. (1997), "Orthographic Knowledge in L2 Lexical Processing: A Cross-Linguistic Perspective", Y. Coady & T. Huckin (eds.), *Second Language Vocabulary Acquisition*, Cambridge: Cambridge University Press, p. 35-52.
- Krashen, S. (1983). "Newmark's 'Ignorance Hypothesis' and current SLA theory", in S. Gass & L. Selinker (eds.), *Language Transfer in Language Learning*, Rowley, MA: Newbury House, p. 135-153.



- Krings, H. P. (1986), "Translation Problems and Translation Strategies of Advanced German Learners of French (L2)", in J. House & S. Blum-Kulka (eds.), *Interlingual and Intercultural Communication: Discourse and Cognition in Translation and Second Language Acquisition Studies*, Tuebingen: Gunter Narr Verlag, p. 263-276.
- Krings, H. P. (1987), "The Use of Introspective Data in Translation", in C. Faerch & G. Kasper (eds.), *Introspection in Second Language Research*, Clevedon/Philadelphia: Multilingual Matters Ltd., p. 159-176.
- Kroll, J. F. (1993), "Accessing Conceptual Representations for Words in a Second Language", in R. Schreuder & B. Weltens (eds), *The Bilingual Lexicon*, Amsterdam/Philadelphia: John Benjamins Publishing Company, p. 53–82.
- Kroll, J. F. & Curley, J. (1988), "Lexical Memory in Novice Bilinguals: The Role of Concepts in Retrieving Second Language Words", in M. Gruneberg, P. E. Morris & R. N. Sykes (eds.), *Practical Aspects of Memory: Current Research and Issues*, London: John Wiley, p.389-395.
- Kroll, J. F & De Groot, A.M.B. (1997), "Lexical and Conceptual Memory in the Bilingual: Mapping for Meaning in Two Words", in A.M.B De Groot & J. F. Kroll (eds.), *Tutorials in Bilingualism: Psycholinguistic Perspectives*, Mahwah, NJ: Lawrence Erlbaum Associates Publishers, p. 166-199.
- Kroll, J. F. & Stewart, E. (1994), "Category Interference in Translation and Picture Naming: Evidence for Asymmetric Connections between Bilingual Memory Representations", *Journal of Memory and Language* 33, p. 149-174.
- Kroll, J. F. & Tokowicz. N. (2001), "The Development of Conceptual Representation for Words in a Second language", in J. Nicol (ed.), *One Mind, Two Languages – Bilingual Language Processing*, Malden, MA: Blackwell Publishers, p. 49-71.
- La Heij, W., Hooglander,A., Kerling, R. & van der Velden, E. (1996), "Nonverbal Context Effects in Forward and Backward Word Translation: Evidence for Concept Mediation", *Journal of Memory and Language* 35, p. 648-665.
- Lado, R. (1960), *Linguistics across Cultures: Applied Linguistics for Language Teachers*, Ann Arbor: University of Michigan Press.
- Lakoff, G. & Johnson, M. (1980), *Metaphors We Live By*, Chicago: University of Chicago Press.
- Lam, A. (2002), "English in Education in China: Policy Changes and Learners' Experiences", *World Englishes: Journal of English as an International and Intranational Language* 21

(2), p. 245-256.

Larsen-Freeman, D. & Long, M. H. (1991), *An Introduction to Second Language Acquisition Research*, London: Longman.

Laufer, B. (1990), "Why Are Some Words More Difficult Than Others? Some Intralexical Factors that Affect the Learning of Words", *IRAL: International Review of Applied Linguistics* 28 (4), p. 293-307.

Laufer, B. (1991), "The Development of L2 Lexis in the Expression of the Advanced Learner", *The Modern Language Journal* 75 (1), p. 440-448.

Laufer, B. (1997a), "The Lexical Plight in Second Language Reading: Words You Don't Know, Words You Think You Know, and Words You Can't Guess", Y. Coady & T. Huckin (eds.), *Second Language Vocabulary Acquisition*, Cambridge: Cambridge University Press, p. 20-34.

Laufer, B. (1997b), "What's in a Word That Makes It Hard or Easy: Some Intralexical Factors that Affect the Learning of Words", in N. Schmitt & M. McCarthy (eds.), *Vocabulary: Description, Acquisition and Pedagogy*, Cambridge: Cambridge University Press, p. 140-155.

Laufer, B. (1998), "The Development of Passive and Active Vocabulary in a Second Language: Same or Different?", *Applied Linguistics* 19 (2), p. 255-271.

Laufer, B. & Nation, P. (1999), "A Vocabulary-Size Test of Controlled Productive Ability", *Language Testing* 16 (1), p. 33-51.

Laukkanen, J. (1996), "Affective and Attitudinal Factors in Translation Processes", *Target* 8 (2), p. 257-274.

Levelt, W. J. M. (1989), *Speaking: from Intention to Articulation*, Cambridge, MA: MIT Press.

Levelt, W. J. M. (1993), "Accessing Words in Speech Production: Stages, Processes and Representations", in W. J. M. Levelt (ed.), *Lexical Access in Speech Production*. Cambridge: Blackwell, p.1-22.

Levenston, E.A. & Blum-Kulka, S. (1983), "Universals of Lexical Simplification", in C. Faerch & G. Kasper (eds.), *Strategies in Interlanguage Communication*, London: Longman, p. 119-139.

Lewis, M. (1997), "Pedagogical Implications of the Lexical Approach", in Y. Coady & T. Huckin (eds.), *Second Language Vocabulary Acquisition*, Cambridge: Cambridge

University Press, p. 255-270.

- Li, D. F. (2004), "Trustworthiness of Think-Aloud Protocols in the Study of Translation Processes", *International Journal of Applied Linguistics* 14 (3), p. 301-313.
- Liao, F. (1997), *Di Er Yu Yan Xi De Zhong Mu Yu Qian Yi Xian Xiang Fen Xi* [Transfer of Native Language in the Second Language Acquisition], *Journal of Chongqing University (Social Sciences)* 4, p.86-92.
- Liao, Y. D. & Yoshimori, J. F. (2002), "Avoidance of Phrasal Verbs: the Case of Chinese Learners of English", *Second Language Studies* 20 (2), p. 71-106.
- Libben, G. (2000), "Representation and Processing in the Second Language Lexicon: The Homogeneity Hypothesis", in J. Archibald (ed.), *Second Language Acquisition and Linguistic Theory*, Oxford: Blackwell, p. 228-248.
- Lin, L. H. (2000), *Yu Yan Qian Yi Yu Wai Yu Yue Du Li Jie* [Language Transfer and Foreign Language Reading Comprehension], *Journal of Henan University (Social Sciences)* 5, p.82-84.
- Littlemore, J. (2001), "An Empirical Study of the Relationship between Cognitive Style and the Use of Communication Strategy", *Applied Linguistics* 22 (2), p. 241-265.
- Littlemore, J. (2003), "The Communicative Effectiveness of Different Types of Communication Strategy", *System* 31, p. 331-347.
- Lörscher, W. (1986), "Linguistic Aspects of Translation Processes: Towards an Analysis of Translation Performance", in J. House & S. Blum-Kulka (eds.), *Interlingual and Intercultural Communication: Discourse and Cognition in Translation and Second Language Acquisition Studies*, Tuebingen: Gunter Narr Verlag, p. 277-292.
- Lörscher, W. (1991), "Think-Aloud as a Method for Collecting Data on Translation Processes", in S. Tirkkonen-Condit (ed.), *Empirical Research in Translation and Intercultural Studies*, Tuebingen: Gunter Narr Verlag, p. 67-79.
- Lörscher, W. (1993), "Translation Process Analysis", in Y. Gambier & J. Tombola (eds.), *Translation and Knowledge*, Turku: University of Turku, p. 195-221.
- Lörscher, W. (1996), "A Psychological Analysis of Translation Processes", *Meta* XLI (1), p. 26-32.
- Lowie, W. (1998), *The Acquisition of Interlanguage Morphology: A Study into the Role of Morphology in the L2 Learner's Mental Lexicon*, Unpublished doctoral dissertation, University of Groningen, Netherlands.

- Malmkjaer, K. (1998), *Translation and Language Teaching: Language Teaching and Translation*, Manchester: St. Jerome Publishing.
- McCarthy, M. & Carter, R. (1997), "Written and Spoken Vocabulary", in N. Schmitt & M. McCarthy (eds.), *Vocabulary: Description, Acquisition and Pedagogy*, Cambridge: Cambridge University Press, p. 20-39.
- Meara, P. (1984), "The Study of Lexis in Interlanguage", in A. Davies, C. Cramer & A. Howatt (eds.), *Interlanguage: Papers in Honor of S. Pit Corder*, Edinburgh: Edinburgh University, p. 225-235.
- Meara, P. (1996), "The Classical Research in L2 Vocabulary Acquisition", in G. Anderman & M. Rogers (eds.), *Words, Words, Words: The Translator and the Language Learner*, Clevedon: Multilingual Matters Ltd., p. 27-40.
- Meara, P. (1997). "Towards a New Approach to Modelling Vocabulary Acquisition", in N. Schmitt & M. McCarthy (eds.), *Vocabulary: Description, Acquisition and Pedagogy*, Cambridge: Cambridge University Press, p. 109-121.
- Melka, F. (1997), "Receptive vs Productive Aspects of Vocabulary", in N. Schmitt & M. McCarthy (eds.), *Vocabulary: Description, Acquisition and Pedagogy*, Cambridge: Cambridge University Press, p. 84-102.
- Ministry of Education, (1999), *Da Xue Ying Yu Jiao Xue Da Gang* [College English Teaching Guidelines], Shanghai: Foreign Language Teaching Press.
- Ministry of Education, (2000a), *Quan Guo Shuo Shi Yan Jiu Sheng Ru Xue Kao Shi Ying Yu Kao Shi Da Gang* [Guidelines for English Examination, 2001 National Entrance Examinations for Master Degree Candidates], Beijing: Higher Education Press.
- Ministry of Education, (2000b), *Quan Ri Zhi Gao Ji Zhong Xue Ying Yu Jiao Xue Da Gang (Shi Yan Xiu Ding Ban)* [Guidelines for English Teaching in Full-Time Senior High School (Trial Revised Edition)], Beijing: People's Education Press.
- Ministry of Education, (2001), *Jiao Yu Bu Guan Yu Ji Ji Tui Jin Xiao Xue Kai She Ying Yu Ke Cheng De Zhi Dao Yi Jian* [Guidelines for Actively Promoting the Offering of English Courses in Elementary School], <http://www.edu.cn/20010907/3000637.shtml>.
- Mondahl, M. (1995), "Lexical Search Strategies: A Study of Translation Processes in a Brief Text", *Multilingua* 14 (2), p. 183-204.
- Mondahl, M. & Jensen, K.A. (1996), "Lexical Search Strategies in Translation", *Meta* XLI (1), p. 97-113.

- Moon, R. (1997), "Vocabulary Connections: Multi-Word Items in English", in N. Schmitt & M. McCarthy (eds.), *Vocabulary: Description, Acquisition and Pedagogy*, Cambridge: Cambridge University Press, p. 40-63.
- Myers-Scotton, C., & Jake, J. L. (1995), "Matching Lemmas in a Bilingual Language Competence and Production Model: Evidence from Intrasentential Code Switching", *Linguistics* 33, p.981–1024.
- Nagy, W. (1997), "On the Role of Context in First- and Second-Language Vocabulary Learning", in N. Schmitt & M. McCarthy (eds.), *Vocabulary: Description, Acquisition and Pedagogy*, Cambridge: Cambridge University Press, p. 64-83.
- Nation, P. (1990), *Teaching and Learning Vocabulary*, New York: Newbury House.
- Nation, P. (1993), "Vocabulary Size, Growth and Use", in R. Schreuder & B. Weltens (eds.), *The Bilingual Lexicon*, Amsterdam/Philadelphia: John Benjamins Publishing Company, p. 115-134.
- Nation, P. & Newton, J. (1997), "Teaching Vocabulary", in Y. Coady & T. Huckin (eds.), *Second Language Vocabulary Acquisition*, Cambridge: Cambridge University Press, p. 238-254.
- Nation, P. & Warring, R. (1997), "Vocabulary Size, Text Coverage and Word Lists", in N. Schmitt & M. McCarthy (eds.), *Vocabulary: Description, Acquisition and Pedagogy*, Cambridge: Cambridge University Press, p. 6-19.
- Nattinger, J. (1988), "Some Current Trends in Vocabulary Teaching", in R. Carter & M. McCarthy (eds.), *Vocabulary and Language Teaching*, London: Longman, p. 62-82.
- Nesselhauf, N. (2003), "The Use of Collocations by Advanced Learners of English and Some Implications for Teaching", *Applied Linguistics* 24 (2), p. 223-242.
- Newmark, P. (1991), *About Translation*, Clevedon: Multilingual Matters.
- Nunan, D. (1992), *Research Methods in Language Learning*, Cambridge: Cambridge University Press.
- O'Dell, F. (1997), "Incorporating Vocabulary into the Syllabus", in N. Schmitt & M. McCarthy (eds.), *Vocabulary: Description, Acquisition and Pedagogy*, Cambridge: Cambridge University Press, p. 258-278.
- O'Malley, J. M. & Chamot, A. U. (1990), *Learning Strategies in Second Language Acquisition*, Cambridge: Cambridge University Press.

- O'Neill, W., Roy, L. & Tremblay, R. (1993), "A Translation-Based Generation Effect in Bilingual Recall and Recognition", *Memory and Cognition* 21 (4), p. 488–495.
- Odlin, T. (1989), *Language Transfer: Cross-Linguistic Influence in Language Learning*, Cambridge: Cambridge University Press.
- Olshtain, E. (1986), "Translating Noun-Compound from English to Hebrew", in J. House & S. Blum-Kulka (eds.), *Interlingual and Intercultural Communication: Discourse and Cognition in Translation and Second Language Acquisition Studies*, Tuebingen: Gunter Narr Verlag, p. 229-242.
- Olshtain, E. (1987), "The Acquisition of New Word Formation Processes in Second Language Acquisition", *Studies in Second Language Acquisition* 9 (2), p. 221-231.
- Packard, J. L. (1993), *A Linguistic Investigation of Aphasic Chinese Speech*, Dordrecht/Boston: Kluwer Academic Publishers.
- Packard, J. L. (1998), *New Approaches to Chinese Word Formation: Morphology, Phonology and Lexicon in Modern and Ancient Chinese*, Berlin/New York: Mouton de Gruyter.
- Packard, J. L. (2000), *The Morphology of Chinese: A Linguistic and Cognitive Approach*, Cambridge: Cambridge University Press.
- Paivio, A. (1986), *Mental Representations: A Dual Coding Approach*, Oxford: Oxford University Press.
- Paivio, A. (1991), *Images in Mind: the Evolution of a Theory*, London: Harvester Wheatsheaf.
- Pal, A. (2000), *The Role of Cross-Linguistic Formal Similarity in Hungarian-German Bilingual Learners of English as a Foreign Language*, Unpublished doctoral dissertation, Potsdam University.
- Pallier, C., Colomé, A. & Sebastian-Galles, N. (2001), "The Influence of Native-Language Phonology on Lexical Access: Exemplar-Based versus Abstract Lexical Entries", *Psychological Science* 12 (6), p. 445-449.
- Palmberg, R. (1985), "How Much English Vocabulary do Swedish-Speaking Primary-School Pupils Know before Starting to Learn at School? ", in H. Ringbom (ed.), *Foreign language Learning and Bilingualism*, ABO: ABO Akademi, p. 89-97.
- Paradis, M. (1997), "Multilingual Interaction in Foreign Language Production", in A.M.B. de Groot & J. F. Kroll (eds.), *Tutorials in Bilingualism: Psycholinguistic Perspectives*, Mahwah, NJ: Lawrence Erlbaum Associates Publishers, p. 331-354.

- Paribakht, T. (1985), "Strategic Competence and Language Proficiency", *Applied Linguistics* 6 (2), p. 132-146.
- Paribakht, T. & Wesche, M. (1997), "Vocabulary Enhancement Activities and Reading for Meaning in Second Language Vocabulary", in Y. Coady & T. Huckin (eds.), *Second Language Vocabulary Acquisition*, Cambridge: Cambridge University Press, p.174-200.
- Paribakht, T. & Wesche, M. (1999), "Reading and "Incidental" L2 Vocabulary Acquisition: An Introspective Study of Lexical Inferencing", *Studies in Second Language Acquisition* 21, p. 195-224.
- Parry, K. (1997), "Vocabulary and Comprehension: Two Portraits", in Y. Coady & T. Huckin (eds.), *Second Language Vocabulary Acquisition*, Cambridge: Cambridge University Press, p. 55-68.
- Pavlenko, A. & Jarvis, S. (2001), "Conceptual Transfer: New Perspectives on the Study of Crosslinguistic Influence", in E. Nemeth (ed.), *Cognition in Language use: Selected Papers from the 7th International Pragmatics Conference, Volume 1*, Antwerp, NL: International Pragmatics Association, p. 288-301.
- Peacock, M. & Ho, B. (2003), "Student Language Learning Strategies Across Eight Disciplines", *International Journal of Applied Linguistics* 13 (2), p. 179-200.
- Phillipson, R., Kellerman, E., Selinker, L., Sharwood Smith M. & Swain, M. (eds.) (1991), *Foreign/Second Language Pedagogy Research*, Clevedon: Multilingual Matters Ltd.
- Potter, M., So, K.-F, von Eckardt, B & Feldman, L. (1984), "Lexical and Conceptual Representation in Beginning and Proficient Bilinguals", *Journal of Verbal Learning and Verbal Behavior* 23, p. 23-38.
- Poulishse, N. (1987), "Problems and Solutions in the Classification of Compensatory Strategies", *Second Language Research* 3, p. 141-153.
- Poulishse, N. (1993), "A Theoretical Account of Lexical Communication Strategies", in R. Schreuder & B. Weltens (eds.), *The Bilingual Lexicon*, Amsterdam/Philadelphia: John Benjamins Publishing Company, p. 157-189.
- Poulishse, N. (1997a), "Compensatory Strategies and the Principles of Clarity and Economy", in G. Kasper & E. Kellerman (eds.), *Communication Strategies: Psycholinguistic and Sociolinguistic Perspectives*, London/New York: Longman, p. 49-64.
- Poulishse, N. (1997b), "Language Production in Bilinguals", in A.M.B de Groot & J. F. Kroll (eds.), *Tutorials in Bilingualism: Psycholinguistic Perspectives*, Mahwah, NJ: Lawrence

Erlbaum Associates Publishers, p. 201-224.

Poulisse, N., Bongaerts, T. & Kellerman, E. (1984), "On the Compensatory Strategies in Second Language Performance", *Interlanguage Strategies Bulletin* 8, p. 70-105.

Poulisse, N., Bongaerts, T. & Kellerman, E. (1987), "The Use of Retrospective Verbal Reports in the Analysis of Compensatory Strategies", in C. Faerch & G. Kasper (eds.), *Introspection in Second Language Research*, Clevedon: Multilingual Matters Ltd, p. 213-229.

Poulisse, N., Bongaerts, T & Kellerman, E. (1990), *The Use of Compensatory Strategies by Dutch Learners of English*, Dordrecht: Foris Publications.

Poulisse, N. & Bongaerts, T. (1994), "First Language Use in Second Language Production", *Applied linguistics* 15 (1), p. 36-57.

Poulisse, N. & Schils, E. (1989), "The Influence of Task and Proficiency Related Factors on the Use of Compensatory Strategies: A Quantitative Analysis", *Language Learning* 39 (1), p. 15-48.

Qian, D. D. (2002), "Investigating the Relationship between Vocabulary Knowledge and Academic Reading Performance: An Assessment Perspective", *Language Learning* 52 (3), p. 513-536.

Qian, D. D. (1999), "Assessing the Roles of Depth and Breadth of Vocabulary Knowledge in Reading Comprehension", *The Canadian Modern Language Review* 56 (2), p. 282-307.

Raupach, M. (1983), "Analysis and Evaluation of Communication Strategies", in C. Faerch & G. Kasper (eds.), *Strategies in Interlanguage Communication*, London: Longman, p. 199-209.

Read, J. (1997), "Vocabulary and Testing", in N. Schmitt & M. McCarthy (eds.), *Vocabulary: Description, Acquisition and Pedagogy*, Cambridge: Cambridge University Press, p. 303-320.

Richards, J. & Sukiwiwat, M. (1983), "Language Transfer and Conversational Competence", *Applied Linguistics* 4 (3), p.113-125.

Rietveld, T. & van Hout, R. (1993), *Statistical Techniques for the Study of Language and Language Behavior*, Berlin/New York: Mouton de Gruyter.

Ringbom, H. (1986), "Crosslinguistic Influence and the Foreign Language Learning Process", in E. Kellerman & M. Sharwood Smith (eds.), *Crosslinguistic Influence in Second Language Acquisition*, New York/Oxford: Pergamon, p. 150-162.



- Ringbom, H. (1987), *The Role of the First Language in Second Language Learning*, Clevedon, Avon: Taylor & Francis.
- Ringbom, H. (1991), "Crosslinguistic Lexical Influence and Foreign Language Learning", in R. Phillipson, E. Kellerman, L. Selinker, M. Sharwood Smith & M. Swain (eds.), *Foreign/Second Language Pedagogy Research*, Clevedon: Multilingual Matters Ltd, p. 172-181.
- Ringbom, H. (2001), "Lexical Transfer in L3 Production", in J. Cenoz, B. Hufeisen & U. Jessner (eds.), *Cross-Linguistic Influence in Third Language Acquisition: Psycholinguistic Perspectives*, Clevedon: Multilingual Matters Ltd, p. 59-68.
- Roelofs, R. (2003), "Shared Phonological Encoding Processes and Representations of Languages in Bilingual Speakers", *Language and Cognitive Processes* 18 (2), p. 175-204.
- Ryan, A. (1997), "Learning the Orthographical Form of L2 Vocabulary — a Receptive and a Productive Process", in N. Schmitt & M. McCarthy (eds.), *Vocabulary: Description, Acquisition and Pedagogy*, Cambridge: Cambridge University Press, p. 181-198.
- Sajavaara, K. & Lehtonen, J. (1989), "Aspects of Transfer in Foreign Language Speaker's Reactions to Acceptability", in H. W. Dechert & R. Raupach (eds.), *Transfer in Language Production*, Norwood, NJ: Ablex Publishing Cooperation, p.35-52.
- Salomone, A. & Marsal, F. (1997), "How to Avoid Language Breakdown? Circumlocution!" *Foreign Language Annals* 30 (4), p. 473-482.
- Saville-Troike, M. (1984), "What Really Matters in Second Language Learning for Academic Achievement?" *TESOL Quarterly* 18 (2), p. 199-219.
- Schachter, J. (1992), "A New Account of Language Transfer", in S. Gass & L. Selinker (eds.), *Language Transfer in Language Learning*, Amsterdam/Philadelphia: John Benjamins Publishing Company, p. 32-46.
- Schmitt, N. (1997), "Vocabulary Learning Strategies", in N. Schmitt & M. McCarthy (eds.), *Vocabulary: Description, Acquisition and Pedagogy*, Cambridge: Cambridge University Press, p. 199-227.
- Schmitt, N. & McCarthy, M. (eds.) (1997), *Vocabulary: Description, Acquisition and Pedagogy*, Cambridge: Cambridge University Press.
- Scholfield, P. (1997), "Vocabulary Reference Works in Foreign Language Learning", in N. Schmitt & M. McCarthy (eds.), *Vocabulary: Description, Acquisition and Pedagogy*,

Cambridge: Cambridge University Press, p. 279-302.

Schreuder, R. & Weltens, B. (1993), "The Bilingual Lexicon: An Overview", in R. Schreuder & B. Weltens (eds.), *The Bilingual Lexicon*, Amsterdam/Philadelphia: John Benjamins Publishing Company, p.1-10.

Schreuder, R. & Weltens, B. (eds.) (1993), *The Bilingual Lexicon*, Amsterdam/Philadelphia: John Benjamins Publishing Company.

Schwartz, B & Sprouse, R. (1996), "L2 Cognitive States and the Full Transfer/Full Access Model", *Second Language Research* 12 (1), p. 40-72.

Seguinot, C. (1996), "Some Thought about Think-Aloud Protocols", *Target* 8 (1), p. 75-95.

Seliger, H. W. (1989), "Semantic Transfer Constraints on the Production of English Passive by Hebrew-English Bilinguals", in H. W. Dechert & R. Raupach (eds.), *Transfer in Language Production*, Norwood, NJ: Ablex Publishing Cooperation, p. 21-34.

Seliger, H. W. & Shohamy E. (1989), *Second Language Research Methods*, Oxford: Oxford University Press.

Selinker, L. (1972), "Interlanguage", *IRAL: International Review of Applied Linguistics and Language Teaching* 10, p. 219-231.

Selinker, L. (1983), "Language Transfer", in S. Gass & L. Selinker (eds.), *Language Transfer in Language Learning*, Rowley, MA: Newbury House, p. 33-68.

Selinker, L. & Lakshmanan, U. (1992), "Language Transfer and Fossilization: The Multiple Effects Principle." In S. Gass & L. Selinker (eds.), *Language Transfer in Language Learning*, Amsterdam/Philadelphia: John Benjamins Publishing Company, p. 197-216.

Shao, Z. H. (1994), *Ying Han Yan Se Ci Shi Yong De Bi Jiao* [The Use of Chinese and English Color Words], *Journal of Sichuan Foreign Language Institute* 1, p. 87-92.

Sharwood Smith, M. (1979), "Strategies, Language Transfer and the Simulation of the Second Language Learner's Mental Operations", *Interlanguage Studies Bulletin* 4, p. 66-83.

Singleton, D. (1999), *Exploring the Second Language Mental Lexicon*, Cambridge: Cambridge University Press.

Smith, M. C. (1997), "How do Bilinguals Access Lexical Information?", in A.M.B. de Groot & J. F. Kroll (eds.), *Tutorials in Bilingualism: Psycholinguistic Perspectives*, Mahwah, NJ: Lawrence Erlbaum Associates Publishers, p. 145-168.

- Smith, V. (1993), "Retrieving Words from Memory", in W. Delanoy, J. Koeberl & H. Tschachler (eds.), *Experiencing a Foreign Culture*, Tuebingen: Gunter Narr Verlag, p. 239-256.
- Smith, V. (1994), *Thinking in a Foreign Language: An Investigation into Essay Writing and Translation by L2 Learners*, Tuebingen: Gunter Narr Verlag.
- Soekmen, A. (1997), "Current Trends in Teaching Second Language Vocabulary", in N. Schmitt & M. McCarthy (eds.), *Vocabulary: Description, Acquisition and Pedagogy*, Cambridge: Cambridge University Press, p. 237-257.
- Starosta, S., Kuiper, K., Ng, S. A. & Wu, Z. Q. (1998), "On Defining the Chinese Compound Word: Headedness in Chinese Compounding and Chinese VR Compounds", in J. L. Packard (ed.), *New Approaches to Chinese Word Formation*, Berlin/New York: Mouton de Gruyter, p. 347-370.
- Stern, H. H. (1983), *Fundamental Concepts of Language Teaching*, Oxford: Oxford University Press.
- Swain, M. (1985), "Communicative Competence: Some Roles of Comprehensible Input and Comprehensible Output in its Development", in S. Gass & C. Madded (eds.), *Input in Second Language Acquisition*, Rowley, MA: Newbury House, p. 235-253.
- Swan, M. (1997), "The Influence of the Mother Tongue on Second Language Vocabulary Acquisition and Use", in N. Schmitt & M. McCarthy (eds.), *Vocabulary: Description, Acquisition and Pedagogy*, Cambridge: Cambridge University Press, p. 156-180.
- Talamas, A, Kroll, J. F. & Dufour, R. (1999), "From Form to Meaning: Stages in the Acquisition of Second Language Acquisition", *Bilingualism: Language and Cognition* 2 (1), p. 45-98.
- Tarone, E. (1977), "Conscious Communication Strategies in Interlanguage: A Progress Report", in H. Brown, C. Yorio & R. Crymes (eds.), *On TESOL'77, Teaching and Learning English as a Second Language*, Washington, D.C.: TESOL, p. 194-203.
- Tarone, E. (1980), "Communication Strategies, Foreign Talk and Repair in Interlanguage", *Language Learning* 30 (2), p. 417-431.
- Tarone, E. (1982), "Systematicity and Attention in Interlanguage", *Language Learning* 32 (1), p.69-82.
- Tarone, E. (1983), "Some Thoughts on the Notion of 'Communication Strategies'", in C. Faerch & G. Kasper (eds.), *Strategies in Interlanguage Communication*, London: Longman, p. 61-74.

- Tarone, E. (1984), "Teaching Strategic Competence in the Foreign Language Classroom", in S. Savignon & M. Berns (eds.), *Initiatives in Communicative Language Teaching*, Reading, MA: Addison Wesley, p. 127-136.
- Tarone, E. & Yule, G. (1987), "Communication Strategies in East-West Interactions", in L. Smith (ed.), *Discourse Across Cultures*, Hemel Hemstead: Prentice-Hall, p. 49-65.
- Tarone, E. & Yule, G. (1989), *Focus on the Language Learner*, Oxford: Oxford University Press.
- Thompson, I. (1989), "Lexical Search Strategies in L2: A Developmental Analysis", *Georgetown University Round Table on Language and Linguistics 1989*, p.177-185.
- Tikkonen-Condit, S. (1997), "Who Verbalises What: A Linguistic Analysis of TAP Texts", *Target 9* (1), p. 69-84.
- Tikkonen-Condit, S. (ed.) (1991), *Empirical Research in Translation and Intercultural Studies*, Tuebingen: Gunter Narr Verlag.
- Van Someren, M., Barnard, Y. F. & Sandberg, J.A.C. (1994), *The Think Aloud Method: A Practical Guide to Modeling Cognitive Processes*, London: Academic Press.
- Vanparys, J., Zimmer, C., Li, X. H. & Kelly, P. (1997), "Some Salient and Persistent Difficulties Encountered by Chinese and Francophone Students in the Learning of English Vocabulary", *Review of Applied Linguistics* 115-116, p. 137-159.
- Varadi. T. (1983), "Strategies of Target Language Learner Communication: Message Adjustment", in C. Faerch & G. Kasper (eds.), *Strategies in Interlanguage Communication*, Landon: Longman, p.79-99.
- Vik-Touvinen, G. (2002), "Retrospection as a Method of Studying the Process of Simultaneous Interpreting", in G. Garzone & M. Viezzi (eds.), *Interpreting in the 21st Century: Challenges and Opportunities: Selected Papers from the 1st Foli Conference on Interpreting Studies, 9-11 November 2000*, Amsterdam/Philadelphia: John Benjamins Publishing Company, p. 63-72.
- Waddington, C. (2001), "Different Methods of Evaluating Student Translations: The Question of Validity", *Meta*, XLVI (2), p. 311-325.
- Wagner, J. (1983), "Dann du tagen eineweeeee-weise Platte-An Analysis of Interlanguage Communication in Instructions", in C. Faerch & G. Kasper (eds.), *Strategies in Interlanguage Communication*, London: Longman, p. 159-174.

- Wang, L. R. (2003), "Switching to First Language among Writers with Differing Second-Language Proficiency", *Journal of Second Language Writing* 12, p. 347-375.
- Wang, W. Y. & Wen, Q. F. (2002), "L1 use in the L2 Composing Process: An Exploratory Study of 16 Chinese EFL Writers", *Journal of Second Language Writing* 11, p. 225-246.
- Weinreich, U. (1953, Reprinted in 1974 by Mouton, The Hague), *Languages in Contact: Findings and Problems*, New York: Linguistic Circle of New York.
- Wilks, C. & Meara, P. (2002), "Untangling Word Webs: Graph Theory and the Notion of Density in Second Language Word-Association Networks", *Second Language Research* 18 (4), p. 303-324.
- Willems, G. (1987), "Communication Strategies and Their Significance in Foreign Language Teaching", *System* 15, p. 351-364.
- Williams, S. & Hammarberg, B. (1998), "Language Switches in L3 Production: Implications for a Polyglot Speaking Model", *Applied Linguistics*, 19 (3), p. 295-333.
- Wolter, B. (2001), "Comparing the L1 and L2 Mental Lexicon", *Studies in Second Language Acquisition* 23, p. 41-69.
- Yang, L. (1997), "Tracking the Acquisition of L2 Vocabulary: The Keki Language Experiment", Y. Coady & T. Huckin (eds.), *Second Language Vocabulary Acquisition*, Cambridge: Cambridge University Press, p. 125-156.
- Yule, G. (1997), *Referential Communication Tasks*, Mahwah, NJ: Erlbaum.
- Yule, G. & Tarone, E. (1991), "The Other Side of the Page: Intergrating the Communication Strategies and Negotiated Input in SLA", in R. Phillipson, E. Kellerman, L. Selinker, M. Sharwood Smith & M. Swain (eds.), *Foreign/Second Language Pedagogy Research*, Celvedon: Multilingual Matters Ltd, p. 162.171.
- Yule, G. & Tarone, E. (1997), "Investigating Communication Strategies in L2 Reference: Pros and Cons", in G. Kasper & E. Kellarman, *Communication Strategies: Psycholinguistic and Sociolinguistic Perspectives*, London/New York: Longman, p. 17-30.
- Zheng, J. (2004), *Lun Mu Yu Zai Wai Yu Xue Xi Zhong De Yu Yan Qian Yi* [Native Language Transfer in Foreign Language Learning], *Journal of Fujian Normal University (Social Sciences)* 3, p. 48-51.
- Zhu, C. S. (1996). "Translation of Modifications: about Information, Intention and Effect", *Target* 8 (2), p. 301-324.

- Zhu, J. F. (2000), *Yu Yan Qian Yi Dui Er Wai Xue Xi Zhe Ying Yu Xie Zuo De Ying Xiang* [Influence of Language Transfer on English Writing of Learners of Foreign Language as a Second Language], *Foreign Language Teaching* 1, p. 52-56.
- Zimmerman, C. (1997), "Historical Trends in Second Language Vocabulary Instruction", Y. Coady & T. Huckin (eds.), *Second Language Vocabulary Acquisition*, Cambridge: Cambridge University Press, p. 5-19.
- Zimmermann, R. (1986a), "Semantic and Lexical Error Analysis", *Englisch-Amerikanische Studies* 8 (2), p. 294-305.
- Zimmermann, R. (1986b), "Classification and Distribution of Lexical Errors in the Written Work of German Learners of English", in J. Fisiak & K. Drozdial (eds.), *Papers and Studies in Contrastive Linguistics. Vol 21*, Poznan: Adam Mickiewicz University, p. 31-40.
- Zimmermann, R. (1987a), "Retrospective and Introspective Methods in the Study of L2 Lexical Strategies", *Anglistentag 1987*, Giessen: Hoffman, p. 439-462.
- Zimmermann, R. (1987b), "Lexical Search in an L2 as Impeded Communication", *Folia Linguistica* 21, p. 407-424.
- Zimmermann, R. (1987c), "Form-Oriented and Content-Oriented Lexical Errors in L2 Learners", *IRAL: International Review of Applied Linguistics* 25 (1), p. 55-67.
- Zimmermann, R. (1988), "Paraphrase Errors and Word-Formation Errors in Advanced German Learners of English", in J. Klegraf & D. Nehls (eds.), *Essays on the English Language and Applied Linguistics on the Occasion of Gerhard Nickel's 60th Birthday*, Heidelberg: Gross, p.300-314.
- Zimmermann, R. (1989a), "A Partial Model of Lexical Search in L1-L2 Translation", in H. W. Dechert & M. Raupach (eds.), *Interlingual Processes*, Tuebingen: Gunter Narr Verlag, p.87-103.
- Zimmermann, R. (1989b), "Introspective Evidence for Strategies of L2 Lexical Search", in J. Arabski (ed.), *On Foreign Language Learning: Papers from the 2nd International Conference on Second/Foreign Language Acquisition*, Wroclaw: Ossolineum, p.15- 29.
- Zimmermann, R. (1992a), "Lexical Knowledge: Evidence from L1 and L2 Narratives and L1-L2 Translations", in M. Markus & C. Mair (eds.), *New Departures in Contrastive Linguistics. Innsbrucker Beitrage zur Kulturwissenschaft, Anglistische Reihe Band 5 (Vol. II)*, Budapest: Akaprint, p. 301-311.
- Zimmermann, R. (1992b), "Renarration: Oral L1 and L2 Narrations as Bases of Written

Narratives”, in D. Stein (ed.), *Cooperating with Written Texts: the Pragmatics and Comprehension of Written Text*, Berlin/New York: Mouton de Gruyter, p. 467-492.

Zimmermann, R. (1999), “Lexical Strategies for Advanced Learners: A Plea in Favor”, in M. Wysocka & B. Leszkiewicz (eds.), *On Language Theory and Practice. In Honour of Janusz Arabski on the Occasion of His 60th Birthday. Vol 2. Language Acquisition, Learning and Teaching*, Katowice: Wydawnictwo Uniwersytetu Slaskiego, p. 134-144.

Zimmermann, R. & Schneider, K. D. (1987), “The Collective Learner Tested: Retrospective Evidence for a Model of Lexical Search”, in C. Faerch & G. Kasper (eds.), *Introspection in Second Language Research*, Clevedon: Multilingual Matters Ltd, p. 177-195.

## **Appendix I Instructions for the informants**

Please translate this passage into English. While you are translating, you should voice out your thinking so as to record on the tape. Even though you may have difficulties, you should try to speak out everything you think of. You cannot use a dictionary or an electronic dictionary when you translate the text.

Your translation will not be shown to anybody else. Please do not worry about it and do not tell any others that you do this experiment. Your translation will only be analyzed by the data collector anonymously.



## Appendix II Questionnaire

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Sex: \_\_\_\_\_

Study dept.: \_\_\_\_\_

1. Place of coming: \_\_\_\_\_
2. Graduate university: \_\_\_\_\_
3. Degree hold (please tick the one you obtained):  
A. BA    B. BSc    C. MA    D. MSc
4. Years of English learning (including secondary school): \_\_\_\_\_
5. Hours of English leaning at school (each week): \_\_\_\_\_
6. Hours of English learning at university (each week): \_\_\_\_\_
7. Have you ever been taught by a native speaker of English before university?  
A. Yes, I have.            B. No, I have not.
8. If yes for 7, how long?
9. What was your score of the Nataional Graduate Examination Record?  
\_\_\_\_\_
10. What do you think the most difficult in learning English?  
\_\_\_\_\_  
\_\_\_\_\_
11. What do you think the most difficult when you communicate with the native speaker of English?  
\_\_\_\_\_  
\_\_\_\_\_

## **Appendix III Changes in the concept of nationalism**

### **(Newspaper version)**

Nationalism can be defined as a deep sense of loyalty and devotion that one feels for one's own race and country. It is a set of emotions that is nurtured over thousands of years. And as agrarian communities give way to modern urban societies, nationalism today has also evolved into a form that is quite different from the ancient one that we know of.

Empirical evidences also showed that early nationalism had its origin in regional and blood ties. Unless a grouping was assured that the interests of its own families and communities were met, it would be difficult for them to fulfill their duties and obligations to the country. This was why when a new emperor was enthroned, he would confer titles and territories to his kinsmen. Such feudal practices were also common among regional government officials. The wider sense of patriotism to the emperor and country could only be stimulated in turbulent times when a country was in danger of invasion by outside forces.

Today, however, a different perspective of nationalism has been taken. People can now differentiate between loyalty to the individual ruler and loyalty to the country. They would not rise to calls for nationalism unless the interests of the ruler and theirs are identical, that is, they truly reflect the interests of the country. To love the country is to love its citizenry. This is fundamental. Loyalty to the nation and country must take precedence over blood ties and loyalty to an individual or to a community.

## Appendix IV Optimal Translation

### Changes/Developments in the Concept/Phenomenon of Patriotism

Patriotism is a profound feeling/emotion/sentiment for one's own nation and country which has developed over thousands of years. However, modern society makes different demands on patriotic sentiment compared with traditional societies (of the past).

Within the range of behavioural norms (in human society)/valid for/applying to most people, regional loyalties and family blood ties are stronger/of more importance than loyalty to the state/country.

Only when the interests of one's own family clan and region are secured, can obligations to the state/country be fulfilled.

This is the reason why all rulers, once they succeeded to the throne, conferred without scruples *territories and fiefs* on relations/family members based on blood (ties).

Regional/local officials mainly nominated/(enabled) their own relatives to obtain preferment/favoured their own relatives when distributing largesse/official positions.

This was also the main/principal cause for the emergence of separatist feudal regimes.

Only invasions by foreign peoples could provoke patriotic feelings in the traditional sense.

Patriotism in the modern understanding/sense (of the term) then began to distinguish/differentiate clearly between loyalty to the ruler as an individual/the individual ruler and loyalty to the state as a polity/political community.

Only when the interests of rulers and governments matched/concurred with/were consistent with those of all the people, and the people thus began to represent the state, did/could the phenomenon of patriotism extend to them.

Thus patriotism is grounded fundamentally in the realisation/conclusion that/fundamentally means that love of the state corresponds to love of one's own race/people.

With regard to relations between members of society, patriotism demands that loyalties arising out of traditional interpersonal ethics and regional/local and family (blood) ties are overcome/cast aside in favour of nation and state.

## **Appendix V German Translation of the Chinese Text**

### **Titel: Sinnwandlung des Patriotismus**

„Im Allgemeinen wird Patriotismus als eine jahrtausendlang gebildete, tiefe Liebe zu der eigenen Nation bzw. zum Vaterland verstanden. Doch konkret definier man den „Patriotismus“ in einer modernen Gesellschaft anders als in einer traditionellen.

Die Treue zu dem Staat ist für die meisten Menschen (in einer traditionellen Gesellschaft) der Treue zu ihrer eigenen Region bzw. zu ihrer Familie untergeordnet. Die Pflicht gegenüber dem Staat kommt nur dann in Frage, wenn zuerst die Interessen der eigenen Region bzw. der Familie gewährleistet worden ist. Damit kann erklärt werden, warum ein Herrscher, nachdem er den Thron bestiegen hat, sein Land bzw. seine Macht unter seine Blutverwandten verteilt. Auch die Vetterwirtschaft unter den regionalen Beamten und die häufige Kleinstaaterei (die Aufspaltung des Landes in viele Kleinstaaten) in den feudalen Zeiten hängen damit eng zusammen. Nur durch das Eindringen des fremden Volkes kann das patriotische Gefühl im originalen Sinn hervorgerufen werden.

Mit dem Patriotismus im modernen Sinn werden die Treue gegenüber dem Staatsführer selbst und die gegenüber dem Staat (als einer politischen Gemeinschaft) streng voneinander getrennt. Nur wenn die Interessen der Staatsführer den des ganzen Volkes entsprechen und die Staatsführer wirklich den „Staat“ vertreten können, dürfen sie denjenigen gehören, für die (wie für den Staat) der Patriotismus gilt. Patriotismus ist deshalb mit der Liebe zum ganzen Volk gleichzusetzen, was auch als die Grundlage des Patriotismus zu verstehen ist. Im gesellschaftlichen Verhältnis heißt es: die Treue zu der Nation bzw. zum Staat genießt die Priorität gegenüber der Treue zu den einzelnen Personen, zur eigenen Region bzw. zur Familie.

## **Appendix VI Changes in the Concept of Patriotism**

### **(My translation)**

Patriotism is a deep feeling formed over thousands of years for one's own race and country. But modern society has different demands for patriotism as compared with traditional society.

In most people's behavioral criteria, loyalty to the region and family blood ties was stronger than loyalty to the country. Only when the interest of one's own family clan and region was ensured, could obligations to the country be fulfilled. This was why an emperor would confer titles and territories recklessly according to his blood ties after he ascended the throne. Local officials would nominate the official positions to their relatives. It was also the main reason that feudal separation and occupation was very common. Only when they faced invasion of foreign races, could patriotism in the traditional sense be stimulated.

Patriotism in the modern sense clearly differentiates between loyalty to the individual ruler and loyalty to the country which is considered as a political community. When the interest of the ruler and government is consistent with the people's, and when they can really represent the country, patriotism can be extended to them. Therefore, to love the country is to love the people. This is fundamental for patriotism. In social relations, it requires that loyalty to the race and country defeat loyalty to the interpersonal ethics, region and family blood ties.

## Appendix VII The Chinese Text

### 爱国主义内涵的变迁

爱国主义是千百年来形成的对自己民族国家的一种深厚的感情。但是，现代社会和传统社会对爱国主义有着不同的要求。

在多数人的行为准则中，地方的血缘的忠诚强于对国家的忠诚。只有在确保了自己家族和本地的利益后，才谈得上行使对国家的义务。这是为什么君主登基之后都要大肆进行血缘分封，而地方官员也要任人唯亲，甚至封建割据盛行的主要原因。只是在面对异族入侵时，传统意义上的爱国情感才能被激发出来。

现代意义上的爱国主义则明确的把对领袖个人的忠诚和对“国家”这一政治共同体的忠诚区别开来，只有当领袖和政府的利益与全体人民的利益相一致时，当他们能够真正代表“国家”时，爱国主义才延及他们。因此。爱国就爱全体人民，这是爱国主义的根本所在，在社会关系中，它要求对民族国家的忠诚战胜人伦的、地方的和血缘的忠诚。

## Appendix VIII Compounding Structures of Chinese and

### English words

#### Chinese compounding structure

Noun	Examples	Verb	Examples	Adjectives	Examples
N+N	mu gong “carpenter”	N+N	wu se “hunt for”	N+N	mao dun “contradictory”
A+N	sheng qi “vitality”	A+N	?	A+N	hen xin “cruel”
N+A	feng shi “rheumatism”	N+A	?	N+A	nian qing “young”
A+A	kong bai “void”	A+A	?	A+A	qi guai “strange”
V+N	ling shi “consul”	V+N	kai dao “operate”	V+N	de yi “elated”
V+A	?	V+A	ti gao “increase”	V+A	?
a. N+V	ya shua “toothbrush”	N+V	tian liang “day break”	N+V	guo you “state owned”
b. N+V	wai yu “extra marital affair”	N+V	nei ying “respond from within”	N+V	?
V+V	dong zuo “activity”	V+V	fen xi “analyze”	V+V	bao shou “conservative”
A+V	xiao shuo “fiction”	A+V	gong bu “announce”	A+V	hao kan “pretty”
O+O	you muo “humor”	O+O	cuo tuo “dawdle”	O+O	cen ci “in disarray”

Notes: 1. ? indicates gaps in word formation

2. O+O indicates that the compounds are frozen forms. They are either unmorphemicizable loan words or native compounds whose elements native speakers find impossible to categorize.

Source: Huang, Shuanfan (1998), “Chinese as a headless language in compounding morphology”, in Jerome L. Packard (ed.), *New approaches to Chinese word formation*, Berlin, New York: Mouton de Gruyter, p.261-284.

### English Compounding structure

<b>Nouns</b>	<b>Examples</b>	<b>Adjectives</b>	<b>Examples</b>	<b>Verbs</b>	<b>Examples</b>	<b>Prep</b>	<b>Examples</b>
<b>N+N</b>	mill wheel, firetruck	<b>N+A</b>	heartbroken, color-blind	<b>N+V</b>	hand-made, spoon-feed	<b>P+P</b>	into, onto
<b>A+N</b>	high school, poor house	<b>A+A</b>	icy cold, deaf mute	<b>A+V</b>	double-coat, sweet-talk		
<b>P+N</b>	uprising, afterbirth	<b>P+A</b>	above-mentioned, under ripe	<b>P+V</b>	overdo, outlive		
<b>V+N</b>	scrubwoman, pickpocket	<b>V+A</b>	diehard	<b>V+V</b>	freezy-dry, drop-kick		

Source: Stanley Starosta, Koenraad Kuiper, Siew-ai Ng, and Zhi-qian Wu (1998), "On defining the Chinese compound word: headedness in Chinese compounding and Chinese VR compounds", in Jerome L. Packard (ed.), *New approaches to Chinese word formation*, Berlin/New York: Mouton de Gruyter, p. 347-370.



## Appendix IX List of Strategies and Learner Forms

The Chinese literal translation of Chinese word are based on “The Contemporary Chinese Dictionary (Chinese-English Edition)”, compiled by Dictionary Department, Institute of Linguistics, Chinese Academy of Social Sciences, 2002.

Source: Chinese Academy of Social Sciences, (2002), *Xian Dai Han Yu Ci Dian (Han Ying Shuang Yu)* [The Contemporary Chinese Dictionary (Chinese-English Edition)], Beijing: Foreign Language Teaching and Research Press.

Note: The sound of the Chinese word is included the square bracket. The part of speech of each word is put in the right bottom. The literal translation of each word is given in italicized word. The learners’ translated forms from L1 into L2 are put in the single quotation marks after the learners’ L1 forms.

Strategy Types	Chinese Words with Literal Translation	Optimal Solution	Learner Forms (either L1 form or L2 form)
Relexification	[nei <sub>n</sub> han <sub>v</sub> ] <sub>n</sub> <i>inside include</i> 内涵	concept	innermost meaning, inside meaning
	[ai <sub>v</sub> guo <sub>n</sub> zhu <sub>adj</sub> yi <sub>n</sub> ] <sub>n</sub> <i>love country main meaning</i> 爱国主义	patriotism/nationalism	loving one’s motherland, loving one’s country, love homeland, loving the country, love self-country
	[xing <sub>v</sub> wei <sub>v</sub> ] <sub>n</sub> <i>act behave</i> 行为	behavior	act, behavior
	[zhun <sub>n</sub> ze <sub>n</sub> ] <sub>n</sub> <i>norm rule</i> 准则	norms	rule, rules
	[xue <sub>n</sub> yuan <sub>n</sub> ] <sub>n</sub> <i>blood affinity</i> 血缘	family (blood) ties	blood family, blood honesty, blood relations, blood relationship, blood-related, kindred relations
	[ge <sub>v</sub> ju <sub>v</sub> ] <sub>n</sub> <i>cut occupy</i> 割据	separatist regimes	dividing fields, dividing lands
	[ji <sub>v</sub> fa <sub>v</sub> ] <sub>v</sub> <i>stimulate develop</i> 激发	provoke	pushed out
L1 Synonym	[bian <sub>v</sub> qian <sub>v</sub> ] <sub>n</sub> <i>change move</i> 变迁	changes/developments	[yan <sub>v</sub> bian <sub>v</sub> ] <sub>v</sub> <i>evolve change</i> 演变 ‘evolve’

	[nei <sub>n</sub> han <sub>v</sub> ] <sub>n</sub> <i>inside include</i> 内涵	concept	[han <sub>v</sub> yi <sub>n</sub> ] <sub>n</sub> <i>include meaning</i> 含义 ‘implication’
	[qu <sub>v</sub> fen <sub>v</sub> ] <sub>v</sub> <i>distinguish divide</i> 区分	differentiate	[fen <sub>v</sub> kai <sub>v</sub> ] <sub>v</sub> <i>divide open</i> 分开 ‘separate’
	[zhun <sub>n</sub> ze <sub>n</sub> ] <sub>n</sub> <i>norm rule</i> 准则	norms	[biao <sub>n</sub> zhun <sub>n</sub> ] <sub>n</sub> <i>standard norm</i> 标准 ‘criterion’
	[que <sub>v</sub> bao <sub>v</sub> ] <sub>v</sub> <i>ensure protect</i> 确保	secure	[bao <sub>v</sub> zheng <sub>v</sub> ] <sub>v</sub> <i>protect prove</i> 保证 ‘ensure’
	[ru <sub>v</sub> qin <sub>v</sub> ] <sub>n</sub> <i>enter invade</i> 入侵	invasion	[qin <sub>v</sub> lue <sub>v</sub> ] <sub>n</sub> <i>invade grab</i> 侵略 ‘aggression’
	[jun <sub>n</sub> zhu <sub>n</sub> ] <sub>n</sub> <i>emperor monarch</i> 君主	monarch	[huang <sub>adj</sub> di <sub>n</sub> ] <sub>n</sub> <i>grand emperor</i> 皇帝 ‘emperor’
	[yi <sub>n</sub> wu <sub>n</sub> ] <sub>n</sub> <i>obligation duty</i> 义务	obligations	[ze <sub>n</sub> ren <sub>n</sub> ] <sub>n</sub> <i>responsibility task</i> 责任 ‘duty’
	[zhong <sub>adj</sub> cheng <sub>adj</sub> ] <sub>n</sub> <i>loyal honest</i> 忠诚	loyalty/loyalties	[cheng <sub>adj</sub> shi <sub>adj</sub> ] <sub>n</sub> <i>honest modest</i> 诚实 ‘honest’
	[yi <sub>num</sub> zhi <sub>v</sub> ] <sub>adj</sub> <i>one correspond</i> 一致	match/concur with/consistent with	[yi <sub>num</sub> yang <sub>n</sub> ] <sub>adj</sub> <i>one type</i> 一样 ‘same’
	[xing <sub>v</sub> shi <sub>v</sub> ] <sub>v</sub> <i>act execute</i> 行使	fulfill	[zhi <sub>v</sub> xing <sub>v</sub> ] <sub>v</sub> <i>hold act</i> 执行 ‘implement’
	[gen <sub>n</sub> ben <sub>n</sub> ] <sub>n</sub> <i>root base</i> 根本	base/fundamental	[ji <sub>n</sub> ben <sub>n</sub> ] <sub>n</sub> <i>prime basis</i> 基本 ‘base’
L1 Decomposition	[nei <sub>n</sub> han <sub>v</sub> ] <sub>n</sub> <i>inside include</i> 内涵	concept	[nei <sub>n</sub> bu <sub>n</sub> ] <sub>n</sub> [han <sub>v</sub> yi <sub>n</sub> ] <sub>n</sub> <i>inside part include meaning</i> 内部 ‘inside’ 含义 ‘implication’
	[yan <sub>v</sub> ji <sub>v</sub> ] <sub>v</sub> <i>extend reach</i> 延及	extend	[yan <sub>v</sub> shen <sub>v</sub> ] <sub>v</sub> [da <sub>v</sub> dao <sub>v</sub> ] <sub>v</sub> <i>extend stretch arrive reach</i> 延伸 ‘stretch’ 达到 ‘reach’
L1-Related Concept	[zhong <sub>adj</sub> cheng <sub>adj</sub> ] <sub>n</sub> <i>loyal honest</i> 忠诚	loyalty/loyalties	[feng <sub>v</sub> xian <sub>v</sub> ] <sub>v</sub> <i>dedicate present</i> 奉献 ‘devote’

	[guan <sub>v</sub> xi <sub>v</sub> ] <sub>n</sub> <i>close connect</i> 关系	relation	[wang] <sub>n</sub> [lian] <sub>n</sub> <i>net chain</i> 网 ‘net’ 链 ‘chain’
	[ji <sub>v</sub> fa <sub>v</sub> ] <sub>v</sub> <i>stimulate out</i> 激发	provoke	[bao <sub>v</sub> fa <sub>prep</sub> ] <sub>v</sub> <i>break out</i> 爆发 ‘break out’
	[guo <sub>n</sub> jia <sub>n</sub> ] <sub>n</sub> <i>country family</i> 国家	country	[min <sub>n</sub> zu <sub>n</sub> ] <sub>n</sub> [guo <sub>n</sub> min <sub>n</sub> ] <sub>n</sub> <i>country people people race</i> 国民 ‘citizens’ 民族 ‘nation’
	[di <sub>n</sub> fang <sub>n</sub> ] <sub>n</sub> <i>place square</i> 地方	local/regional	[di <sub>n</sub> yu <sub>n</sub> ] <sub>n</sub> <i>place region</i> 地域 ‘territory’
	[zhan <sub>v</sub> sheng <sub>v</sub> ] <sub>v</sub> <i>fight defeat</i> 战胜	overcome	[zheng <sub>v</sub> fu <sub>v</sub> ] <sub>v</sub> <i>collect obey</i> 征服 ‘conquer’
	[ru <sub>v</sub> qin <sub>v</sub> ] <sub>n</sub> <i>enter invade</i> 入侵	invasion	[xi <sub>v</sub> ji <sub>v</sub> ] <sub>n</sub> <i>attack hit</i> 袭击 ‘attack’
	[yi <sub>n</sub> wu <sub>n</sub> ] <sub>n</sub> <i>obligation duty</i> 义务	obligations	[ren <sub>v</sub> wu <sub>n</sub> ] <sub>n</sub> <i>appoint task</i> 任务 ‘task’
	[xing <sub>v</sub> cheng <sub>v</sub> ] <sub>v</sub> <i>form become</i> 形成	form	[chan <sub>v</sub> sheng <sub>v</sub> ] <sub>v</sub> <i>produce bear</i> 产生 ‘emerge’
	[fen <sub>v</sub> feng <sub>v</sub> ] <sub>v</sub> <i>divide entitle</i> 分封	confer territories and fiefs	[shou <sub>v</sub> quan <sub>n</sub> ] <sub>v</sub> <i>authorize power</i> 授权 ‘authorize’
	[deng <sub>v</sub> ji <sub>n</sub> ] <sub>v</sub> <i>climb base</i> 登基	succeeded to the throne	[tong <sub>v</sub> zhi <sub>v</sub> ] <sub>v</sub> <i>unite control</i> 统治 ‘rule’
L1 PARA	[xue <sub>n</sub> yuan <sub>n</sub> ] <sub>n</sub> <i>blood affinity</i> 血缘	family (blood) ties	[qin <sub>n</sub> qi <sub>n</sub> ] <sub>n</sub> <i>close relative</i> 亲戚 ‘relatives’
	[deng <sub>v</sub> ji <sub>n</sub> ] <sub>v</sub> <i>climb base</i> 登基	succeeded to the throne	[zhang <sub>v</sub> quan <sub>n</sub> ] <sub>v</sub> <i>take power</i> 掌权 ‘be in power’
	[fen <sub>v</sub> feng <sub>v</sub> ] <sub>v</sub> <i>divide entitle</i> 分封	confer territories and fiefs	[feng <sub>v</sub> wang <sub>n</sub> ] <sub>v</sub> <i>entitle king</i> 封王 ‘confer the noble’
	[di <sub>n</sub> fang <sub>n</sub> ] <sub>n</sub> <i>place square</i> 地方	local/regional	[ben <sub>n</sub> tu <sub>n</sub> ] <sub>n</sub> <i>base earth</i> 本土 ‘native soil’

	[da <sub>adj</sub> si <sub>adj</sub> ] <sub>adv</sub> <i>big wanton</i> 大肆	without scruples	[bu <sub>adv</sub> wei <sub>prep</sub> yu <sub>adj</sub> li <sub>n</sub> ] <i>not for extra force</i> 不为余力 ‘vigor’
	[zhan <sub>v</sub> sheng <sub>v</sub> ] <i>fight defeat</i> 战胜	overcome	[gao] <sub>adj</sub> <i>high</i> 高 ‘high’
	[dai <sub>v</sub> biao <sub>v</sub> ] <sub>v</sub> <i>bring express</i> 代表	represent	[biao <sub>v</sub> zhi <sub>v</sub> ] <sub>v</sub> <i>mark sign</i> 标志 ‘symbolize’
	[sheng <sub>adj</sub> xing <sub>v</sub> ] <sub>n</sub> <i>popular act</i> 盛行	emergence	[fan <sub>adj</sub> rong <sub>adj</sub> ] <sub>adj</sub> <i>prosperous glorious</i> 繁荣 ‘prosperous’
	[ge <sub>v</sub> ju <sub>v</sub> ] <sub>n</sub> <i>cut occupy</i> 割据	separatist regimes	[zhan <sub>v</sub> you <sub>v</sub> ] <sub>v</sub> <i>occupy have</i> 占有 ‘possess’
	[ren <sub>n</sub> lun <sub>n</sub> ] <sub>n</sub> <i>people ethics</i> 人伦	interpersonal ethics	[dao <sub>n</sub> de <sub>n</sub> ] <sub>n</sub> <i>road morality</i> 道德 ‘morality’
L1 Association	[ai <sub>v</sub> guo <sub>n</sub> zhu <sub>adj</sub> yi <sub>n</sub> ] <sub>n</sub> <i>love country main meaning</i> 爱国主义	patriotism/nationalism	[xin <sub>v</sub> yang <sub>v</sub> ] <sub>n</sub> <i>trust believe</i> 信仰 ‘belief’
	[bian <sub>v</sub> qian <sub>v</sub> ] <sub>n</sub> <i>change move</i> 变迁	changes/developments	[li <sub>v</sub> shi <sub>n</sub> ] <sub>n</sub> <i>continue history</i> 历史 ‘history’
	[gan <sub>v</sub> qing <sub>n</sub> ] <sub>n</sub> <i>feel emotion</i> 感情	feeling	[pi <sub>n</sub> qi <sub>n</sub> ] <sub>n</sub> <i>spleen air</i> 脾气 ‘temper’
	[xing <sub>v</sub> cheng <sub>v</sub> ] <sub>v</sub> <i>form become</i> 形成	form	[zhu <sub>v</sub> bu <sub>n</sub> ] <sub>adv</sub> <i>chase step</i> 逐步 ‘gradually’
	[zhong <sub>adj</sub> cheng <sub>adj</sub> ] <sub>n</sub> <i>loyal honest</i> 忠诚	loyalty/loyalties	[ting <sub>v</sub> cong <sub>v</sub> ] <sub>v</sub> <i>listen obey</i> 听从 ‘obey’
	[jun <sub>n</sub> zhu <sub>n</sub> ] <sub>n</sub> <i>emperor monarch</i> 君主	monarchy	[jing <sub>n</sub> ji <sub>n</sub> ] <sub>n</sub> <i>thorn prick</i> 荆棘 ‘thorn’
	[que <sub>v</sub> bao <sub>v</sub> ] <sub>v</sub> <i>ensure protect</i> 确保	secure	[huo <sub>v</sub> de <sub>v</sub> ] <sub>v</sub> <i>obtain get</i> 获得 ‘obtain’
	[xing <sub>v</sub> shi <sub>v</sub> ] <sub>v</sub> <i>act execute</i> 行使	fulfill	[xiang <sub>v</sub> qi <sub>prep</sub> ] <sub>v</sub> <i>recall up</i> 想起 ‘miss’

	[fen <sub>v</sub> feng <sub>v</sub> ] <sub>v</sub> <i>divide entitle</i> 分封	confer territories and fiefs	[jin <sub>v</sub> sheng <sub>v</sub> ] <sub>v</sub> <i>promote rise</i> 晋升 ‘promote’
	[yao <sub>v</sub> qiu <sub>v</sub> ] <sub>n</sub> <i>want ask</i> 要求	demand	[kao <sub>v</sub> lü <sub>v</sub> ] <sub>v</sub> <i>consider filter</i> 考虑 ‘consider’
	[ge <sub>v</sub> ju <sub>v</sub> ] <sub>n</sub> <i>cut occupy</i> 割据	separatist regimes	[fen <sub>v</sub> lie <sub>v</sub> ] <sub>v</sub> [fen <sub>v</sub> li <sub>v</sub> ] <sub>v</sub> <i>divide split divide leave</i> 分裂 ‘split’ 分离 ‘separate’
	[yi <sub>adj</sub> zu <sub>n</sub> ] <sub>n</sub> <i>foreign race</i> 异族	foreign race	[di <sub>n</sub> yi <sub>n</sub> ] <sub>n</sub> <i>enemy mean</i> 敌意 ‘hostility’
	[ren <sub>n</sub> lun <sub>n</sub> ] <sub>n</sub> <i>people ethics</i> 人伦	interpersonal ethics	[dao <sub>n</sub> li <sub>n</sub> ] <sub>n</sub> <i>road texture</i> 道理 ‘reason’
	[yan <sub>v</sub> ji <sub>v</sub> ] <sub>v</sub> <i>extend reach</i> 延及	extend	[long <sub>v</sub> zhao <sub>v</sub> ] <sub>v</sub> <i>enclose cover</i> 笼罩 ‘cover’
	[ji <sub>v</sub> fa <sub>prep</sub> ] <sub>v</sub> <i>stimulate out</i> 激发	provoke	[huan <sub>v</sub> xing <sub>v</sub> ] <sub>v</sub> <i>call wake</i> 唤醒 ‘arouse’
	[zhan <sub>v</sub> sheng <sub>v</sub> ] <sub>v</sub> <i>fight defeat</i> 战胜	overcome	[dai <sub>v</sub> ti <sub>v</sub> ] <sub>v</sub> <i>take replace</i> 代替 ‘substitute’
L2 Form	[ai <sub>v</sub> guo <sub>n</sub> zhu <sub>adj</sub> yi <sub>n</sub> ] <sub>n</sub> <i>love country main meaning</i> 爱国主义	patriotism/nationalism	patrorism, patriotism, pairotism, patriorism, patriostism,
	[xing <sub>v</sub> cheng <sub>v</sub> ] <sub>v</sub> <i>form become</i> 形成	form	formulated,
	[gan <sub>v</sub> qing <sub>n</sub> ] <sub>n</sub> <i>feel emotion</i> 感情	feeling	immotion
	[xing <sub>v</sub> wei <sub>v</sub> ] <sub>n</sub> <i>act behave</i> 行为	behavior	behavial
	[zhong <sub>adj</sub> cheng <sub>adj</sub> ] <sub>n</sub> <i>loyal honest</i> 忠诚	loyalty/loyalties	loyaty, royal, royalty
	[xue <sub>n</sub> yuan <sub>n</sub> ] <sub>n</sub> <i>blood affinity</i> 血缘	family (blood) ties	bloodish, bloody, brood,

[que <sub>v</sub> bao <sub>v</sub> ] <sub>v</sub> <i>assure protect</i> 确保	secure	garrantee, gareteed, insure
[li <sub>n</sub> yi <sub>n</sub> ] <sub>n</sub> <i>profit interest</i> 利益	interests	benift
[jia <sub>n</sub> zu <sub>n</sub> ] <sub>n</sub> <i>family clan</i> 家族	family clan	faminal
[ben <sub>n</sub> di <sub>n</sub> ] <sub>n</sub> <i>base place</i> 本地	region	locial
[yi <sub>n</sub> wu <sub>n</sub> ] <sub>n</sub> <i>obligation duty</i> 义务	obligations	disability, oblige, responsibility, responsibilities
[fen <sub>v</sub> feng <sub>v</sub> ] <sub>v</sub> <i>divide entitle</i> 分封	confer territories and fiefs	enfuetted
[feng <sub>v</sub> jian <sub>v</sub> ] <sub>n</sub> <i>entitle establish</i> 封建	feudal	neutronism
[ge <sub>v</sub> ju <sub>v</sub> ] <sub>n</sub> <i>cut occupy</i> 割据	separatist regimes	kindoms, capitalism divid
[da <sub>adj</sub> si <sub>adj</sub> ] <sub>adv</sub> <i>big wanton</i> 大 肆	without scruples	vigorially
[ru <sub>v</sub> qin <sub>v</sub> ] <sub>n</sub> <i>enter attack</i> 入侵	invasion	invade, invation, ivation, offended
[ji <sub>v</sub> fa <sub>v</sub> ] <sub>v</sub> <i>stimulate develop</i> 激发	provoke	arose, aroused
[yan <sub>v</sub> ji <sub>v</sub> ] <sub>v</sub> <i>extend reach</i> 延及	extend	spreaded
[qu <sub>v</sub> fen <sub>v</sub> ] <sub>v</sub> <i>distinguish divide</i> 区分	differentiate/distinguish	apart, depart, differ, differently, discrimilate, distinguishes, distinguish, distinguishes
[gong <sub>adj</sub> tong <sub>adj</sub> ti <sub>n</sub> ] <sub>n</sub> <i>common same body</i> 共同体	community	commonwealth

	[zhen <sub>adj</sub> zheng <sub>adj</sub> ] <sub>adv</sub> <i>real true</i> 真正	truly/really	actually
	[dai <sub>v</sub> biao <sub>v</sub> ] <sub>v</sub> <i>bring express</i> 代表	represent	prepresent
	[gen <sub>n</sub> ben <sub>n</sub> ] <sub>n</sub> <i>root base</i> 根本	base/fundamental	basic, essential, fundamental
L2 Synonym	[nei <sub>n</sub> han <sub>v</sub> ] <sub>n</sub> <i>inside include</i> 内涵	concept	connotation, content, meaning
	[bian <sub>v</sub> qian <sub>v</sub> ] <sub>n</sub> <i>change move</i> 变迁	changes/developments	evolution, movement
	[shen <sub>adj</sub> hou <sub>adj</sub> ] <sub>adj</sub> <i>deep thick</i> 深厚	profound	deep, deeply, depth
	[gan <sub>v</sub> qing <sub>n</sub> ] <sub>n</sub> <i>feel emotion</i> 感情	feeling	affection, emotion, love, sensation
	[guo <sub>n</sub> jia <sub>n</sub> ] <sub>n</sub> <i>country family</i> 国家	country	nation
	[zhun <sub>n</sub> ze <sub>n</sub> ] <sub>n</sub> <i>norm rule</i> 准则	norms	criteria, principle, regulation, regulations, standard
	[zhong <sub>adj</sub> cheng <sub>adj</sub> ] <sub>n</sub> <i>loyal honest</i> 忠诚	loyalty/loyalties	faith, faithful, faithfulness, honesty
	[xue <sub>n</sub> yuan <sub>n</sub> ] <sub>n</sub> <i>blood affinity</i> 血缘	family (blood) ties	consanguinity, relationship
	[que <sub>v</sub> bao <sub>v</sub> ] <sub>v</sub> <i>assure protect</i> 确保	secure	affirm, assure, ensure, protect, protection
	[ben <sub>n</sub> di <sub>n</sub> ] <sub>n</sub> <i>base place</i> 本地	region	locality
	[xing <sub>v</sub> shi <sub>v</sub> ] <sub>v</sub> <i>act execute</i> 行使	fulfill	carry on, carry out, exercise, perform, shoulder,

[yi <sub>n</sub> wu <sub>n</sub> ] <sub>n</sub> <i>obligation duty</i> 义务	obligations	duty, responsibility (ies), task
[ren] <sub>v</sub> <i>nominate</i> 任	nominate	appoint, promoted, select
[ge <sub>v</sub> ju <sub>v</sub> ] <sub>n</sub> <i>cut occupy</i> 割据	separatist regimes	separation, split
[yi] <sub>adj</sub> <i>different</i> 异	foreign	different
[zu] <sub>n</sub> <i>race</i> 族	people	nation (s), race (s)
[ru <sub>v</sub> qin <sub>v</sub> ] <sub>n</sub> <i>enter attack</i> 入侵	invasion	attack
[ji <sub>v</sub> fa <sub>prep</sub> ] <sub>v</sub> <i>stimulate out</i> 激发	provoke	inspired, stimulated, trigger
[ming <sub>adj</sub> que <sub>adj</sub> ] <sub>adv</sub> <i>bright accurate</i> 明确	clearly	distinctly, explicitly
[qu <sub>v</sub> fen <sub>v</sub> ] <sub>v</sub> <i>distinguish divide</i> 区分	differentiate/distinguish	divided
[yi <sub>num</sub> zhi <sub>v</sub> ] <sub>adj</sub> <i>one correspond</i> 一致	match/concur with/consistent with	accord with, conformed, identical, in accordance with
[dai <sub>v</sub> biao <sub>v</sub> ] <sub>v</sub> <i>bring express</i> 代表	represent	stand for
[yan <sub>v</sub> ji <sub>v</sub> ] <sub>v</sub> <i>extend reach</i> 延及	extend	reach
[gen <sub>n</sub> ben <sub>n</sub> ] <sub>n</sub> <i>root base</i> 根本	base/fundamental	foundation, essence, root
[zhan <sub>v</sub> sheng <sub>v</sub> ] <sub>v</sub> <i>fight win</i> 战胜	overcome/cast aside	defeat, win



L2-Related Concept	[bian <sub>v</sub> qian <sub>v</sub> ] <sub>n</sub> <i>change move</i> 变迁	changes/developments	transformation, transmission, vicissitudes
	[nei <sub>n</sub> han <sub>v</sub> ] <sub>n</sub> <i>inside include</i> 内涵	concept	intension, principle
	[gan <sub>v</sub> qing <sub>n</sub> ] <sub>n</sub> <i>feel emotion</i> 感情	feeling	passionate
	[min <sub>n</sub> zu <sub>n</sub> ] <sub>n</sub> <i>people race</i> 民族	nation	nationality
	[xing <sub>v</sub> wei <sub>v</sub> ] <sub>n</sub> <i>act behave</i> 行为	behavior	act, action, conduct
	[zhun <sub>n</sub> ze <sub>n</sub> ] <sub>n</sub> <i>norm rule</i> 准则	norms	code
	[zhong <sub>adj</sub> cheng <sub>adj</sub> ] <sub>n</sub> <i>loyal honest</i> 忠诚	loyalty/loyalties	dignity, honor, reliability, piety
	[di <sub>n</sub> fang <sub>n</sub> ] <sub>n</sub> <i>place square</i> 地方	local/regional	home, hometown, location, locality, place
	[xue <sub>n</sub> yuan <sub>n</sub> ] <sub>n</sub> <i>blood affinity</i> 血缘	family (blood) ties	brotherhood, race, relative, relatives
	[que <sub>v</sub> bao <sub>v</sub> ] <sub>v</sub> <i>assure protect</i> 确保	secure	insure
	[li <sub>n</sub> yi <sub>n</sub> ] <sub>n</sub> <i>profit interest</i> 利益	interests	advantage, business, goods
	[jia <sub>n</sub> zu <sub>n</sub> ] <sub>n</sub> <i>family clan</i> 家族	family clan	relatives
	[ben <sub>n</sub> di <sub>n</sub> ] <sub>n</sub> <i>base place</i> 本地	region	family, home
	[xing <sub>v</sub> shi <sub>v</sub> ] <sub>v</sub> <i>act execute</i> 行使	fulfill	accomplished, consider, do, finish, obey, think of

[yi <sub>n</sub> wu <sub>n</sub> ] <sub>n</sub> <i>obligation duty</i> 义务	obligations	commitment
[fen <sub>v</sub> feng <sub>v</sub> ] <sub>v</sub> <i>divide entitle</i> 分封	confer territories and fiefs	allocated, appointed, arrange, classify, ordain, promoted, separate, vassalize
[da <sub>adj</sub> si <sub>adj</sub> ] <sub>adv</sub> <i>big wanton</i> 大肆	without scruples	fearlessly, respectively,
[guan <sub>n</sub> yuan <sub>n</sub> ] <sub>n</sub> <i>official member</i> 官员	official	governments
[ren] <sub>v</sub> <i>nominate</i> 任	nominate	assign, grant, promoted, rank, select, trust
[ge <sub>v</sub> ju <sub>v</sub> ] <sub>n</sub> <i>cut occupy</i> 割据	separatist regimes	ceded,                    division, independence, kindoms
[yi] <sub>adj</sub> <i>different</i> 异	foreign	another, other
[zu] <sub>n</sub> <i>race</i> 族	people	country, nationalities, natives
[yao <sub>v</sub> qiu <sub>v</sub> ] <sub>n</sub> <i>want ask</i> 要求	demands	request(s), requirement (s)
[ru <sub>v</sub> qin <sub>v</sub> ] <sub>n</sub> <i>enter attack</i> 入侵	invasion	aggression, enter, revolution, threaten, threat, war
[ji <sub>v</sub> fa <sub>prep</sub> ] <sub>v</sub> <i>stimulate out</i> 激发	provoke	forced, irritated, motivated, switch on
[ming <sub>adj</sub> que <sub>adj</sub> ] <sub>adv</sub> <i>bright accurate</i> 明确	clearly	distinctly, exactly
[qu <sub>v</sub> fen <sub>v</sub> ] <sub>v</sub> <i>distinguish divide</i> 区分	differentiate/distinguish	figures out
[gong <sub>adj</sub> tong <sub>adj</sub> ti <sub>n</sub> ] <sub>n</sub> <i>common same body</i> 共同体	community	body,            commonwealth, government, identity, unity

		[yi <sub>num</sub> zhi <sub>v</sub> ] <sub>adj</sub> <i>one correspond</i> 一致	match/concur with/consistent with	agree
		[zhen <sub>adj</sub> zheng <sub>adj</sub> ] <sub>adv</sub> <i>real true</i> 真正	truly/really	actually, definitely
		[dai <sub>v</sub> biao <sub>v</sub> ] <sub>v</sub> <i>bring express</i> 代表	represent	demonstrates
		[yan <sub>v</sub> ji <sub>v</sub> ] <sub>v</sub> <i>extend reach</i> 延及	extend	accepted, appear, include, involve, related with
		[gen <sub>n</sub> ben <sub>n</sub> ] <sub>n</sub> <i>root base</i> 根本	base/fundamental	destination, epitome, origin
		[zhan <sub>v</sub> sheng <sub>v</sub> ] <sub>v</sub> <i>fight win</i> 战胜	overcome	conquer
		[ren] <sub>n</sub> <i>people</i> 人		family, friends, human, humanism,
		[lun] <sub>n</sub> <i>ethics</i> 伦		relations, relationship
L2 Variation	Formal	[feng <sub>v</sub> jian <sub>v</sub> ] <sub>n</sub> <i>entitle establish</i> 封建	feudal	feudalism
		[lun] <sub>n</sub> <i>ethics</i> 伦	ethics	ethnic, ethnicity
		[zhong <sub>adj</sub> cheng <sub>adj</sub> ] <sub>n</sub> <i>loyal honest</i> 忠诚	loyalty/loyalties	faithful
		[xing <sub>v</sub> wei <sub>v</sub> ] <sub>n</sub> <i>act behave</i> 行为	behavior	action, conduct
		[que <sub>v</sub> bao <sub>v</sub> ] <sub>v</sub> <i>assure protect</i> 确保	secure	protection
L2 Speech	Figurative	[guo <sub>n</sub> jia <sub>n</sub> ] <sub>n</sub> <i>country family</i> 国家	country	motherland

L2 Paraphrase	[ai <sub>v</sub> guo <sub>n</sub> zhu <sub>adj</sub> yi <sub>n</sub> ] <sub>n</sub> <i>love country main meaning</i> 爱国主义	patriotism/nationalism	loving one's motherland, loving one's country, love homeland, loving the country
	[nei <sub>n</sub> han <sub>v</sub> ] <sub>n</sub> <i>inside include</i> 内涵	concept	inner meaning, inner sense, innermost meaning, inside meaning, further meaning
	[bian <sub>v</sub> qian <sub>v</sub> ] <sub>n</sub> <i>change move</i> 变迁	changes/developments	changes and development, changing and shifting
	[xing <sub>v</sub> cheng <sub>v</sub> ] <sub>v</sub> <i>form become</i> 形成	form	came into being, taking shape
	[xing <sub>v</sub> wei <sub>v</sub> zhun <sub>n</sub> ze <sub>n</sub> ] <sub>n</sub> <i>act behave norm rule</i> 行为准则	behavioral norms	code of conduct, do's and dont's, people's behaviors, people's behavior, rule of act, rules of behavior, rules of behaving, theme of people's behaviors,
	[xue <sub>n</sub> yuan <sub>n</sub> ] <sub>n</sub> <i>blood affinity</i> 血缘	family (blood) ties	blood's relation, relationship of blood
	[ben <sub>n</sub> di <sub>n</sub> ] <sub>n</sub> <i>base place</i> 本地	region	local place
	[fen <sub>v</sub> feng <sub>v</sub> ] <sub>v</sub> <i>divide entitle</i> 分封	confer territories and fiefs	arrange jobs to relatives, assign kindredship, gave position, gave rank, give land, granted relative, show benefits,
	[da <sub>adj</sub> si <sub>adj</sub> ] <sub>adv</sub> <i>big wanton</i> 大肆	without scruples	widely and fearlessly
	[deng <sub>v</sub> ji <sub>n</sub> ] <sub>v</sub> <i>climb base</i> 登基	succeeded to the throne	became kings, become rulers, came to throne, come into power, comes to power, get the king's chair, go up to power, got control over the country, launch his position, took the place,
	[ge <sub>v</sub> ju <sub>v</sub> ] <sub>n</sub> <i>cut occupy</i> 割据	separatist regimes	dividing fields, dividing lands, land and power split, occupy a land

	[qu <sub>v</sub> fen <sub>v</sub> ] <sub>v</sub> <i>distinguish divide</i> 区分	differentiate/distinguish	tell difference, tell out
	[gong <sub>adj</sub> tong <sub>adj</sub> ti <sub>n</sub> ] <sub>n</sub> <i>common same body</i> 共同体	community	common body, common political body, commonwealth of politics, political group
	[yi <sub>num</sub> zhi <sub>v</sub> ] <sub>adj</sub> <i>one correspond</i> 一致	match/concur with/consistent with	goes together
	[gen <sub>n</sub> ben <sub>n</sub> ] <sub>n</sub> <i>root base</i> 根本	base/fundamental	essential point
	[zhan <sub>v</sub> sheng <sub>v</sub> ] <sub>v</sub> <i>fight win</i> 战胜	overcome	gets beyond
Compounding	[ai <sub>v</sub> guo <sub>n</sub> zhu <sub>adj</sub> yi <sub>n</sub> ] <sub>n</sub> <i>love country main meaning</i> 爱国主义	patriotism/nationalism	country loving, patriotic doctrine, love self-country
	[xing <sub>v</sub> wei <sub>v</sub> zhun <sub>n</sub> ze <sub>n</sub> ] <sub>n</sub> <i>act behave norm rule</i> 行为准则	behavioral norms	action regulation, behavior regulation, behavior rules, behavior principles, behavior standard
	[guo <sub>n</sub> jia <sub>n</sub> ] <sub>n</sub> <i>country family</i> 国家	country	countryland
	[xue <sub>n</sub> yuan <sub>n</sub> ] <sub>n</sub> <i>blood affinity</i> 血缘	family (blood) ties	blood family, blood honesty, blood relations, blood relationship, blood-related, kindred relations,
	[di <sub>n</sub> fang <sub>n</sub> ] <sub>n</sub> <i>place square</i> 本地	local/regional	birthplace, hometown, local connections, local district, local government
	[feng <sub>v</sub> jian <sub>v</sub> ] <sub>n</sub> <i>entitle establish</i> 封建	feudal	blood band, family officers
	[ge <sub>v</sub> ju <sub>v</sub> ] <sub>n</sub> <i>cut occupy</i> 割据	separatist regimes	district-cutting, force cutting, local forces, territory cut
Derivation	[ai <sub>v</sub> guo <sub>n</sub> zhu <sub>adj</sub> yi <sub>n</sub> ] <sub>n</sub> <i>love country main meaning</i> 爱国主义	patriotism/nationalism	nationism

	[shen <sub>adj</sub> hou <sub>adj</sub> ] <sub>adj</sub> <i>deep thick</i> 深厚	profound	heartly
	[bian <sub>v</sub> qian <sub>v</sub> ] <sub>n</sub> <i>change move</i> 变迁	changes/developments	changing, changability, changing and shifting
	[xing <sub>v</sub> wei <sub>v</sub> ] <sub>n</sub> <i>act behave</i> 行为	behavior	behavioral, behaving, behaviorous
	[zhong <sub>adj</sub> cheng <sub>adj</sub> ] <sub>n</sub> <i>loyal honest</i> 忠诚	loyalty/loyalties	loyalty
	[di <sub>n</sub> fang <sub>n</sub> ] <sub>n</sub> <i>place square</i> 地方	local/regional	localism, locals
	[xue <sub>n</sub> yuan <sub>n</sub> ] <sub>n</sub> <i>blood affinity</i> 血缘	family (blood) ties	bloodish, bloody, bloody relationships
	[feng <sub>v</sub> jian <sub>v</sub> ] <sub>n</sub> <i>entitle establish</i> 封建	feudal	feudalist, neutrionism,
	[fen <sub>v</sub> feng <sub>v</sub> ] <sub>v</sub> <i>divide entitle</i> 分封	confer territories and fiefs	vassalize
	[ge <sub>v</sub> ju <sub>v</sub> ] <sub>n</sub> <i>cut occupy</i> 割据	separatist regimes	dividance
	[ru <sub>v</sub> qin <sub>v</sub> ] <sub>n</sub> <i>enter attack</i> 入侵	invasion	invading
	[ji <sub>v</sub> fa <sub>prep</sub> ] <sub>v</sub> <i>stimulate out</i> 激发	provoke	incurred
	[ren <sub>n</sub> lun <sub>n</sub> ] <sub>n</sub> <i>people ethics</i> 人伦	interpersonal ethics	humanity
	[da <sub>adj</sub> si <sub>adj</sub> ] <sub>adv</sub> <i>big wanton</i> 大肆	without scruples	vigorally
Conversion	[zhong <sub>adj</sub> cheng <sub>adj</sub> ] <sub>n</sub> <i>loyal honest</i> 忠诚	loyalty/loyalties	loyal (used as a noun), honest (used as a noun)

	[li <sub>n</sub> yi <sub>n</sub> ] <sub>n</sub> <i>profit interest</i> 利益	interests	benefit (used as a verb)
	[fen <sub>v</sub> feng <sub>v</sub> ] <sub>v</sub> <i>divide entitle</i> 分封	confer territories and fiefs	titled (used as a verb)
	[deng <sub>v</sub> ji <sub>n</sub> ] <sub>v</sub> <i>climb base</i> 登基	succeeded to the throne	crowned (used as a verb)
	[ren] <sub>v</sub> <i>nominate</i> 任	nominate	grant, rank, trust (used as verbs)
Association	[yi <sub>n</sub> wu <sub>n</sub> ] <sub>n</sub> <i>obligation duty</i> 义务	obligations	disability
	[xing <sub>v</sub> shi <sub>v</sub> ] <sub>v</sub> <i>act execute</i> 行使	fulfill	devote
	[que <sub>v</sub> bao <sub>v</sub> ] <sub>v</sub> <i>assure protect</i> 确保	secure	guaranteed
	[ge <sub>v</sub> ju <sub>v</sub> ] <sub>n</sub> <i>cut occupy</i> 割据	separatist regimes	independence, occupied
	[sheng <sub>adj</sub> xing <sub>v</sub> ] <sub>n</sub> <i>popular act</i> 盛行	emergence	common, crazy, population, prevalent, prevailing,
	[ji <sub>v</sub> fa <sub>v</sub> ] <sub>v</sub> <i>stimulate develop</i> 激发	provoke	break out, explored out, poured out, push out, released, strengthened
	[qu <sub>v</sub> fen <sub>v</sub> ] <sub>v</sub> <i>distinguish divide</i> 区分	differentiate/distinguish	apart, depart, separates, shows, stress
	[gong <sub>adj</sub> tong <sub>adj</sub> ti <sub>n</sub> ] <sub>n</sub> <i>common same body</i> 共同体	community	unit
	[dai <sub>v</sub> biao <sub>v</sub> ] <sub>v</sub> <i>bring express</i> 代表	represent	on behalf of, symbol
	[yan <sub>v</sub> ji <sub>v</sub> ] <sub>v</sub> <i>extend reach</i> 延及	extend	accepted, appear, displayed, mention

---

[gen <sub>n</sub>	ben <sub>n</sub> ] <sub>n</sub>	base/fundamental	epitome, essential, truth
<i>root</i>	<i>base</i>		
根本			

---



## Appendix X Sample of Transcription of Think-Aloud Protocols

TAP 6

- 1 [ai<sub>v</sub> guo<sub>n</sub> zhu<sub>adj</sub> yi<sub>n</sub> ]<sub>n</sub> (.6) [ai<sub>v</sub> guo<sub>n</sub> zhu<sub>adj</sub> yi<sub>n</sub> ]<sub>n</sub> *zen me shuo lie* / (.10) the strong feeling (.2) of love one's  
*love country main meaning love country main meaning how part. say interj.*  
 REP DEFICIT L2 PARA RELEX / L2 PARA
- 2 country (.9) patria\_\_\_ (.2)\_\_\_ lism patrialism (.2) [ nei<sub>n</sub> han<sub>v</sub> ]<sub>n</sub> *de* [ bian<sub>v</sub> qian<sub>v</sub> ]<sub>n</sub> (.1) the (.2) contents (.2) of patrialism (.6) no  
*inside include of change move*  
 L2 FO L2 SYN RETR / L2 FO
- 3 [ nei<sub>n</sub> han<sub>v</sub> ]<sub>n</sub> *de* [ bian<sub>v</sub> qian<sub>v</sub> ]<sub>n</sub> (.2) the changes of the contents (.4) contents of patrialism (.2) paaatriiaaalm (.3) (reads) patrialism  
*inside include of change move*  
 REP REP RETR L2 SYN L2 SYN L2 FO L2 FO / L2 PARA L2 FO
- 4 is the (.5) (reads) paaatriiaaalm (.2) is (.6) [xing<sub>v</sub> cheng<sub>v</sub>]<sub>v</sub> *de* (.2) [xing<sub>v</sub> cheng<sub>v</sub>]<sub>v</sub> *de* (.2) formed (.1) formed (.2) formed  
*form become of form become of*  
 L2 FO / L2 PARA RETR RETR L2 PARA
- 5 (.5) (reads) patrialism is formed (.13) *um bu xing* (.4) (reads) patrialism is a strong (.2) and deep feeling (.2) deep feeling (.3) that  
*not okay*  
 L2 FO RETR DEFICIT L2 FO L2 REL CON L2 SY / L2 PARA L2 SYN / L2 PARA
- 6 was formed /.../ patrialism is a strong and deep feeling to (.3) to one's home\_\_\_ homeland (.3) that was formed (.2) that was formed  
 RETR L2 FO L2 SYN / L2 PARA COMP RETR REP
- 7 (.3) for hundreds and (.1) hundreds and thousands hundred and thousands hundreds of hundreds of years (.4) patrialism is a strong (.1)  
 RETR/L2 FO
- 8 is a strong and deep feeling to (.2) is a strong and deep feeling (.5) that (.6) was formed for hundreds of years (.2) is a strong and deep

9 feeling (.2) of the people (.1) of the people (.2) to one's (.1) to their (.2) homeland (.5) patriotism (.1) patriotism is a strong and deep  
 / L2 PARA L2 SYN / L2 PARA L2 SYN / L2 PARA RETR L2 SYN  
 10 feeling of people to their homeland that was formed for hundreds of years (.4) (reads) but (.2) the modern (.1) the modern so\_\_\_\_  
 COMP L2 FO L2 FO L2 SYN / L2 PARA  
 11 society and traditional society (.8) requirements (.2) the requirements (.2) requirements (.3)of patriotism (.1) but the requirements of  
 L2 SYN L2 SYN L2 SYN L2 FO L2 FO  
 12 patriotism (.2) is (.1) a quite different (.2) a quite (.3) different (.3) quite different in (.2) modern (.3) so\_\_\_\_ society society or a quite  
 L2 FO  
 13 different in the modern society or the traditional traadiiitional the traditional society /.../ in most (.5) [xing<sub>v</sub> wei<sub>v</sub>]<sub>n</sub> [zhun<sub>n</sub>  
 act behave norm  
 14 ze<sub>n</sub>]<sub>n</sub> shi action rule (.1) rule(.2) [zhun<sub>n</sub> ze<sub>n</sub>]<sub>n</sub> behavior (.2) behavior rule (.2) behavior shi (.2) behavior (.2) according to (.5)  
 rule is norm rule is  
 COMP L2 SYN REP RELEX COMP / RELEX RELEX RELEX  
 15 according to (.2) most of (.3) most of the (.2) most of the (.2) behavior (.1) behavior (.2) behavior rule (.1) rule (.5) according to the  
 RELEX RELEX COMP L2 SYN  
 16 most of the behavior rules /.../ (.2) for most of the people /.../most (.2) for most of the people (.13) the behavior rules (.2) um bu dui  
 not right  
 COMP COMP DEFICIT  
 17 (.2) (reads) for most of the people (.3) according to their (.2) according to their (writing?) according to their behavior rules (.2) for  
 COMP  
 18 most of the people (.7)faith (.2) faith (.2) th (.2) location (.1) location (.2) or bloodish (laughing) (.3) [xue<sub>n</sub> yuan<sub>n</sub>]<sub>n</sub> faith to /.../ is  
 blood affinity  
 L2 SYN L2 SYN L2 REL CON L2 PARA DERV L2 SYN  
 19 (.3) a faith (.1) faith to the location (.2) or the (.1) or (.2) blood (.2) [xue<sub>n</sub> yuan<sub>n</sub>]<sub>n</sub> blood blood blood (.2) um [xue<sub>n</sub> yuan<sub>n</sub>]<sub>n</sub> /.../ (.6)  
 blood affinity blood affinity

20 L2 SYN L2 SYN L2 REL CON RETR RETR RETR REP REP REP  
 blood blood (.3) um blood blood *shen me la* ↗ (.8) is (.2) more (.1) is stronger is much stronger (writing?) much stronger (.2)  
*what part. interj.*

21 RETR REP RETR REP DEFICIT  
 than (.2) the than the faith to his country his country [ *yi<sub>n</sub> wu<sub>n</sub>]* ↗ (.21) [*jia<sub>n</sub> zu<sub>n</sub>]* ↗ (.14) the (.26) they can (.16) they can  
*obligation duty family race*

22 L2 SYN  
 carry (.2) carry[ *yi<sub>n</sub> wu<sub>n</sub>]* (.4) they can carry the (.3) [ *yi<sub>n</sub> wu<sub>n</sub> zen me jiang* ↗ (.3) only (.2) to the country (writing?)  
*obligation duty obligation duty how part. speak*

23 L2 SYN L2 SYN L2 SYN REP DEFICIT  
 to the country (.1) only (.3) after they (.2) their (.2) their family (.2) family ↗ and location (.2) [*li<sub>n</sub> yi<sub>n</sub>]* (.10) benefit (.9) (reads)  
*profit interest*

24 RETR REP L2 REL CON / L2 PARA L2 SYN  
 they can carry (.7) to the country only after the family (.3) only after their (.2) their (.6) advantage advantages (.1) of their family and  
 L2 SYN RETR L2 REL CON / L2 PARA REP RETR

25 location (.2) are (.6) ensure (.1) ensure (.3) *bu dui ya* (.2) um (.2) (reads) *ai ya* (.6) (scratching or writing?) that's why  
*not right interj. interj.*

26 L2 REL CON L2 SYN L2 SYN DEFICIT  
 (reads) that's why (.8) emperor (.2) that's why (.3) the emperors (.14) often (.2) the emperors often (.2) the emperors often (.6) often  
 L2 SYN L2 SYN L2 SYN L2 SYN

27 (.2) often give important position position (.2) to their relatives relatives (writing?) after they took the place (.2) that's why the  
 L2 PARA RELEX RELEX / L2 FO REP L2 PARA / L2 REL CON

28 emperors often give the important positions to their relatives after they took their places (.1) took the place (.2) and also the officials  
 L2 PARA RELEX RELEX / L2 FO L2 PARA L2 PARA RETR

29 officials officials the local local (.2) local location (.3) the local officials (.6) that's the same (.2) that that's the same (.3) with local  
 RETR RETR REP RETR L2 REL CON L2 PARA L2 ASSOC L2 ASSOC

30 officials (.6) and (reads) and that's also the reason to a capital capital [feng<sub>v</sub> jian<sub>v</sub>]<sub>n</sub> zen me jiang na↗ [feng<sub>v</sub> jian<sub>v</sub>]<sub>n</sub>  
entitle establish how part. Speak interj. entitle establish

L2 PARA L2 ASSOC L2 ASSOC DEFICIT REP

31 (.2) hui bu hui shi capitalism (.2) /.../[feng<sub>v</sub> jian<sub>v</sub>]<sub>n</sub> bu ji de le (.7) [ge<sub>v</sub> ju<sub>v</sub>]<sub>n</sub> (.3) also why (.5) and that's also  
can not can is entitle establish not remember part.part. cut occupy

REFL L2 ASSOC REP ABAND

32 the reason (.2) that is also the reason to the (.4) reason (.10) the patriotism patriotism (.5) can stimulate only can be stimulated  
L2 FO REP L2 SYN L2 SYN

33 only only when the country (.2) was invoke invoked by by the other foreign countries (writing?) the patriotism can only be  
L2 ASSOC / L2 FO L2 ASSOC / L2 FO L2 FO

34 stimulated (.2) can be stimulated (.1) can only be stimulated (.2) when the country was invoked invocation invoked by the other  
L2 SYN L2 SYN L2 SYN L2 REL CON / L2 FO L2 FO

35 foreign countries (reads) in modern society↗ (.2) in our modern society (.14) the faith to (.8) the individual individual leader (.5)  
RETR L2 SYN

36 the faith to some to someone to some individual leader is (.3) [qu<sub>v</sub> fen<sub>v</sub>]<sub>v</sub> identity shi [xiang<sub>prep</sub> tong<sub>adj</sub>]<sub>adj</sub> (.2) na me  
distinguish divide is with same then part.

L2 SYN L2 REL CON L1 PARA

37 [qu<sub>v</sub> fen<sub>v</sub>]<sub>v</sub> na↗ (.2) [qu<sub>v</sub> fen<sub>v</sub>]<sub>v</sub> shi bu tong (.2) [qu<sub>v</sub> bie<sub>v</sub>]<sub>v</sub> kai la (.5) the faith to some  
distinguish divide interj. distinguish divide is not same distinguish recognize open part.

REP L1 SYN L2 SYN

38 individual leader is in our modern society the faith to some the faith to some individual leaders is (.2) quite different (.1) is different  
L2 SYN L2 SYN COMP

39 (.2) different (.2) the faith to (.3) a (.3) country (writing?) which think consider which is considered (.2) to be political (.4) a political  
L2 SYN L2 ASSOC L2 ASSOC REP RETR L2 PARA

40 unit (.1) a political unit (.2) in our modern society the faith to some individual leaders is different is different from the faith to a  
L2 REL CON L2 PARA L2 SYN L2 SYN

41 country which is considered to be a political unit (reads) conscious with *yu shen me* [yi<sub>num</sub> zhi<sub>adj</sub>]<sub>adj</sub> ↗ (.2) *adore shi*  
*with what part. one same is*  
L2 ASSOC L2 PARA L2 REL CON RELEX L2 REL CON

42 *bu shi* *adore* ↗ (.4) [yi<sub>num</sub> zhi<sub>v</sub>]<sub>adj</sub> *shi* *adore* with (.2) *adore* (.1) /.../ [yi<sub>v</sub> yi<sub>n</sub>]<sub>n</sub> *cai* [yan<sub>v</sub> ji<sub>v</sub>]<sub>v</sub> *ta men* /.../ (.84)  
*not is one correspond is meaning then extend reach they plural*  
L2 REL CON L2 REL CON RELEX

43 the contents of patri\_\_\_ (.9) patri\_\_\_ (.3) patriotism (.2) paaatriiiotism patriotism (.1) change of the contents of patriotism (sighs)  
L2 SYN L2 FO L2 FO RETR L2 PARA REP RETR L2 SYN RETR

44 (reads) only the [li<sub>n</sub> yi<sub>n</sub>]<sub>n</sub> ↗ (.2) [li<sub>n</sub> yi<sub>n</sub>]<sub>n</sub> *jiu jiao* advantage *shi ba* ↗ *bu dui* (.2) (.2) benefits ↗ (.2) benefits  
*profit advantage profit advantage adv. call is interj. not right*  
REP L2 REL CON DEFICIT L2 SYN L2 SYN

45 *ye bu dui ba* (.3) the beeeniiifiits (.2) only the benefits (.3) of the individual of the individual leader and (reads) [zheng<sub>n</sub>  
*also not right interj. government*  
DEFICIT L2 SYN / L2 PARA L2 SYN

46 *fu<sub>n</sub>* (.1) [zheng<sub>n</sub> fu<sub>n</sub>]<sub>n</sub> *zen me shuo* ↗ (.3) administration ↗ (.3) public ↗ (.3) administration ↗ (.6) benefits of the  
*place government place how part. speak*  
REP DEFICIT L2 REL CON L2 REL CON L2 REL CON L2 SYN

47 individual leaders and and administration (.2) administration or (.5) [quan<sub>adj</sub> ti<sub>n</sub>]<sub>n</sub> [ren<sub>n</sub> min<sub>n</sub>]<sub>n</sub> (.1) the people are adore (.9)  
*whole body people person*  
L2 REL CON L2 REL CON L1 PARA L2 REL CON

48 (reads) and (.53) (sighs) when they (.3) when they stand for (.2) stand for their country (.3) country (.5) um patriotism (.2)  
L2 SYN / RELEX L2 SYN / RELEX RETR

49 paaatriiiotism (.2) can [yan<sub>v</sub> ji<sub>v</sub>]<sub>v</sub> *ta men* (.2) (reads) can (.2) [bao<sub>v</sub> kuo<sub>v</sub>]<sub>v</sub> include [she<sub>v</sub> ji<sub>v</sub>]<sub>v</sub> related (.2) can /.../ (.2)  
*extend reach they plural enclose include involve reach*  
L2 PARA L1 PARA L2 REL CON L1 PARA L2 REL CON

50 related and related to them (.2) *yu* [xiang<sub>adj</sub> guan<sub>v</sub>]<sub>adj</sub> *de* (.3) *jiu zhe yang le* (reads) so (.13) so to love one's country

*with relevant close of adv. this way interj.*

51 L2 REL CON L2 REL CON L1 PARA DEFICIT RELEX / L2 PARA  
 /.../ (.3) and to love one's country (.2) love your country (.5) means to love your people (.1) that's the basic (laughing) that's the  
 RELEX / L2 PARA RELEX / L2 PARA RELEX / L2 PARA L2 FO

52 basic of the (.2) patriiitism patriotism patriotism (reads) in social S-O-C-I-A-L society social in social (.3) so\_\_\_ social in social  
 L2 FO A REP REP REP ORTH CHECK

53 (.3)the relationship reeelaation relationship of social S-O-C-I-A-L (.2) social (.2) in the relationship of social (.1) social (.2) it  
 L2 REL CON REP REP ORTH CHECK L2 REL CON

54 demands (.2) us (.2) it demands us (.3) (reads) in the social in the relationship of social (.1) in the social relationship(.6) it demands us  
 RETR RETR RETR

55 (.5) faithful /.../(writing?) it demands somebody to be more faithful faithful (.1) to our country than that to our(.2) than that to our  
 L2 SYN RETR L2 SYN REP

56 family ↗ location ↗ or blood bloodship bloodship (.136) blood relation (.6) um so to love your country means to love your people  
 RETR L2 REL CON RETR DERV DERV COMP L2 PARA / RELEX L2 PARA / RELEX

57 that's the basic of patriotism (.8) in the social relationship it demands us to be more faithful to our country and people to our country  
 L2 FO RETR RETR L2 SYN

58 and our people (.3) more faithful to our country and our people (.2) more faithful (.3) demands us to (.2) demands us to be more  
 L2 SYN L2 SYN RETR RETR

59 faithful to the country and the people than that to our family or location or blood relation or blood relation contents (.1)the change  
 L2 SYN RETR L2 REL CON COMP COMP L2 SYN RETR

60 of (.3)[ bian<sub>v</sub> qian<sub>v</sub>]<sub>n</sub> (.2) the changes of the meaning(.11)the changes of the meaning of paaatriiitism (writing?) patriotism is a  
*change move*

61 strong and deep feeling (.1) patriotism is a strong and deep feeling that people shows to their homeland (.5) that could be formed for  
 L2 PARA RETR L2 PARA COMP RETR

62 hundreds and thousands of years (writing?) patriotism (.2) is a strong is a strong and deep feeling deep feeling (.4) the people (.2) the

63 people (.2) shows show to their their homeland (.2) patriotism is a strong and deep feeling people show to their homeland that can be  
RETR L2 PARA L2 PARA  
64 formed can be formed hundreds of years but the requirement of patriotism quite different different in modern society or traditional  
COMP RETR L2 PARA  
65 society (.2) traditional society (.4) in modern society of (writing?) the require requirement the requirement of the patriotism (.3) the  
RETR RETR L2 SYN RETR  
66 requires requirement of patriotism (.2) *bu tong de* (.2) [*yao<sub>v</sub> qiu<sub>v</sub>]*<sub>n</sub> *bu tong de* (.4) quite different (.2) different (.2)  
*not same of want ask not same of*  
L2 REL CON L2 SYN L2 SYN RETR  
67 in modern in the modern society (.2) in the modern society or in the traditional traditional traditioinal society (.2) society (.6) to most  
68 of the people the faith to location or blood relationship relation (.7) most of the people the faith to the location (.7) for most of the  
L2 SYN L2 REL CON COMP / RELEX L2 SYN L2 REL CON  
69 people (.8) most of the people (.3) most of the people (.2) are /.../ his country (reads) [*xing<sub>v</sub> wei<sub>n</sub>]*<sub>n</sub> [*zhun<sub>adj</sub> ze<sub>n</sub>]*<sub>n</sub> *shi*  
*act behavior accurate rule is*  
70 the rules of behavior (.9) in the rules of the behavior (.2) the rules of behavior behavior most people (.2) most of people (.2) are (.3)  
L2 PARA / RELEX L2 PARA / RELEX L2 PARA / RELEX RELEX  
71 faithful are more faithful to their family (.3) more faithful (reads) more faithful to the location or blood relation /.../ than to their  
L2 SYN REP RETR L2 SYN L2 SYN L2 REL CON COMP  
72 country than to their country(.6) [*yi<sub>adj</sub> wu<sub>n</sub>]*<sub>n</sub> *zen me shuo lie ↗ dui* [*guo<sub>n</sub> jia<sub>n</sub>]*<sub>n</sub> *de* [*yi<sub>adj</sub> wu<sub>n</sub>]*<sub>n</sub>  
*obligatory duty how part. speak interj. for country family of obligatory duty*  
DEFICIT REP  
73 (.19) to their country (.9) can carry their benefits (.1) advantages (.1) benefit (.26) [*li<sub>n</sub> yi<sub>n</sub>]*<sub>n</sub> *shi* benefit (.2) benefit (.12)  
*profit interest is*  
L2 SYN L2 SYN L2 REL CON L2 SYN L2 SYN L2 SYN

74 benefit (.3) profits (.9) (reads) only work for the country when their (.2) family when their family(.32) benefit to (.1) to somebody (.5)  
L2 SYN L2 SYN RETR REP L2 SYN

75 to all us (.2) they can work for the country after they can sure they can sure they get enough benefit their family location(.1) they only  
L2 REL CON L2 REL CON L2 SYN RETR L2 REL CON

76 /.../ they only work for their country after their family or location can get enough can get enough benefit they work for their country  
RETR L2 REL CON L2 PARA L2 SYN

77 only after their family or location can get enough benefit (.4) they work (.1) they can work for their country they can work for their  
RETR L2 REL CON L2 SYN L2 PARA L2 PARA

78 country only after their family or location can get enough benefit well *tong dou bu tong* (.2) /.../ they can work for their  
*smooth all not smooth*  
RETR L2 REL CON L2 SYN DEFICIT L2 PARA

79 country for their country (.3) they can work for their country /.../ they can work for their country they can work for their country only  
L2 PARA L2 PARA L2 PARA

80 after their family or location can get enough benefit (.3) that's why (reads) that's why the emperors in old days (.2) the emperors  
RETR L2 REL CON L2 SYN

81 in old days that's why the emperors emperor emperor that's why the emperors often give the important positions to their relatives  
L2 PARA L2 PARA RELEX RELEX

82 after they took their place (.2) and that's the same with the local officials and local officials do the same (.6) that's also the reason to  
L2 PARA L2 PARA REP L2 REL CON

83 the that's why the emperors in old days often gave the important positions to (.2) assign assign assign assign them the most important  
L2 PARA RELEX L2 REL CON REP REP

84 position assign (.2) assign the important positions to their relatives (.4) and officials in old days do the same to (sighs) that's reason  
RELEX L2 REL CON L2 REL CON RELEX RELEX

85 that's also the reason (writing?) the reason to [feng<sub>v</sub> jian<sub>v</sub>]<sub>n</sub> [ge<sub>v</sub> ju<sub>v</sub>]<sub>n</sub> (.4) [ge<sub>v</sub> ju<sub>v</sub>]<sub>n</sub> *shi* (.2) [ge<sub>v</sub> kai<sub>v</sub>]<sub>n</sub> partition  
*entitle establish cut occupy cut occupy is cut open*  
REP L1 SYN L2 REL CON



86 (2) *bu dui* (.5) um divide (.4) division (.7) participate (2) *bu dui* (.1) divide (.58) that's also the reason to (sighs) that's  
*not right* *not right*  
DEFICIT L2 REL CON L2 REL CON L2 ASSOC DEFICIT L2 REL CON

87 also the reason to the capitalism (.3) capital diivision (.2) capitalism di\_\_\_ diiiivision (.4) that's also the reason why the division  
L2 ASSOC L2 ASSOC L2 ASSOC L2 REL CON

88 that's also the reason to the (.5) was so popular so we can say so we can say the patriotism (.4) can only be stimulated when the  
RELEX RETR L2 SYN

89 country is [*qin<sub>v</sub> lue<sub>v</sub>*]<sub>v</sub> invade (.55) invision invasion *shi* [*qin<sub>v</sub> fan<sub>v</sub>*]<sub>v</sub> invaded iinvaaa\_\_\_ (.8) can only be stimulated  
*invade grab* *is conquer attack*  
L1 SYN L2 FO L2 ASSOC RETR L1 SYN L2 FO L2 SYN

90 when the country is invaded by the other countries in our modern society the faith to some individual leaders is different in the faith  
RETR L2 SYN L2 SYN

91 to the whole country which is considered to a political unit [*zheng<sub>n</sub> fu<sub>n</sub>*]<sub>n</sub> government ↗ government goovern\_\_\_government  
*government place*  
L2 PARA RETR REP REP REP

92 (.1) the only benefits of the individual leader (.1) the government and the people (.2) are (.4) adorable (.1) aaadoorable (.3) and (.5)  
L2 SYN RETR L2 REL CON L2 REL CON / L2 PARA

93 patriotism /.../ so to love your country means to love your people that's the basic of the patriotism (.2) in the social relationship  
RETR RELEX / L2 PARA RELEX / L2 PARA L2 FO RETR

94 /.../and to people it demands us more faith to the country and people (.6) more faithful to the country and people than to our family or  
RETR L2 SYN L2 SYN

95 location (.2) or blood relationship (.5) so we can say the patriotism can only be stimulated when the country is invaded by other  
L2 REL CON COMP / RELEX RETR L2 SYN RETR

96 countries

## Appendix XI Sample of retrospection (Retro 8)

Q: Why do you underline here? You put *nationalism* after it.

A: At first I don't quite understand the meaning of the title. I'm wondering if it is a sentence or a noun phrase. After I look through the whole article, I realize it should be *doctrine*.

Q: Well, it is a typing mistake.

A: Then it should be a noun phrase. So I should say *change*.

Q: Then how do you recall this word.

A: I think the word for **zhu yi** should have I-S-M as ending. **guo jia** is *nation*. I think it is similar to a word.

Is my writing for **ai guo zhu yi** right?  
*love country main meaning*

Q: So you think I-S-M is a suffix for word of **zhu yi**. Then **guo jia** is *nation*. So you write this word down.

A: How to spell **ai guo zhu yi**?  
*love country main meaning*

Q: What does this symbol here mean?

A: This *feeling* indicates a person's feeling for the country. It should be put in the back. It cannot be put here. This one is a relative clause.

Q: Why do you cross out *then we can* here?

A: The spelling here isn't right.

Q: You cross out most here. Do you remember how you think about it?

A: Yes. At first I use *most people*. But later I find it is a redundancy to use *most people and behavior rules*. Then

RETR  
(patriotism)  
L2 REL CON

RETR  
(changes / development)  
ORTH CHECK  
DERV  
(patriotism)

DERV  
L2 REL CON

DEFICIT

L2 PARA

ORTH CHECK

L2 PARA  
(behavioral norms)

I put it at the back. It become like this.

Q: Here you also cross out *being in charge of*.

A: At first I want to use *be in charge of* to mean **fu ze**. Later I found I should use *on duty* to mean **jin yi wu**.  
*responsible* *be on duty*

L1 PARA  
(fulfill)

COMP

(foreign people)

DEFICIT

Then I change it into this one

Q: Okay, but here you substitute *other nationalities attack*.

A: It's better to use passive voice here.

Q: You also cross out several other places.

A: Here I don't know how to say **qu fen**. Is it *distinguish*? I'm not very sure which preposition I should  
*distinguish divide*

DEFICIT

RETR

(differentiate/

distinguish)

use. I change several times here. Finally I decide to use *from*.

Q: So finally you decide to use *from*.

A: Right. I try to make judgement between *and* and *from*.

Q: What words do you think most difficult when you translate this article?

A: I got confused with several words. Like this one, **ai guo zhu yi**. I cannot decide which one is  
*love cOUNTRY main meaning*

DEFICIT

right. Also this one, I don't know how to use preposition. I don't know how to translate **feng jian ge ju**.

*confer build cut occupy*

ABAND

(feudal separatist

regimes)

Q: You don't find them out?

A: No, I don't. For **feng jian ge ju**, if I translate it directly, I think it has something to do with land. Then I  
*confer build cut occupy*

L1 PARA

L1 ASSOC

COMP

write like this *dividing fields*.

Q: Well, related to land. Do you think feudalism society is mainly on land, isn't it?

A: Yes. I don't know how to translate **ren ren wei qin**.  
*nominate people only relative* ABAND

Q: So you don't figure it out at last?

A: I said they only want their relatives. I write it as a whole sentence *only need their relatives*. And then for **xue**  
*blood*

**yuan de**, I'm wondering if I should use *bloody* or *blood*. How to say **xue yuan de**? For **zhong**  
*affinity of blood affinity of loyal* DERV  
 (family ties/blood ties)

**cheng**. Is it *loyalty*?  
*honest* (loyalty / loyalties)

Q: I find you used *loyalty* throughout your translation.

A: I can only recall this word. I cannot remember other words clearly.

Q: So when you translate and when you have several word to choose, what makes you reach to the final decision?

A: I try to recall them according to my reading at normal times. Like when I translate **xing wei**, I have these  
*act behave*

words in my mind like *action, movement, behavior*. Here I think *behavior* is better. L2 SYN  
 (behavioral norms)

Q: So you think of several words at the same time.

A: Yes, several words come into my mind.

Q: Then you decide one word. What makes you do this?

A: It's mainly based on my reading. When I see this word more often, then I choose this word.

Q: Well, thank you very much.

A: Oh, my translation is not good enough.

Q: I find you also make some changes in your clean copy.

A: Yes. for example this word *only*, I use it before. If I use it here again, it's a kind of repetition. So I use *unless*.

Q: But here it is *repubic*.

A: **gong he ti, gong tong ti**. *Repubic* refers to **gong he guo**. So I don't use it. But I cannot recall  
 L2 REL CON  
 ABAND

*repubic body common same body republic country*  
the word for **gong tong ti**. Then I use *group*.  
*common same body*

L2 REL CON  
(polity)

Q: Here it seems you write something out.

A: Oh, here I copy wrongly.

Q: Here is the situation similar? Do you remember what you think of here?

A: (reads)This one is copied wrongly. Oh, no. At first I want to write *whole people*. But I find it's not right. I feel  
*all the people* is better.

DEFICIT

Q: So you substitute it. I find the title on your draft is very different from it on your clean copy.

A: Right. At first I don't understand this sentence. After reading the whole text, I find it is **ai** **guo** **zhu**  
*love country main*

DEFICIT  
(patriotism)

**yi**. Then I can decide.  
*meaning*

Q: Okay, thank you very much.