



Received: 10-08-2022

Accepted: 20-09-2022

International Journal of Advanced Multidisciplinary Research and Studies

ISSN: 2583-049X

Bilingual Effect on Lexical Selection

¹ Mengjiao Yan, ² Huaijin Wu, ³ Huanan Su

^{1,2,3} Ph. D. Student, College of Arts and Sciences, University of the Cordilleras, Baguio City, Philippines

Corresponding Author: **Mengjiao Yan**

Abstract

With the development of society, the phenomenon of bilingual (or even multilingual) code switching is becoming more and more common, and more attention has been paid to the study of bilingualism. Then, what cognitive and psychological processes do bilinguals go through during code switching? This is a problem that must be discussed in the study of bilingual vocabulary production. Since L2 speech production research is based on L1 cognitive and psycholinguistic research (Kormos, 2006), bilingual vocabulary production research needs to start with monolingual vocabulary production research. However, compared with the monolingual lexical production model or process, the bilingual lexical production model or process is

still in its infancy. Therefore, a theoretical study of it will help bilinguals better understand the cognitive process and psychology of L1 or L2 in language acquisition, so as to acquire L1 or L2 effectively. This paper discusses the theories and hypotheses related to the lexical selection, the factors affecting the lexical selection for the bilinguals. Literature review method was used in this research. Based on the reading and analysis, there are two typical hypotheses of bilingual lexical selection, which are competition and exclusion hypothesis. It is also found that the language proficiency, language distance and preparation time will affect the lexical selection for bilingual from different aspects.

Keywords: Bilingual, Lexical Selection, Hypotheses, Factors, Errors

Introduction

Speech production, namely speaking, is a psychological process in which normal people use language to express their thoughts. It is generally believed that when a speech is produced, the first step is to make clear the meaning expressed, that is, the conceptualization stage, then to select appropriate words and establish semantic, grammatical and pronunciation structures, and the speech organization stage, and finally to express the meaning through the vocal organs. Among them, it is the most critical step to select the appropriate target words from the vocabulary system. The choice of target words is directly related to the clarity of speech expression (Cui & Lu, 2007). This process is often called lexical access.

With the development of society, code switching is becoming more and more common in bilingualism, and more and more attention has been paid to the study of bilingualism. Then, what cognitive and psychological processes do bilinguals go through during code switching? This is a problem that must be discussed in bilingual vocabulary production.

This paper discussed the main hypotheses about bilingual vocabulary choice, which has influenced the factors of bilingual vocabulary choice so as to help second language learners understand the process of bilingual vocabulary production and the process of language output.

Lexical Access: It refers to the process of lexicalization, that is, the process of transforming thinking into word expression and further into sound. The process of lexical access mainly includes two stages: the first stage is semantic activation and lexical selection, the second stage is phonological coding, and bilinguals refer to people who can communicate in two languages. Research on bilingual lexical access helps us understand how a brain processes two languages (De Bleser, 2003)^[2]. Therefore, many researchers have explored the stage of bilingual vocabulary access and the relationship between the two languages in the process of bilingual vocabulary access. The research on Bilingual vocabulary access has not only been the focus of bilingual research in the past, but also attracted the interest and attention of researchers.

There are many models of lexical access attempt to explain how individuals access words and their related meanings in our minds, such as serial search models, the autonomous search model, the cohort model and so on.

One of the main research questions in bilingual lexical access is whether the two languages of bilinguals get activated, and if so, what lexical selection mechanisms do bilinguals use to avoid the competition of the lexical items of the non-response language.

Bilinguals: Multilingualism refers to the use of two or more languages by a society or individual. People over the world live in bilingual or multilingual societies. Less than a quarter of the countries in the world have two or more languages as their official languages. But in fact, there is no real monolingual country. Even in countries where most citizens speak only one language, there are a significant number of other languages.

For example, most dialects in southern China, such as Wu Min Ke Zhuan, are still the language of people's daily life. In addition, there are other minority languages in the border areas. In the United States, about half of the population does not speak English. In Britain, there are more than two different minority languages. In Ghana, Nigeria and other single official language countries in Africa, as many as 30% of the population are proficient in two or more languages. Broadly speaking, a multilingual person refers to anyone who can communicate with others in multiple languages. At least one of the languages used by a multilingual is his mother tongue (also known as "first language") which he began to learn when he was a child.

Generally speaking, mother tongue is the most proficient language a person can use, which will have a profound impact on other later languages. Some children have mastered two or more languages in their childhood, but even so, the proficiency of one language will be higher than that of the other (Li, 2012)^[1].

Purposes of the study

This study is aimed to discuss the bilingual effect on the lexical selection, the researcher tried to explore through the following questions:

1. What are models/hypotheses of lexical selection for bilinguals?
2. What are factors affecting the lexical selection?

Methodology

The study used the literature and document analysis. Through reading and analyzing some recent literature, the researcher summarized the key words and sentences with high frequency as the theme for detailed analysis, so as to answer the research questions comprehensively

Results and discussion

This part is the presentation, discussion and the interpretation of the results and discussion.

The Models/Hypotheses

Lexical Selection by Competition Hypothesis

The hypothesis holds that the choice of target words is not only related to the activation degree of target words, but also related to the activation degree of non-target words. The greater the correlation between non target words and target words, the higher the degree of activation, and the greater the interference to target words, which makes the selection of target words more difficult (Roelofs, 1992)^[6].

For this hypothesis, many researchers use the "Picture- word interference paradigm", which is one of the paradigms of Stroop effect, to explore and test the lexical selection mechanism under this hypothesis. In this interference paradigm, the researchers will present a picture embedded with words to the subjects and ask them to eliminate the interference of words and name the picture quickly and accurately.

According to the experiment of Vitkovitch & Tyrrell (1999)^[7], when the subjects were asked to name the pictures as subordinate level categories, such as "poodle", they found that when the interfering words and the target pictures belong to the same basic level category, compared with the facial features interfering words, the interfering words with similar semantic meaning interfered with the picture naming; When the distractor and the target image are in the basic level of correlation category, the distractor is more important than the irrelevant distractor. Damian et al. (2001)^[4] and Belke et al. (2005)^[3] both found that, compared with the distractors from different categories, when the distractor and the target image belong to the same category, the distractor and the target image belong to the same category. The naming time of subjects was longer when they were in the same category. The research results strongly support the competitive choice hypothesis, that is, the choice of target words is an important factor. The degree of difficulty is determined by the activation of target words and non-target words. When naming a picture, both the lexical representation of the target word and its semantic related lexical representation are activated. The lexical selection mechanism selects between the activated lexical representations, and each lexical representation competes with each other. The higher the degree of activation, the greater the interference effect of lexical representation on the choice of target words, and the more difficult the choice of target words.

For the bilingual speakers, if they are faced with the same situation when they need make a word choice or naming, the range of non-target language activated is larger. Therefore, there will be more interference items for them, which will also bring more difficulties to their lexical selection.

Response Exclusion Hypothesis

Mahon et al. (2007)^[5] put forward the "Response Exclusion Hypothesis". The hypothesis says that there is a single channel output buffer in human speech production system, which only allows one word to pass through at a time. In the picture word interference paradigm, when the subjects perceive the interfering words, they will unconsciously form an implicit voice response to the interfering words, which will reach the buffer prior to the picture response. Therefore, in order to name a picture, it is necessary to remove the speech response to the interfering words from the buffer. The speed of removing distractors from the buffer is related to response relevance. Reaction relevance refers to the relevance between distractors and current tasks (Yang Wenqin, Li Rongbao, 2013)^[8].

The higher the relevance between interfering words and target words, the more consistent with the target response criteria, the more difficult it is to exclude interfering words, the more difficult it is to select target words, and the longer the image naming time.

The hypothesis also holds that response exclusion occurs at the post lexical level, which is the stage of full phonological formation. In this case, according to the response exclusion theory, the word frequency effect is due to the fact that compared with the interference words with low word frequency, the interference words with high word frequency reach the buffer faster and the reaction speed is faster. Therefore, the interference effect of high frequency words is smaller, and the naming reaction time is shorter.

For bilinguals, when they are faced with the word selection, maybe all the relevant words will come into their mind, so they need more time to eliminate the interference. In the situation, the high-frequency interference words will reach the buffer naturally and be eliminated as soon as possible.

Factors Affecting the Lexical Selection for Bilinguals Language Proficiency and Code Switching

Research on language production shows that in code switching tasks, highly skilled bilinguals have close proficiency in two languages, they have direct access mechanism in vocabulary selection, and the process of vocabulary extraction is similar to that of monolinguals, so the cost symmetry of code switching occurs (Costa, 2006). "The "specific language selection hypothesis" can explain that highly skilled bilinguals can directly extract the target words, and that bilinguals only consider the activated words in the target language when their two language lexical systems are activated, but not the activated words in the target language. In this way, the activated words in the non-target language will not interfere with the extraction of words in the target language, and they do not have the ability to interfere with the extraction of words in the target language, so there is no need to suppress the non-target language.

The cognitive flexibility of bilinguals' switching mechanism indicates that the specific language choice hypothesis will appear when the switching task includes a highly proficient language, and that language proficiency is one of the factors that affect the switching cost. When bilinguals use a lower-level language, the most powerful competitor is another lower-level language, not a higher-level language (De Angelis, 2007) [11].

To sum up, language proficiency affects target vocabulary extraction in both language comprehension and production tasks. The cognitive flexibility of bilinguals' switching mechanism indicates that only when a highly proficient language is included in the switching task can the specific language selection hypothesis be met. So, inhibition control model and specific language choice hypothesis cannot explain all the results. Researchers can consider other factors that affect the cost of code switching, such as language proficiency.

Language Distance and Code Switching

In the study of language production, Costa et al. proposed that the mechanism of language control may be affected by the similarity between languages. Compared with dissimilar languages, similar languages are more likely to influence each other [Costa, 2004] [9]. Costa et al. studied the switching costs of high-level bilinguals in two distant languages (L1 Spanish, L2 Basque) and two similar languages (L1 Spanish, L2 Catalan). It shows that the similarity of languages has no significant effect on the switching cost. If bilinguals have the symmetry of switching cost, will multilingual also have the symmetry of switching cost.

Chinese studies such as Cui and Zhang (2009) [12] selected Tibetan- Chinese-English trilinguals as research subjects. These three languages are totally different. Tibetan belongs to Sino Tibetan language family, but it is totally different from Chinese. Tibetan is Pinyin, while modern Chinese is hieroglyphic. English belongs to the Indo-European family. Cui and Zhang (2009) [12] found that when Tibetan-Chinese-

English trilingual learners extract trilingual English target words in language comprehension tasks, a large number of L2 words are activated, while L1 words are not activated, indicating that trilingual vocabulary extraction mainly relies on L2 rather than proficient L1 words (Cui & Zhang, 2009) [12].

According to the "Language Type Distance Hypothesis" (Ringbom, 1987), in the trilingual production task, the language whose language type is closer to trilingual is the main source of cross language influence. If both the first language and the second language are similar to the weaker third language, then the cross-language transfer of the third language may be mainly affected by the second language (Cenoz, 2003) [13].

"The "foreign language influence" theory also points out that in the production of trilingual, it is easier to restrain the mother tongue than the second language, because the acquisition methods of the first language, the second language and the third language are different, and the multilingual may learn from the strategies of the second language when learning the third language. So, if the types of second language and third language are similar and completely different, will there be different results?

Rothman (2015) proposed Type Optimization Model (TPM), which divides the comparison of similarities between languages into four levels, namely lexical level, phonetic level, morphological level and syntactic structure level. The closer the relationship between the two languages, the more difficult it will be to choose words. If the distance between the two languages is large, the influence will be less.

Preparation Time and Switching Cost

In addition to the above factors, the preparation time in language comprehension and production experiments also affects the cost of code switching. The longer the interval between verbal cues and stimuli, the smaller the switching cost. This suggests that the earlier the stimulus is presented, the better the preparation for the experiment. For example, in the Mosca M. & Clahsen H. experiment, bilingual subjects were divided into two groups: the first group had preparation time (language prompt 500ms - blank screen 300ms - picture presentation 1500ms - blank screen 2400ms), the second group had no preparation time (present fixed point 500ms - picture presentation and language prompt 1500ms - blank screen 2400ms). Two groups of experiments are continuous 4700 MS, only the language prompt time is not the same, the first group prompt time 800 ms, the second group prompt time 0 Ms. It is found that high-level bilinguals have symmetrical switching costs when there is no preparation time, and there is no switching cost when there is 800 ms preparation time task (Mosca, 2016) [14].

The results are consistent with those of Costa et al (2004) [9]. It shows that the preparation time will affect the cost of code switching in the experiment.

Conclusions

Through the research, two of the most famous or important have been presented and explained: lexical selection by competition hypothesis and response exclusions hypothesis. The competition hypothesis emphasizes that the range of words activated by bilinguals will affect their lexical selection; the response exclusion hypothesis emphasizes that the relevance between interference words and target words

will affect the lexical selection. The higher the relevance, the more difficult it is to exclude.

As for the factors affecting the bilinguals' lexical selection, language proficiency will affect the extraction of target words; the language similarity may affect the control mechanism of language; the preparation time in language comprehension and production experiments also affects the cost of code switching.

Limitation of the Study

The biggest limitation of this study is that the coverage of literature reading is relatively small and limited. If more documents and literatures that are included and analyzed, it can be more comprehensive, the results will be more scientific.

The researcher used the purely literature review method. If some of the experiments could be conducted to testify the results, it will make the research more scientifically.

Acknowledgement

Thanks to Dr. Gregerlin Lambencio for her guidance, and thanks to all the classmates for their suggestions to help me improve the research.

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