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A brief analysis of the implications for language learners of the linguistic, cognitive and metacognitive changes from learning languages

Hongli Liu

Hubei Normal University, Huangshi, Hubei, China

Abstract

This paper analyzes the current research status, hot topics, and controversies in the field of the linguistic, cognitive, and metacognitive changes resulting from language learning, with a focus on bilingualism and multilingualism. It highlights the historical evolution of research perspectives, the cognitive and linguistic advantages and disadvantages of bilingualism, the neurological changes in bilinguals' brains, the potential conflict between cross-language items, and the metacognitive changes among bilinguals. The paper concludes by emphasizing the complexity of understanding the consequences of speaking multiple languages and the need for more detailed and scientific studies in this area.

Keywords

Language learner, linguistic, cognitive, metacognitive, changes.

1. Introduction

Today, it is generally believed that more than half of the world's population is bilingual or multilingual rather than monolingual (Bialystok, Craik, & Luk, 2012: 240; Marian & Shook, 2012: 1). In addition to facilitating communication, learning more than one language may also have some effects upon one's brain and mind (Marian & Shook, 2012: 1). With the continuous increase of people's concern about the linguistic, cognitive and metacognitive changes from learning languages, the last two centuries have witnessed an explosion of researches on bilingualism and its consequences on the brain and the mind (Kroll, 2015: 32; Kroll & Bialystok, 2013: 497). However, since the researches relating to the consequences of being bilingual or multilingual have gone through such a long history, the focus and results of the researches as well as the researchers' viewpoints on this issue do vary to a large extent (Bialystok, Craik & Luk, 2012: 245; Hamers & Lambert 1977: 58; Otto,1922: 148). This assignment will attempt to present a brief analysis of the implications for language learners of the linguistic, cognitive and metacognitive changes from learning languages.

2. Brief analysis of the implications of the changes from learning languages

Early studies (in America 1900-1920s) tended to associate bilingualism with lowered intelligence (Edwards, 1994: 68). For instance, Otto (1922: 148) proposes that bilingual children can hardly learn either of the two languages as well as he would have done if he was limited to one. Additionally, he suggests that another negative effect of being bilingual lies in that the brain should work on these two languages, which may diminish the brain's power of learning other things. However, Edwards (1994: 69) indicated that some problems like the inadequate control in the experimental procedures and the problematic statistical inference are typical and common in early studies, which may result in inevitable deviation in the findings.

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The early 1960s has been seen as a turning point when a positive relationship between bilingualism and intelligence began to appear in studies (Edwards, 1994: 69). Peal and Lambert (1962: 1) carried out a study in children who were either French-speaking monolinguals or English-French bilinguals. Based on the participants' performance on a battery of tests, Peal and Lambert (1962: 10) found unexpectedly that the bilingual children performed better on most verbal and nonverbal tests, especially when the tests are concerned with symbol manipulation and reorganization. Besides, the bilingual children's potential awareness about the "difference between form and meaning" has been inferred from this study by later researchers (Bialystok, Craik, & Luk, 2012: 242). Furthermore, with the refinement of the research methodology and the enhancement of the research methods (Edwards, 1994: 69), it has been more and more claimed and accepted recently that being capable of speaking more than one language will do more good than harm to an individual's development (Bialystok, Craik, & Luk, 2012; Kovacs & Mehler, 2009; Leikin, 2013; Schweizer et al., 2011).

To begin with, it is now universally accepted that the linguistic development of bilingual language learners is different from that of monolinguals (Barac & Bialystok, 2012: 413); but people's assumption about the advantages and disadvantages of the difference varies. While Skutnabb-Kangas (1981: 108) assumes that the bilingual are more bilateral than the monolingual since the bilinguals' previous language experience can help them learn another language, Edwards (1994: 71) holds that despite the fact that being bilingual or multilingual need not result in decreased or weakened capacities, being able to learn and use more than one language does not mean any significant improvement in one's cognitive and intellectual skills. To make the linguistic advantages that the bilingual may have clearly, Valencia and Cenoz (1992: 436) conducted a study in which both the bilingual and monolingual participants are organized to take some foreign language learning classes and then take language tests. The language testing scores show that the bilingual group outscored the monolingual group to a large extent. Therefore, Valencia and Cenoz (1992: 445) make a further inference that bilingual competence and early bilingualism do have a positive influence on foreign language acquisition.

However, the linguistic changes caused by learning languages that researches have manifested are not always positive. To begin with, though the bilinguals do learn more vocabularies than monolinguals, the vocabulary bilinguals learn actually split across languages. That is to say, compared with monolinguals, people who learn more than one language know fewer words in each language. Klassen's (2014: 461) longitudinal case study attempted to make a close observation of the language development in two Russian infants, a brother and sister. The boy was taught the first (Russian) and second language (English) at the same time from birth while the girl was taught the first language (Russian) only from birth and the second language (English) from three years old. The case study keeps going on until their vocabulary in the second language (English) reached about 500 words. According to the result of the research, the vocabulary of both their first language and the second language learned by the brother was smaller than that of the sister, who learned only one language at a time. Besides, the study also found that there is a visible delay in the brother's acquisition of grammar structures, for which being bilingual may be responsible.

While it is not a surprising phenomenon that some possible linguistic changes may take place as a result of being bilingual or multilingual; at the same time, the study of cognitive changes result from learning languages has witnessed a long history that can be dated back to the beginning of the 20th century (Barac, Bialystok, Castro & Sanchez, 2014: 700). What is more, the effects of learning more than one language on "executive functions and other non-verbal abilities" has become a hot topic of research recently (Barac, Bialystok, Castro & Sanchez, 2014: 700), and increasing evidence have shown that nonverbal cognitive development will also get affected by bilingualism or multilingualism (Barac & Bialystok, 2012: 413). Previously, a generally accepted assumption is that the cognitive consequences for people who are bilingual

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or multilingual are negative: learning two languages can be confusing (Peal & Lambert: 1962: 1). Besides, there is a "logical possibility" for the organization of a bilingual mind that the two languages in bilingual mind are two independently-represented language systems which are uniquely accessed in response to a specific language context (Bialystok, Craik & Luk, 2012: 242). However, according to Bialystok, Craik and Luk (2012: 240), a lot of evidence shows that the bilingual mind is not organized in the above-stated way. Instead, fluent bilinguals show some capacities that the two languages in their language systems could be activated at the same time and be switched effortlessly (Bialystok, Craik and Luk, 2012: 242). Also, in the directional arrow Simon task carried out in Bialystok's (2006: 68) study, the bilingual young adults outperformed their monolingual peers significantly in more complicated conditions. In this case, it appears that one advantage the bilingual have tend to emerge on difficult tasks or complex conditions that requires better attention or task-switching abilities (Bialystok, Craik & Luk, 2012: 245). As Bialystok et al. (2012: 245) summarize, besides the advantage in inhibition, switching and working memory; bilinguals do always have an advantage in selection, sustaining attention and representation as well as retrieval. Furthermore, as Klassen puts, the merit of being bilingual do not necessarily should be turn up in early years but it surely bring no harm to intellectual or cognitive development and will turn out to be beneficial in later life (2014: 461).

The cognitive changes from learning more than one language even change the brain itself. The neurological changes among bilinguals or multilinguals have been recognized as early as last century. According to Edwards (1994: 71), many similar occurrences in early studies have led researchers to believe that being bilingual or multilingual may have anatomical changes upon one's brain, which may lead to different ways of processing and producing information. Bialystok, Craik and Luk (2012: 240) also carried out a study that explores the cognitive effects of being bilingual. Their research shows that despite the fact that bilingualism seems to have a "muted effect" in adulthood, a "cognitive reserve" which protects the brain from cognitive decline will take place when the bilingual get old. The enhancement of cognitive control also can raise the possibility for life-long bilinguals to postpone the occurrence of dementia (Bialystok, Craik & Luk, 2012: 249).

However, there are also some potential negative aspects in terms of the cognitive changes result from learning more than one language. Above all, the negative effect of cognitive changes stems from the possible conflict between cross language items. The existence of a switch mechanism is put forward by Penfield and Roberts (1959), suggesting that when one linguistic system is activated, another would be automatically shut out (as cited in Edwards, 1994: 86). To make a further verification of the operation of the switch mechanism, Preston and Lambert (1969: 299) adapted the Stroop techniques to assess if the degree of interference between color and word in bilingual condition the same as that in monolingual condition. The study was carried out in three groups of bilinguals. Surprisingly, the observed result turned out that the interference in the bilingual condition was only slightly smaller than that in the monolingual condition. They interpreted these findings as evidence against the existence of a switch mechanism (Hamers, & Blanc, 2003: 86). That is to say, to some extent, all languages are active at the same time in the bilingual speakers' mind, which makes language processing more effortful. Hamers and Lambert (1977: 58) also propose that when a bilingual is to decode verbal materials, the first task he should deal with is to identify which language the material is presented, which will cause difficulty and retardation in terms of language processing.

Furthermore, being bilingual or multilingual may also cause metacognitive changes. An investigation into the effects of form-focused instruction and corrective feedback conducted by Lightbown and Spada (1990: 443) reveals that there is a possible increase of metalinguistic awareness among bilinguals. That is, their accuracy, fluency and overall communicative skills could be best developed with the ability to focus on grammatical form. Besides, there is also a visible tendency among bilingual children that they build up the awareness and understand

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that every object and event can be represented with more than one name at an earlier age compared with their monolingual peers (Nicoladis, Charbonnier & Popescu, 2006: 3).

Nevertheless, there exists a "weaker links" hypothesis which refers to the potential weakness among speakers who speak more than one language that they divide the frequently used words into several languages (Gollan et al, 2005:787). Take me as an example, I personally do have come across with a lot of awkward situations where I find myself 'lost' in two languages. To put it more specifically, when I am supposed to communicate in English (my second language), I sometimes come across with some embarrassing moments when some of the frequently used words appear on my mind are in my mother tongue while I find it extremely difficult to find a corresponding word in English to replace it in a short time. These situations happens even more frequently when I go back to my hometown after staying in an English-speaking country for some time, and vice versa.

3. Conclusion

To sum up, the "intense and sustained" bilingual or multilingual experience do will leave its mark on our minds and brains (Bialystok, Craik & Luk, 2012: 250). It is true that to understand the consequences of speaking more than one language is complex, yet it is not impenetrable (Kroll, 2015: 33). Furthermore, based on the findings of the related researches, some possible suggestions or guidance regarding language learning have been put forward. Klassen (2014: 461) suggests that to learn a second language by immersion when a child is three years old will be faster than by hearing it from birth. Some educational and clinical practitioners also advise parents to "simplicify" their children's language environment when "there are signs of academic struggle" to minimize the inevitable confusion (Bialystok, Craik & Luk, 2012: 250). However, despite the abundant findings about the linguistic, cognitive and metacognitive consequences that being able to use more than one language may have on the brain and mind, there is still much that we do not know in this field (Bialystok, Craik & Luk, 2012: 250); and more detailed and scientific studies that provide persuasive evidence are still in great needed.

References

[1] Barac, R., & Bialystok, E. (2012). Bilingual effects on cognitive and linguistic development: Role of language, cultural background, and education. Child development, 83(2), 413-422.

[2] Barac, R., Bialystok, E., Castro, D. C., & Sanchez, M. (2014). The cognitive development of young dual language learners: A critical review. Early childhood research quarterly, 29(4), 699-714.

[3] Bialystok, E. (2006). Effect of bilingualism and computer video game experience on the Simon task. Canadian Journal of Experimental Psychology, 60(1), 68-79.

[4] Bialystok, E., Craik, F. I., & Luk, G. (2012). Bilingualism: Consequences for mind and brain. Trends in Cognitive Sciences, 16(4), 240–250.

[5] Edwards, J. (1994). Multilingualism. London : Routledge.

[6] Gollan, T. H., Montoya, R. I., Cera, C., & Sandoval, T. C. (2005). More use almost always means a smaller frequency effect: Aging, bilingualism, and the weaker links hypothesis. Journal of Memory and Language, 58(3), 787-814.

[7] Hamers, J. F., & Blanc, M. (2003). Bilinguality and bilingualism. Cambridge University Press.

[8] Hamers, J. F., & Lambert, W. E. (1977). Visual field and cerebral hemisphere preferences in bilinguals. In S. J. Segalowitz & F. A. Gruber (eds.) Language development and neurological theory. New York: Academic Press, 57-62.

[9] Klassen, E. V. (2014). A Longitudinal Study of Bilingual Development in Infants. Procedia-Social and Behavioral Sciences, 154, 457-461.

[10] Kovacs, A. M., & Mehler, J. (2009). Cognitive gains in 7-month-old bilingual infants. Proceedings of the National Academy of Sciences of the United States of America, 106(16), 6556–6560.

ISSN: 2710-0170

[11] Kroll, J. F. (2015). On the consequences of bilingualism: We need language and the brain to understand cognition. Bilingualism: Language and Cognition, 18(01), 32-34.

[12] Kroll, J. F., & Bialystok, E. (2013). Understanding the consequences of bilingualism for language processing and cognition. Journal of Cognitive Psychology, 25(5), 497-514.

[13] Leikin, M. (2013). The effect of bilingualism on creativity: Developmental and educational perspectives. International Journal of Bilingualism, 17(4), 431-447.

[14] Lightbown, P. M., & Spada, N. (1990). Focus-on-form and corrective feedback in communicative language teaching. Studies in second language acquisition, 12(4), 429-448.

[15] Marian, V. & Shook, A. (2012, October 31). The Cognitive Benefits of Being Bilingual. Retrieved 21th Jan. 2016, from http://comm.soc.northwestern.edu/ bilingualism- psycholinguistics/files/ Cerebrum 2012.pdf

[16] Nicoladis, E., Charbonnier, M. & Popescu, A. (2006). Second language/bilingualism at an early age with emphasis on its impact on early socio-cognitive and socioemotional development. Encyclopedia on Early Childhood Development. 1-5.

[17] Otto, J. (1922). Language; its nature, development and origin. London: Allen & Unwin.

[18] Peal, E., & Lambert, W. E. (1962). The relation of bilingualism to intelligence. Psychological Monographs: general and applied, 76(27), 1-23.

[19] Penfield, W., & Roberts, L. (1959). Speech and brain mechanisms. New Jersey: Princeton University Press.

[20] Preston, M. S., & Lambert, W. E. (1969). Interlingual interference in a bilingual version of the Stroop color-word task. Journal of Verbal Learning and Verbal Behavior, 8(2), 295-301.

[21] Schweizer, T. A., Ware, J., Fischer, C. E., Craik, F. I. M., & Bialystok, E. (2011). Bilingualism as contributor to cognitive reserve: Evidence from brain atrophy in Alzheimer's disease. Cortex, 48, 991–996.

[22] Skutnabb-Kangas, T. (1981). Bilingualism or not: The education of minorities. England: Multilingual Matters Ltd.

[23] Valencia, J.F. & Cenoz, J. (1992). The role of bilingualism in foreign language acquisition: Learning English in the Basque country. Journal of Multilingual and Multicultural Development 13: 433-449.