A Study of Bilingual Language Representation and Cognitive Psychological Mechanism

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Abstract

Bilingualism has become a common phenomenon with the increasing exchanges between countries and nations. A bilingual person is someone skilled in using two or more languages at the same time. Language shaping people's thinking patterns and cognitive abilities, then what will have effect to master two or more languages on the individual's cognitive ability? Is the promotion or the interference? What are the mechanisms of impact? The focus of early research debate is on whether bilingual competence can promote or disrupt cognitive development. This debate has now largely been resolved, with most researchers assuming that bilingual competence has a positive effect on some aspects of cognitive development rather than interference. Now the focus of the study is bilingual when to start to promote cognitive function, the extent and scope of the role of what is the mechanism of action. Therefore, it is very important to study the relationship between bilingual competence and cognitive development. On the one hand, it can help us to better understand the relationship between bilingualism and thinking, cognition, bilingualism and cognitive development, relationship, on the other hand, can also provide psychological theory guidance for our foreign language teaching.

Keywords: bilingual; language representation; cognitive psychology

1 INTRODUCTION

The difference between bilingual and monolingual in the first language knowledge, this difference is mainly due to the development and use of the skills of the first language by the later learned language. The bilingual system is characterized by the concept of bilingual brain changes. There are two levels of system, the level of words within the abstract semantic representation and conceptual representation of the level of speech. The basic distinction between monolingual and bilingual systems is conceptual rather than linguistic.

2 The Interaction of Two Languages in Bilingual

Language is a cognitive construct, but the conceptual system on which depends the same as the conceptual system on which all other cognitive constructs in the cognitive system depends. Bilingual and multilingualists have a common concept base (CUCB—Common Underlying Conceptual Base)—that is, the concept base is responsible for the operation of several different symbolic systems, the language channel is not synthesized (not blended). Through the common conceptual foundation (CUCB), the two languages have unique symbiosis, the bi-directional effects between the two linguistic channels and cultural load, and conceptual

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synthesis. The influence of the first language on the second language is different from the latter's influence on the former. The development of the second language has a process from quantitative change to qualitative change, and the two languages will experience two stages from the additive period to the synergic period. Language migration occurs during the roll-up period and conceptual co-occurrence occurs during synergy. In the synchronic period, there will be synergetic concept, that is, in both languages are lexical, but with a different social and cultural load of any language; also appear code-switching and intercultural style and other characteristics. Bilingual first language will be affected by the second language, mainly in the preferences of the preferred mode of speaking and organizational thinking will change. The study found that bilingual contact with the new culture will affect the existing concept of the content. The new cultural experience will slightly adjust the conceptual structure. However, the conceptual characteristics of the first language play a dominant role in the concept of synergy.

3 Meaning Construction in Bilingual

The basic cognitive operation of meaning construction is a creative synthesis, mainly in the lexical layer and discourse layer. The content of lexical code includes the world knowledge based on previous context experience, history used in different contexts, ambiguity (prior experience level, frequency, familiarity, personal experience differences) and salience. The lexical meaning is complex and contains several elements (the general world knowledge associated with a given concept), the culture-specific conceptual property (cultural-specific world knowledge part) and the lexical-specific semantic attribute (lexicalized world knowledge part). In a particular scenario, contextualization is the realization of one or more specific aspects of the core, and is the result of a combination of core meanings with some appropriate vocabulary-specific and cultural-specific conceptual attributes. The core meaning and the contextual meaning are in the dialectical relations; the systematic repetition occurrence contextual meaning change will cause the core meaning to change. The differences between languages are expressed in vocabulary specific semantic properties and cultural specific conceptual attributes, and semantic equivalence is the equivalence of core meanings.

4 Bilingualism Can Be Divided According To Different Angles Bilingual

Some researchers have bilingualized into bilingual and mixed bilingual based on bilingual level. Parallel bilingual means that the representations of words in two languages obtained in different scenarios which are independent of each other; mixed bilingual means that the representations of the words in the two languages obtained by the interchangeable learning are mixed. Bilingualism is divided into simultaneous bilingual and sequential bilingual according to the different social backgrounds of bilingual learning. Simultaneous bilingual refers to an individual acquiring a language from his father at an early age or from a preschool age, learning another language from his mother, or a language from a parent and another from a caretaker or playmate; Timed bilingual refers to individuals who first acquire a language and acquire a second language after school age. According to the age of bilingual learning, bilingualism is divided into balanced bilingual and unbalanced bilingual. Balanced bilingual refers to the bilingual ability of the two languages to reach the level of adaptation with age, and the level of the two languages; unbalanced bilingual is the level of the two languages, the mother tongue ability to reach the same age level, and more than ability to speak a second language. The most widely used classification in the field of cognitive development is balanced bilingual and unbalanced bilingualism.
5 Bilingual Brain Storage Theories

The semantics of the two languages are stored in the brains of bilinguals, and there are roughly three different theories. Two opposing theories are the common storage theory and the individual storage theory (Kolers, 1963). The former holds that the two forms of language are associated with the same semantic representation system and the semantic information is stored in a system. The latter holds that the two forms of language are respectively connected with independent semantic representation systems, storage. There is also a compromise that the bilingual two languages are part of the same representation. These observations have their own experimental evidence, the evidence from a variety of behavioral experiments and neuropsychological studies. The experimental paradigms of bilingual representation mainly use different types of semantic priming, including lexical association, bilingual stroop effect experiment, word translation and picture naming experiment, semantic or repetition experiment between languages. The theoretical basis for this type of experiment is the hypothesis of the scholar's semantic activation diffusion model. If the two languages are jointly characterized, the priming effect within and between languages should be highly consistent. No consistent experimental results were obtained from these experiments. Studies of bilingual and multilingual aphasics have found that some patients seem to recover both languages simultaneously, while others regain selectively, or that one language is faster and better than the other.

As we all know, psychologists and linguists in the field of bilingual representation of a large number of studies, they are committed to explore and solve the basic problem is the bilingual brain is how to store and organize two or more languages, thus affecting bilinguals of cognition. In recent years, the use of brain imaging techniques, such as event-related potential (ERP), positron emission tomography (PET), magneto encephalography (MEG), and functional magnetic resonance imaging (FMRI) breakthrough. On the basis of the series of research results, scholars have not only confirmed the existence of bilingual cognitive effects in many cognitive areas, but also explained the cognitive mechanism of language processing and the intrinsic neurophysiologic basis. It also provides a deep understanding of the relationship between language and cognition: language can not only change people's thinking and cognition, but also can shape people's brain structure and function. In addition, the bilingual representation and generation mechanism is the linguistic mechanism leading to the bilingual cognitive dominance effect, while the prefrontal lobe with the Broca language area as the core is the main neural basis.

6 Areas of Bilingual Cognitive Dominance Effects

With the increasing frequency of social communication, "bilingual" has become a more common phenomenon in modern society. Due to the different standards, the definition of "bilinguals" is not consistent at present. Bilingualisms’ in this paper are mainly bilingual people who are able to use two different languages at the same time. Because, the existing literature has shown that "bilingual cognitive effect" is more in this part of the individual body. The impact of bilingual on individual cognition is still controversial. Early scholars tend to think that bilinguals have a negative impact on children's cognitive development, but the finding that "the total score of bilingual non-verbal intelligence tests and intelligence tests is significantly higher than monolingual children" breaks this bias and excites the enthusiasm of people on bilingual children's research. Subsequent series of studies show that bilingual cognitive advantage not only in general intelligence, in the visual—spatial capabilities, field
independence, Meta—language awareness and other aspects, has shown. So, what kind of domain difference does this kind of advantage effect have? In the specific cognitive tasks, performance and what is the difference? This paper will analyze both verbal and nonverbal aspects.

6.1 Bilingual Cognitive Advantage Effect: Evidence from the Speech Field

If bilingual effects on children's cognitive development, then, in the language system must be reflected. Inference from irrelevant information in language processing, speech rhythm and speech perception, language switching and meta-language awareness and other aspects of the study, the evidence provided for the inference.

As the bilinguals in the process of verbal processing, need to constantly control the two language representation, and according to the environment and pragmatic and other factors, consciously choose the target language, inhibition of non-target language, so that they develop a better inhibition of control. This ability is conducive to children in verbal processing to accurately grasp the target information, to overcome the impact of interference information. Scholars take the negative and dual processing task paradigm to study the performance of monolingual and bilinguals in the task of auditory speech comprehension. The results show that bilinguals can get rid of the interference of phonetic similarity effect in different time periods of language processing , While the monolingual interference information in the unrelated, the performance of the reaction time extension, the accuracy rate of decline. In addition, some researchers found that bilingual babies were able to distinguish between two languages with similar vocal rhythms, while four months from infants of different languages (Spanish and Catalan). It is difficult for infants in monolingual environments to complete the task. Bilingual cognitive advantage is also reflected in the language switching task.

6.2 Bilingual Cognitive Assessment

Lack English-Chinese bilingual teaching cognitive assessment for the current age of children in large classes. However, whether bilingual children are better than non-bilingual children in cognitive development trend, early foreign studies confirmed that children of bilingual learning in language and non-verbal part of the ability to perform better than the same age non-bilingual children. Some bilingual and monolingual children through language processing control test found that bilingual children in the implementation of language tasks, not its bilingual level, score higher than the same age single-language children. Domestic studies have also confirmed that although the cognitive strategies adopted by bilingual learners in the learning process may be the same as those of monolingual learners, their cognitive processes and autonomy in applying the cognitive strategies are quite different, which makes bilingual learning of the cognitive ability to be more active play.

7 CONCLUSIONS

Bilingual language and cognition, including bilingual understanding and expression process, bilingual language control, bilingual impact on cognition and bilingual and the relationship between the brains. The existing research on the multilingual discussion is insufficient, and bilingual relevant theory, process, mechanism also applies to the multilingual, expound bilingual research psychology linguistic foundation, revealing bilingual definition cover the complexity of the use of speech perception task method. Being fluent in two or more languages is an enviable ability, and bilingualism is common in most parts of the world.
However, there are very few bilinguals who can master two or more languages. For bilinguals, they tend to rely on word processing, and one language is their dominant language. Sometimes bilinguals are not as fluent as monolingual speakers even when using dominant language communication, and bilinguals sometimes feel that they are "losing" the first language but not speaking a second language like a first language fluent. The study found that bilinguals are fluent in the bilingual, while their dominant language will also be a certain degree of degradation. In this case, there are two reasons for the competition between the two languages, as well as the decrease of the language proficiency due to the decreasing frequency of dominant language. It has been found that in the first language as a dominant language or a second language into a dominant language, the existence of bilingual influence bilingual language advantage of the situation.

Acknowledgement

Fund Project: Research Project of Youth Science in Liaoning Normal University (LS2014W003): Research on the Cognitive Mechanism of Language Understanding and Output in Language Acquisition; Special Research Project, Faculty of Liberal Arts, Liaoning Normal University

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