

The Impact of Bilingual Experience on the Literacy Development of Struggling Readers

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Abstract

The rapid increase in linguistic diversity in schools worldwide over the past two decades has prompted a new generation of research on the impact of early bilingual experience on the literacy development of young children. So far, the field has concentrated on such impact among typically-developing children. In this editorial, we argue that this line of research should be expanded to focus on struggling readers, or children at-risk for reading disabilities. Documented similarities in the distinctive linguistic and cognitive profiles of struggling readers who are monolingual and bilingual, combined with mounting evidence for bilingual advantage in verbal and non-verbal abilities, have led us to hypothesize that delay in reading development among struggling readers may be mitigated by bilingual experience through three mechanisms: a) enhanced attention control that allows for more efficient use of working memory during reading; b) increased sensitivity to linguistic structures; and c) availability of compensatory reading strategies through literacy development of a second language. These three mechanisms are explicated in this editorial to call for a new research agenda in the field of childhood and developmental disorder.

Keywords: Bilingualism; Struggling readers; Literacy development

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Introduction

In the past two decades, the number of children learning to read in a second language has grown rapidly worldwide. Developing literacy skills in a second language is not only a pressing concern for immigrant children, but also for children who speak a majority language [1]. The combination of more immigration, increased alternative education programs based on language options, and escalating requirements for multilingual competence to navigate the global economy has prompted a new generation of research to investigate the impact of bilingual experience on the literacy development of young children.

In this article, we argue for potential benefit of bilingual experience for the literacy development of struggling readers. Following the criteria outlined in existing research [2], struggling readers, or children at-risk for reading disabilities, are operationally defined as those with a) reading scores at or below the 25th percentile on the standardized measures; b) absence of documentation of any other form of learning disability; and c) non-verbal IQ and listening comprehension within typically-developing range. We will first provide a brief review of the impact of bilingualism on the

development of typically-developing readers. We then explicate the mechanisms through which bilingual experience can have a positive impact on the literacy development of struggling readers. We will end this article with suggestions for future research in this critical but under-researched topic.

Bilingualism and the Development of Typically-Developing Readers

Research over the past decade has shown that bilingual children demonstrate advantages over their monolingual peers in the development of several areas of non-verbal and verbal abilities. In the area of non-verbal abilities, bilingual children, including those who are partially bilingual and have not yet mastered their second language, have been found to consistently outperform their monolingual peers on cognitive tasks that require them to control their attention and inhibit interfering options [3-5]. These tasks involve processes that parallel bilinguals' unique experience of choosing between two competing language systems, selecting the structures of one of the two languages, and inhibiting cross-linguistic interference. It has been argued that this unique

cognitive demand facilitates bilingual children's development of executive control, which comprises the following processes: inhibition, cognitive flexibility, and updating information in working memory [6-8].

Research on the impact of bilingual experience on verbal abilities has focused on componential skills essential for success in reading. The results have been mixed: Earlier research has revealed bilingual advantage through primarily cross-language transfer [9-13]. More recently, however, research has shown that when bilingual children are compared to matched monolingual counterparts on measures that take into account the structural similarities and differences between their two languages, consistent bilingual advantages are present in their sensitivity to processing the structure of the sounds [14-16], words [17-19] and sentences [20] in the language.

Bilingualism and Literacy Development among Struggling Readers

Despite recent investigations, existing research has been confined to the examination of the development of typically-developing children. In light of increasing linguistic and cultural diversity nation- and world-wide, it is important to critically extend the scope of existing research by investigating the effect of bilingual experience on the literacy development of struggling readers.

Contrary to a prevalent belief that bilingual experience is likely to cause or aggravate reading difficulty, we argue for the potential for bilingual benefit for struggling readers. Documented similarities in the distinctive linguistic and cognitive profiles of struggling readers who are monolingual and bilingual [20], combined with mounting evidence for bilingual advantage in verbal and non-verbal abilities, have led us to hypothesize that delay in reading development may be mitigated by bilingual experience through three mechanisms: a) enhanced attention control that allows for more efficient use of working memory during reading [21]; b) increased sensitivity to linguistic structures [19, 22]; and c) availability of compensatory reading strategies through literacy development of another language [23].

Attention control and working memory

Deficit in working memory has been identified as one of the major characteristics of struggling readers [21, 24-26]. For instance, Swanson, et al. found that struggling readers in early elementary grades with diverse linguistic backgrounds shared similar a deficit in verbal and non-verbal working memory as compared to their typically-developing counterparts matched in linguistic backgrounds [27]. This deficit in working memory can potentially be alleviated with bilingual experience. Research has shown that the experience of processing two languages contributes to more enhanced attention control and thus strengthens executive functioning [28-34]. Bilinguals are constantly shifting between two linguistic systems, which prompt them to exercise high-level cognitive skills to direct their attention to relevant linguistic information and inhibit irrelevant interferences, thereby maximizing the use of working memory. Given that working memory can be malleable and expanded through intervention among children with disabilities [35], it is plausible to speculate

that the bilingual benefit in executive control and working memory observed among typically-developing children may extend to struggling readers as well.

Sensitivity to linguistic structures

It has been well-established in the literature that struggling readers lag behind their typically-developing peers in their sensitivity to linguistic structures, or metalinguistic awareness [36-38]. Bilingual experience provides children a unique opportunity to examine linguistic structures from a broad cross-linguistic perspective. Having two language systems to compare and contrast allows young children to dissociate linguistic structures or features from a given language and represent them at a more abstract level. As noted earlier, while research findings have been mixed, in studies using measures that consider the structural similarities and differences between the two languages, consistent bilingual advantages have been reported in phonological (i.e., sound structure) [14-16, 39], morphological (i.e., word structure) [17-19] and syntactic (i.e., sentence structure) [18] awareness. Echoing Roeper, who postulated a novel perspective on the relationship between bilingualism and specific language impairment [22], we argue that for struggling readers in a bilingual environment, the structural similarities and differences between languages may help facilitate the development of sensitivity to the more obscure linguistic structures and features, and thus bilingualism may ultimately be beneficial to the acquisition of both languages.

Availability of compensatory reading strategies

A third mechanism through which struggling readers may benefit from bilingual experience is the availability of compensatory reading strategies. While reading is a multi-faceted process that requires the coordination of multiple skills, each language relies more heavily on one set of skills than others, depending on the correspondences among the phonology, morphology, semantics and orthography of the language [40, 41]. Therefore, struggling readers of different languages may have deficits in different processing skills. For example, struggling readers of alphabetic languages typically exhibit a phonological disorder [36], while struggling readers of logographic languages, such as Chinese, are more likely to have impaired visual processing skills [42]. Research has shown that readers who are able to advance their education despite documented reading disabilities tend to have developed compensatory reading strategies and processing skills. For example, Schneps et al. found that English-speaking adults with severe dyslexia outperformed typically-developing readers in visual processing tasks [43], which are an aspect of processing skills readers of Chinese are naturally more engaged in, presumably for recognizing the more complex written symbols in the language [44]. Given that processing skills and reading strategies developed in one language can be transferred to another language [45-47], we hypothesize that struggling readers with access to another language, and in particular a language of a different writing system [23, 48], may have the opportunity to engage in high-level cognitive processes that compensate deficits associated with reading difficulties in one language.

Conclusion

Three caveats need to be made regarding our proposal for this new line of investigation on the impact of bilingual experience on the literacy development of struggling readers. First, being bilingual has been broadly construed in research on bilingualism and cognition and does not refer to equal mastery in or equal amount of exposure to two languages. In fact, research has shown that individuals who are equally fluent in two languages are rare [49]. Furthermore, research with typically-developing children has shown that children with limited but regular exposure to a second language enjoyed some bilingual advantage [50].

Second, while we advocate that struggling readers should not be deprived of the opportunity to learn a second language, due to limited research on the topic, our proposal should not be interpreted as using bilingual experience as intervention to treat reading disabilities. Despite growing empirical evidence for the positive impact of bilingual experience on reading development [51-55], concerns have also been raised regarding the quality of existing bilingual programs and the educational resources bilingual children have access to. For example, in a recent study in the U.S., Samson and Lesaux revealed striking disparities that existed between teachers of bilingual and monolingual students [56]. Teachers of bilingual children tended to have fewer years of experience and lower rates of certification. Furthermore,

significantly more teachers of bilingual children were found to report feeling inadequately prepared to teach. Issues concerning program quality and resource accessibility need to be considered when struggling readers are introduced to a second language.

Finally, the majority of the current research on bilingual cognition has been conducted in the North America regions and included bilinguals, typically immigrant children, and their monolingual English-speaking counterparts. Such comparison can be problematic as the bilinguals are usually compared to their monolingual counterparts on measures in the second language of the bilingual children [19]. Disparities in the social economic status and home language literacy practices between the bilingual and monolingual children should also be considered since these factors are strong predictors of literacy development [57, 58]. We argue that comparisons in this line of research have to be made with caution to maintain comparability. The ideal context for this line of research is where children have the option to learn a second language that is not the dominant language of the society. Currently, due to prevalent belief that bilingual experience may cause or aggravate reading difficulties, there may not be a large struggling reader population that fits this profile. Therefore, we suggest that a promising starting point to launch this new line of research is to examine the three hypothesized mechanisms through which struggling readers may benefit from bilingual experience with rigorous systematic single-case studies.

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