The Influence of Topic Familiarity on Lexical Reasoning of English Learners

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Abstract: This study was conducted to investigate the influence of topic familiarity on lexical reasoning processing of English majors in the course of text reading by the method of questionnaire survey and regression analysis. The results showed that a high degree of topic familiarity had a positive effect on the successful reasoning of vocabulary. There are significant differences in the success rate of lexical reasoning among the texts with significant differences in topic familiarity. The success rate of lexical reasoning is significantly higher when the reader is more familiar with the topic than when the reader is less familiar with. However, in the process of complex lexical reasoning, topic familiarity plays a limited role and is affected by learner's language level, discourse difficulty and other reader factors as well as discourse factors.

1. Preface

Lexical inferencing is an option for readers to capitalize on all possible verbal cues, The process of reasoning the meaning of unfamiliar words by combining one's own knowledge of the world, context awareness and relevant language knowledge, which is influenced by discourse factors and reader factors. Discourse factors mainly include discourse context, discourse difficulty, lexicalization of mother tongue and lexical transparency, etc., while reader factors mainly include lexical knowledge, grammatical knowledge, language level, strategy knowledge and learner's familiarity with discourse topics. Topic familiarity is closely related to background knowledge. Background knowledge refers to "the reader's known concept of a topic"; "all kinds of knowledge possessed by learners in a certain learning environment and potentially related to the acquisition of new knowledge". Topic familiarity refers to the background knowledge the reader possesses that is related to the topic and content of the text[1]. In the field of second language acquisition, a large number of studies have shown that context-related knowledge affects readers' reading comprehension process[2-4]. Familiar topics or rich background knowledge will help readers to understand the meaning of the text and have a positive influence on their textual reasoning. The extent to which lexical reasoning, as a discourse reading skill, is related to the reader factor of topic familiarity has also attracted the attention of researchers[5-7]. However, the first and second languages involved in previous studies mainly belong to characters expressing ideas, and the influence of topic familiarity on lexical reasoning processing of second language English learners

whose native language is Chinese (ideographic) is relatively scarce. In view of this, this paper intends to investigate the influence of topic familiarity on lexical reasoning processing in second language reading of Chinese English learners, in order to reveal the relationship between them.

2. Literature Review

At present, the influence of reader factors on the reasoning process of second language vocabulary and the interaction of the above factors have gradually attracted the attention of scholars in the field of second language acquisition, which is related to the basic conditions and the nature of the processing of lexical competence and development in second language, as well as background knowledge/topic familiarity, passage-specific vocabulary or sight vocabulary[1]. Studies have shown that, despite the differences in monolingual background or language level, subjects will rely on background knowledge to deduce the meaning of unfamiliar words when reading second language texts of different styles[8-10]. It was investigated the reasoning strategies of 20 Taiwanese undergraduate and graduate students studying in the United States in English reading vocabulary, and found that both high and low language proficiency subjects indicated that they used the background knowledge related to the topic in the guessing process. By comparing this background knowledge with what you read in the text, you can make some assumptions about the text information, and then try to infer the meaning of unfamiliar words. Nass[9] combined introspection method with retrospective method to investigate the lexical reasoning process of 21 intermediate English second language learners from different language backgrounds (Arabic, Chinese, Persian, Portuguese, and Spanish). The results showed that, among all knowledge sources, subjects used the world knowledge related to the topic most frequently (46.2%), but the success rate of lexical reasoning using the world knowledge was not the highest (29.2%). This result indicates that background knowledge has a strong influence on lexical reasoning processing, and on the other hand, it also indicates the complexity of lexical reasoning processing, which involves the interaction of various components and skills. Pulido[1] conducted a series of studies on incidental vocabulary acquisition in second language reading of English-Spanish subjects, and the results support the conclusion that topic familiarity has a positive impact on lexical reasoning processing. The study found that participants were more successful in inferring the meaning of new words when faced with a familiar situation. Background knowledge and specialized knowledge of a certain topic promote the efficiency of their attention allocation in reading and ensure that they can obtain a richer text interpretation. More recently,Alimorad[13], Atef-Vahid et al.[7], and Biria & Bahadoran[8] investigated the process of reading second language discourse and inferring the meaning of target words in college EFL learners. It is found that topic familiarity has a positive influence on lexical reasoning of second language learners. Alimorad et al.[13]showed a positive correlation between topic familiarity and successful word reasoning by second language learners. Atef-Vahid et al.[7] further explored the internal relationship between the two and found that the higher the familiarity of the topic, the more conducive learners are to construct the relevant schema and establish the connection between the existing knowledge and the situation in reading, thus promoting successful lexical reasoning. However, other research results show that background knowledge plays a limited role in L2 lexical reasoning, and readers sometimes use background knowledge infrequently. Sometimes, even when used, this knowledge is not properly applied for successful lexical reasoning, whose frequency of use is influenced by factors such as second language level[1,4]. Pulido[1] studied the individual differences in the second language reading and vocabulary development of 99 English-Spanish subjects at different language levels, and found that the high-level subjects could efficiently complete the necessary low-level processing and release the attention resources to ensure the construction and integration of discourse concepts. And ensure the

accessibility of background knowledge and its application. In addition, some researchers argue that learners seldom rely on background knowledge for lexical reasoning, which may be related to learners' low language level and high discourse difficulty. Therefore, background knowledge cannot independently influence the success rate of lexical reasoning. Specifically, in the process of complex lexical reasoning, background knowledge is only an important mediating variable that influences readers' successful reasoning of unfamiliar words through context. It can be seen that researches on the relationship between topic familiarity and lexical reasoning in L2 text reading have been carried out in the academic circle, but the results are not consistent. The first and second languages involved are mainly pinyin texts, while the researches on the influence of topic familiarity on lexical reasoning processing of English learners whose native language is Chinese (ideographic) are still relatively lacking. In spite of Nassaji's[5]studies on the influence of topic familiarity of Chinese native speakers in the process of English lexical reasoning, the above subjects were all studied in the target language country, whose language environment was quite different from that of most Chinese English learners. In view of this, this paper aims to explore the influence of topic familiarity on the lexical reasoning process of Chinese EFL learners, in order to reveal the relationship between them more deeply.

3. Research Design

3.1. Research Questions

The purpose of this study is to investigate the influence of topic familiarity on the lexical reasoning process of Chinese English learners in the process of reading second language texts. Specifically, it is to investigate whether the success rate of lexical reasoning in texts with different familiarity is affected by topic familiarity, and whether there is a significant difference in the success rate of reasoning.

3.2. Research Subjects

The subjects were 71 second-year English majors in the undergraduate university where the author worked. Their mother tongue was Chinese and their second language was English. They had been learning English for 13 to 14 years. The subjects were intermediate English learners who had acquired some knowledge of the second language and were able to understand the texts they read smoothly and focus on reasoning tasks.

3.3. Research Instrument

The Chinese topic familiarity questionnaire was used to measure the topic familiarity of the subjects by examining their familiarity with various activities involved in the discourse and their familiarity with the process of these activities. Rating was performed on a 5-point Likert scale (1= least familiar, 5= most familiar). Reading text from Wesche and Paribakht language experiments, respective title of Health in the Rich World and in the Poor and Ice Age. The first discourse has a total of 373 words, including 10 target words, and we assume that this discourse is familiar to the subjects. The second discourse contains 284 words and 9 target words. It is assumed that the topic of the discourse is not familiar to the reader. Before the formal experiment, 43 English majors were asked to read the two test texts to determine their comprehensibility and target vocabulary. After reading the two texts, the students both indicated that although they contained unfamiliar words, the above texts were understandable to them. Therefore, the two texts were identified as experimental texts. They were asked to judge whether they are familiar with the original target words in the text.

The majority of students said that "assessing"(88.4%) and "contract"(83.7%) in the first text and" layer "(81.4%) in the second text were familiar words. After removing these words, 8 target words were retained in each text and were underlined. The first passage contains four nouns, two verbs, and two adjectives; the second passage contains three nouns, two verbs, one adjective, and one adverb. Each has no more than 5% new words in this text, conform to the requirements of the effective word guessing[9,13].

In the formal experiment, the subjects read the discourse containing the target words, reasoned the meaning of the target words according to the lexical reasoning task, wrote the corresponding Chinese words, gave a simple written description of the mental process and method of the reasoning words, and completed the discourse familiarity questionnaire. The experiment was conducted in a spacious classroom with explicit instructions from the experimenter. There was no time limit for the whole experiment, which lasted about an hour.

4. Data Analysis

4.1. Statistics about Topic Familiarity

Table 1 shows the statistical results of subjects' familiarity with the two discourse topics. It can be seen that 47.7% of the subjects' familiarity with the topic of the first discourse belongs to two levels of "4 "and" 5 ". Only 13.8% reported being "very familiar" with the topic in the second discourse. 16.3% of the subjects rated their familiarity with the topic of the first discourse as "very unfamiliar"; and 34.5% of the subjects were close to "very unfamiliar" with the second discourse topic. This suggests that most participants felt more familiar with the first discourse. This is also consistent with what we would expect from familiarity with the topic of the experimental material. The paired sample t test results of the subjects' topic familiarity showed that (see Table 2), there was a significant difference in the subjects' topic familiarity between the two texts (p<0.001).

Table 1: Statistical results of subjects' familiarity with two topics

Level	Texts with familiar topics		Texts with unfamiliar topics	
	Times	Percentage(%)	Times	Percentage(%)
1	7	8.9	11	13.8
2	6	10.4	15	20.7
3	24	33	36	51.7
4	33	41.9	9	13.8
5	1	5.8	0	0

Table 2: Matching sample t test results of topic familiarity

	Passage one		Passage two		t	P
	M	SD	M	SD		
topic familiarity	3.01	0.88	2.12	0.76	6.35	0.000

4.2. Statistical Results of Topic Familiarity and Lexical Reasoning Success Rate

The paired sample test was conducted for the average scores of lexical reasoning in the texts with different topic familiarity. As shown in Table 3, the scores of lexical reasoning in the texts with high and low topic familiarity were significantly different (p< 0.001). The score of lexical reasoning in the discourse with higher topic familiarity is significantly higher than that in the

discourse with lower topic familiarity. It can be seen that subjects have more discourse topic related knowledge, which can promote their lexical reasoning processing.

Table 3: The statistical results of paired sample t test of lexical reasoning of subjects with different topic familiarity texts.

	Passage 1		Passage 2		t	P
	M	SD	M	SD		
lexical reasoning	1.82	1.37	0.62	0.97	6.76	0.000

5. Discussion

This study examines the influence of discourse topic familiarity on lexical reasoning processing of Chinese EFL learners. The results show that topic familiarity has a positive effect on successful word reasoning. in the two discourses of this study, the average familiarity of subjects to *IceAge* discourses was significantly lower than that of Health in the Rich World and in the Poor discourses. The success rate of target vocabulary reasoning was significantly lower when the subjects read texts with low topic familiarity than when they read texts with high topic familiarity. It can be seen that topic familiarity affects lexical reasoning processing and the success rate of target vocabulary reasoning, and discourse background knowledge is the basis source for readers to reason the meaning of unfamiliar words. The success rate of lexical reasoning of the target words in the two texts with significant differences in topic familiarity was significantly different. The success rate of lexical reasoning in the texts with higher topic familiarity was significantly higher than that in the texts with lower topic familiarity. This is consistent with some previous relevant research results [11,12], that discourse topic knowledge increases the likelihood of successful reasoning vocabulary. Grabe[12] believed that topic familiarity created the prerequisite for clarifying the fuzzy syntactic structure and identifying the meaning of unfamiliar words, and was necessary for reasoning processing and discourse pattern construction. The subjects were able to make effective use of their own background knowledge to conduct lexical reasoning, which promoted their successful lexical reasoning. However, discourse with low topic familiarity is not conducive to successful lexical reasoning. According to schema theory, content schema, that is, the familiarity with the content related to the topic of a text or the past experience and background knowledge about the content of a text, is the key to efficient reading, and the richness of content schema is conducive to the activation of the relevant schema and the comprehension of the text. In the process of lexical reasoning, when the relevant schema is activated, the schema will provide readers with the background knowledge to interpret the information, so that readers can make predictions and reasoning beyond the given information. Atef-Whid et al.[7] investigated the reasoning process of Iranian college students' English vocabulary and found that appropriate knowledge of relevant topics affects readers' attention allocation and the construction of mental representations, strengthening the connection between new words and the form and meaning in the discourse to varying degrees. The rich knowledge base enables readers to allocate attention more efficiently[10], to point out the position and function of relevant concepts constituting lexical meaning in the discourse network, thus effectively helping to generate hypotheses about the meaning of unfamiliar words and pushing forward the hypothesizing process. At the same time, when the knowledge or relationship necessary for lexical reasoning is missing, this knowledge can also assist reasoning; the more background knowledge readers have, the easier it is for them to perceive the connections between various elements in a discourse, and thus make up the information gap more easily, so as to achieve successful lexical reasoning. In addition, familiar topic knowledge provides cognitive basis for discourse understanding, ensuring that readers can construct and integrate relevant information

about new words on this basis. Shiri and Revie[13] found that topic familiarity increased readers' cognitive search and improved reading efficiency.

In addition to the above findings, it should be noted that although the subjects in this study generally believed that there were significant differences in topic familiarity between the two texts, the average successful reasoning values of the target vocabulary were relatively low (M=1.58,0.77). The subjects did not get a higher average score of lexical reasoning because they were familiar with the first discourse topic, which seems to indicate that the role of background knowledge in the second language lexical reasoning process is limited and may be affected by other factors. Research by Shiri[13] has shown that subjects either use textual background knowledge less frequently for lexical reasoning, or use it inappropriately enough to achieve successful lexical reasoning. The research results show that the effective use of textual background knowledge may be limited by the language level of readers. High-level readers are more inclined to use textual background knowledge for target vocabulary reasoning, followed by intermediate level readers and low level readers. The subjects in this study are intermediate level English learners, and the frequency of background knowledge use and its effect on the success rate of lexical reasoning may be affected by their second language level. In addition, the first language and second language of the subjects in previous studies are mostly the two languages with relatively close language types (such as English and Spanish, etc.). In the process of lexical reasoning in the second language, the subjects have relatively more opportunities to use the knowledge of the language from both the linguistic and non-linguistic level, and the possibility of positive transfer is also greater. In this study, the distance between the language types of the first language and the second language is relatively large, and the difference between cultures is also large. Therefore, the possibility of using the knowledge at the level of the first language is relatively small, and the success rate of using the background knowledge for lexical reasoning is also small[14,15].

6. Conclusion

This study examines the relationship between topic familiarity and the success rate of lexical reasoning in second language discourse of Chinese EFL learners. Research has found that topic familiarity has a positive effect on successful word reasoning. The success rate of lexical reasoning is higher when the reader is familiar with the topic than when the reader is familiar with the whisper. The conclusion of this study contributes to the teaching of L2 vocabulary and reading for Chinese students in both theory and practice. First of all, language teachers should determine appropriate reading and learning tasks according to the teaching needs, and choose the discourse that is conducive to learners' vocabulary growth and development. In the teaching of reading, it is of great benefit to the teaching of reading to enable students to obtain some cultural background information related to the teaching materials or unfamiliar to the readers in advance, activate the learners' knowledge network, and make them have the desire to know more information through reading. Secondly, language teachers should encourage students to read widely. This can not only expand the scope of students' knowledge, so that they have more world knowledge, but also enable them to master more vocabulary. For reading, only mastering language knowledge is far from enough. Students' knowledge of humanities, social sciences, environment, local customs and other aspects will directly affect their reading comprehension level. This requires teachers to guide students to enrich a large amount of social and cultural background knowledge, in the teaching of reading should be good at helping students constantly start and expand the reading content schema, and cultivate their divergent thinking and critical thinking ability. In addition, teachers should help students use effective lexical reasoning strategies in the process of reading second language texts, which will help them expand their vocabulary, improve their reading speed and efficiency, improve

their lexical reasoning ability and reading skills, and thus improve their textual reading ability and stimulate their interest in second language reading. Of course, there are still some shortcomings in this study. With a small sample size, this study only examined the influence of reader factor (topic familiarity) on lexical reasoning processing of intermediate L2 learners. Future studies should investigate the influence of reader factor on lexical reasoning processing and vocabulary retention of Chinese EFL learners in a more comprehensive way. And the interaction between reader factors and reader factors and discourse factors in the process of lexical reasoning, so as to obtain more general conclusions.

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