A Study on the Eye Movement of Chinese Bilingual Language Cognition

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Abstract. This paper gives an overview of the study of the eye movement of Chinese native speakers in the academic circles and summarizes the results of the study of eye movement of Chinese native speakers from the aspects of reading foreign language. Finally, it is concluded that the familiarity of language, word segmentation, text style and mother tongue background will affect the language cognition of Chinese native speakers.

Introduction

It was recognized a long time ago by observing a person's eyes to understand his or her mental activity, but it was not easy to do that. Since the 19th century, psychologists have been constantly studying eye movement recording device, and by analyzing the recorded eye movement data to explore the relationship between eye movement and mental activity.

Eye movement technology, also known as eye movement recording technology or eye tracking technology, refers to the use of eye movement recorder to record the visual information in dealing with eye trajectory characteristics, commonly used for attention, visual perception, reading and other areas of research. A bilingual person refers to a person who is proficient in applying two languages. In his daily life, he can use a foreign language and native language to be used for listening, speaking, reading and writing. Of course, their mother tongue language Knowledge and ability are generally greater than the second language. With the expansion of social interaction and language communication, bilingual people become common. The study of bilingual people not only can promote the construction of language cognitive processing model, but also can provide some theoretical basis for the teaching of second language in realistic situation, so the study of bilingual people has good social value.

The use of eye movement technology to solve the bilingual language awareness has a unique advantage, you can examine the reader in the reading of the eye movement mode and reading characteristics. For example, the study of eye movement characteristics of Chinese reading, is conducive to improving the mother tongue is not Chinese people's Chinese reading level, and can also provide some reference for the preparation and typesetting of Chinese teaching materials. At present, the domestic eye movement research of bilinguals reading Chinese mainly focused on foreign students and minority students reading Chinese two aspects. At Eye movement technology research these two aspects, can be very intuitive to show the reader's eye movement mode, but also to promote language teaching and artificial intelligence development.

The Application of Eye Movement Technique in Language Cognition

The study of eye movement in the world began in the late 1970s. From 1879, the French scholar Javal's discovery of the eye jumped to the world's eye-catching research boom, eye-catching reading study has continued more than a hundred year. Since then, the French scholars Lamare, Jaral and Heuy have tried to understand the perceptual process behind reading by studying the order of eye-catching points and eyebrows. According to the need of reading eye movement, a series of eye
movement parameters are used to reflect the process of cognitive processing. In the 1970s, it entered the development period of reading eye movement research, and the improvement of eye movement recording system was the main feature. On the one hand, the characteristics of various trajectory system are studied in detail, and on the other hand, the method of eye movement data is improved greatly. In particular, the eye movement trajectory system combined with the laboratory computer can collect and analyze a large amount of data, so that eye movement recording can better predict the information processing process.

Researchers have put forward their own views on the eye movement model, the "strategy-tactical model" proposed by Op Regan, the "EZ reader model" by Reichle et al., "Visual buffer processing model" by Bouma and De Voogd, Carpenter's "Immediate Processing Model" and "Eye-Brain Processing Model", Morrison's "Eye Movement Control Model", Henderson and Ferreira's "Sequential Stent-Parallel Program Model" and so on. The introduction of these models for us to further understand the eye movement in the reading process characteristics, to explore the eye movement and the relationship between human cognitive and psychological activities have great reference value. With the development of information technology and the rapid development of computer technology, eye movement recording system continues to upgrade, people for eye movement research and more in-depth and meticulous.

A Study on the Cognition of Eye Movement in Chinese Bilinguals

In 2006, Zuo Yinfang and Yang Zhiliang did a research on the eye movement of second language reading of different cultural language backgrounds and reading levels. And the research shows that the cultural context and difficulty of the material are influential to the reading comprehension, reading speed and reading efficiency of college students' English reading, and there are differences in eye movement patterns. There are significant differences in the number of times of attention, the number of regression and the distance of eye. Zhu Ying, Wu Jingen, Zhang Lanlan and Yan Guoli had done a study which is the perceptual span of Chinese undergraduates in reading English sentences with different degrees of difficulty in 2009. They find that the perceptual span for reading difficult and easy sentence was 8 character spaces to the right of the fixation. And under the same window size condition, there are significant differences between the easy and difficult English sentences in terms of different eye movement measures. Yang Wenqin and Li Rongbao did a eye movement of the second language competition in Chinese English Learners' mother tongue processing in 2012. And the results show that there is a second language competition in the process of mother tongue processing of Chinese English learners, but the realization of it is subject to conditional constraints. In 2014, Wang Juan and Zhang Jijia used the eye movement to study the impact of primed language on Chinese-English bilinguals’ scene consistency judgment. The results of the study reflect that the phrases of English and Chinese have common meanings in meaning expression, but there are discord differences in the expression of the scene. The results of the study reflect that the phrases of English and Chinese have common meanings in meaning expression, but there are discord differences in the expression of the scene. And finally concluded that the processing depth of the task affects the scene perception of the Chinese-English bilinguals. Guo Zhiying, Bai Xuejun, Gu Li and others used eye movement to research effect of word segmentation on Chinese-Japanese bilinguals’ Japanese reading in 2014. And they find the spaced-word may facilitate Japanese reading for Chinese-Japanese bilinguals. Wang Yue, Sun Erhong and Zhang Jijia did a "sentence affect the Chinese-English bilingual language of the English phrase verb semantic processing" eye movement experiment. The results show that there is a contextual effect in the semantic processing of English phrase verbs in Chinese-English bilinguals. In English, the English proficiency of English and Chinese verbs is influenced by the English proficiency of English phrases. The degree of dependence of the English-Chinese bilinguals on the verbal processing of English phrases will diminish as English proficiency increases.
Conclusion

Different text systems have different ways of cognition, and different grammatical categories have different ways of processing. The research in this field is mainly for the three aspects of sentence perception, word segmentation and second language proficiency. We can get the conclusion that the difficulty of the second language sentence affects the reader's perception breadth. The word space between foreign languages is more conducive to their second language reading. And the degree of second language proficiency affects the reading speed of Chinese bilinguals, the parameters of eye movement and the degree of understanding of foreign language.

Summary

At present, there are many studies on the eye movement of the bilingual language in the academic circles, but the research objects of the bilinguals are relatively few. We select the scope of the researchers can be appropriately widened, in addition to the mother tongue from the perspective, but also from the geographical point of view can be compared to the study of eye movement. This results will be more comprehensive.

The use of modern technology to reveal the bilingual brain processing process, for understanding the development of human intelligence and language on human cognitive impact plays an important role. The study of bilingual language is helpful to improve their reading ability and language learning ability, but also enrich the study of cognitive linguistics and promote the development of cognitive linguistics.

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References


