

The current standing of bilingualism in today's globalized world: a socio-ecological perspective

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Globalization has made interactions between individuals from different cultures and languages unavoidable. Therefore, questions concerning bilingualism have become increasingly important within the scholarly community. In this paper, we review this emerging research using a socio-ecological approach. We first present evidence that demonstrates how learning two languages is dependent upon the socio-ecologies of individuals. Second, we review studies that show how bilingualism promotes a myriad of positive social advantages. Then we discuss how the positive effects of bilingualism has affected the socio-ecologies of the individuals. Our discussion sheds light on the challenges that caregivers, educators, scientists, and policy makers face to promote bilingualism in today's globalized world.

WC = 106/150.

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Introduction

Globalization has made interactions between individuals from different cultures and languages unavoidable [1]. Therefore, questions concerning bilingualism have become increasingly important within the scholarly community. In this paper, we use a socio-ecological approach to review this new emerging research. Specifically, as shown on [Figure 1](#), we first discuss how socio-ecology influences bilingual language learning. We then introduce new research that discusses the positive effects of bilingualism, specifically social advantages. Finally, we discuss how the effects of bilingualism have transformed the socio-ecologies of individuals [2]. Our discussion focuses primarily on studies done

within the United States, but occasionally we discuss studies done in other countries to complement our arguments. We also use the term bilingualism in a generic way to include other terms used within the literature such as multilingualism, second language learners, compound bilinguals and so on [3,4].

Socio-ecology and language learning

Becoming bilingual is contingent on the societal and interpersonal environment. Bilingualism, for example, is associated with the early social interactions infants and children have with their caregivers, as well as is influenced by other political and societal factors.

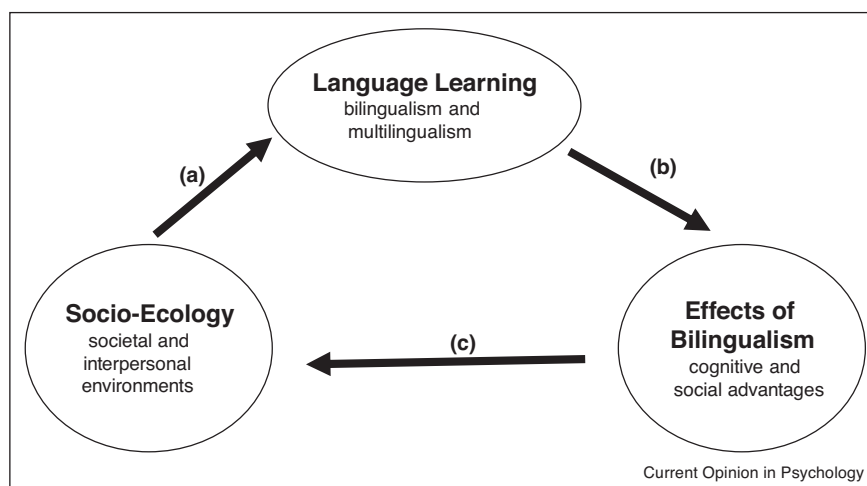
Interpersonal environments

Studies with bilingual infants show that social interactions between caregivers and their infants matter for bilingual language development. For example, the *quantity* of bilingual infants' language exposure is represented in the brain as early as 11 months of age [5,6]. Specifically, Spanish–English bilingual's brain is able to process sounds of English and Spanish, while the English monolingual's brain is specialized to process sounds of English. These studies also demonstrate that Spanish–English bilinguals are capable of learning English sounds at a rate similar to English monolingual peers [7].

The *quality* of the interactions also impact bilingual language development [8]. Latinx bilingual infants learn best in one-on-one interactions with increased parentese speech. This parentese, or 'baby talk,' is an exaggerated, singsong-like speech (e.g. 'Hiiii babyyy'). Parentese-speech in a one-on-one setting is ideal because infants are able to pay attention to the sounds directed at them and allows a bidirectional interaction to occur. Bilinguals' benefit from parentese speech in one-on-one interactions is comparable to their monolingual White-European peers [9]. However, Ramírez-Esparza *et al.* found that Latinx infants, also benefited from listening to parentese-speech in *group* settings [8]. The authors explained bilinguals' extended benefit in terms of the cultural ecologies present within the bilingual households. Group interactions are central to the Latinx community [10,11], such that the cultural values of bilingual families afforded their infants the ability to navigate language learning in group interactions.

The impact of the quality of interactions for bilingual language development extends after one year of age. For example, Chen and Ren [12] demonstrated that

Figure 1



Socio-ecology, language learning and the effects of bilingualism. The figure shows: **(a)** how learning a second language is dependent upon the socio-ecologies of the language learner; **(b)** that once an individual becomes bilingual, a myriad of positive effects at the cognitive and social level will follow; and **(c)** the effects of bilingualism will in turn influence bilinguals' socio-ecologies.

Chinese–English bilinguals in preschool programs benefit from growing up in a household that promotes a literacy environment. Specifically, those children whose parents read to them in English and/or Chinese had better English and/or Chinese language abilities than those with no parental reading. An earlier study reported similar findings among Spanish–English bilingual preschoolers [13], in which parental reading was beneficial for bilingual language development, but particularly for Spanish language learning.

Societal environments

Language maintenance or language learning at a later age is dependent of other societal factors, including a country's language policies. While there are countries that officially recognize multiple languages (e.g. 23 in India [14]) others only officially recognize one language. For example, the United States harbors an emphasis on monolingualism, in spite of being a country historically populated by immigrants. What accounts for this combination of monolingualism and multiculturalism in the United States? First, since English is considered the world's lingua franca, there is little interest for learning a second language. In addition, prevalent negative stereotypes of certain cultural groups allow their languages to be considered low-status. Thus, immigrants discourage their children from using their heritage language to avoid such stereotypes and assimilate to the mainstream culture [3]. Finally, there is still a widespread, incorrect, belief that bilingualism is associated with poor literacy outcomes [15]. Because of a combination of these factors, scientists, policy makers, educators, and caregivers push bilingualism aside in favor of the mainstream English language.

Effects of bilingualism

There is an increased scientific interest for understanding the effects of bilingualism, including its myriad of cognitive advantages [16]. Although this research has also been recently criticized (e.g. [17]), there is still a widespread conception that bilingualism encourages cognitive advantages [18]. In recent years, however, there has been upsurge of research on the advantages of bilingualism from a social perspective.

Ikizer and Ramírez-Esparza [19] carried out a study to extrapolate bilinguals' cognitive flexibility (i.e. the ability to switch between different mental sets [20]) to social advantages. The authors hypothesized that bilingualism would be associated with increased social flexibility, or the ability to switch between different social environments with ease by reading social cues in the environment. Accordingly, bilinguals scored higher on social flexibility than monolinguals on self-reports, and social flexibility mediated the correlation between being a bilingual and the frequency of social interactions. In another relevant study [21], multilingualism was associated with higher scores of cognitive flexibility from a social perspective, or the ability to understand and reproduce information in multiple ways, on self-reports. Further, this variety of increased cognitive flexibility among speakers of multiple languages was associated with higher deprovincialization (i.e. a less ethnocentric view of the world), which then promoted higher out-group acceptance.

Another series of studies have extensively analyzed the relationship between bilingualism and specific positive

personality traits, such as tolerance to ambiguity which refers to how individuals process information about ambiguous situations [22]. In general, these studies find that being multilingual, as well as having the experience of living abroad are associated with higher tolerance to ambiguity [22,23]. Further, higher tolerance to ambiguity is associated with positive attitudes towards using different languages in different social contexts [23,24]. Bilingualism is also associated with other positive personality traits, such as higher cognitive empathy [25], higher cultural empathy, and open-mindedness [26].

Although these studies show promising new support for the positive advantages of bilingualism from a social perspective, they also have some important limitations. For example, the studies are correlational and rely on self-reports, which bilinguals' cultural values have been shown to influence their subsequent responses [27]. Furthermore, the studies could be confounded with other individual characteristics, such as multiculturalism [4]. This is especially important given the research showing that bilinguals who also identify as bicultural change their personalities as they alternate between their two languages [28]. Therefore, the use of other methodological approaches, such as diaries [29] and modern electronic recording devices [30] could advance the field of bilingualism by exploring how bilinguals express such positive attributes among natural everyday interactions.

Effects of bilingualism and socio-ecology

How are the effects of bilingualism shaping the socio-ecologies of individuals at the interpersonal and societal level? In the United States, caregivers, scientists, policy makers, and educators are only beginning to grasp the personal, cognitive and social implications of bilingualism. Therefore, there has been a movement to push bilingualism as the norm, rather than the exception, throughout the United States, as well as for understanding how bilingualism affects the socio-ecologies of individuals.

Interpersonal environments

Researchers focused on language development from infancy have trained families to use high-quality speech with their infants, which have contributed to develop interventions for language learning. For example, a group of parents were coached to use parentese-speech in one-on-one interactions with their six-month-old infants, while other parents served as controls (i.e. no coaching). Infants in the coaching group produced more babbling and more words later in their lives [31]. This pattern of language development seen in monolingual infants led researchers to investigate if such a high-quality intervention approach can extend to second language learning at very young ages. Ferjan Ramirez and Kuhl [32**] implemented the high-quality intervention program in public schools in Madrid, Spain—where in the last years,

bilingual programs have been established to introduce English to children 0–3 years of age. The results demonstrated that bilingual programs are most effective if they include a high-quality intervention method, such as using parentese-speech, along with other highly social games and activities.

Societal environments

Although only in recent years has bilingual education gained popularity among policy makers [33] and educators [34] in the United States (also see Ref. [35]). For example, New York City has successful bilingual programs that enroll over 10 000 students from varying backgrounds and abilities [34]. Nonetheless, there are still many challenges necessary to overcome. One of these challenges is the difficulty to enroll in these bilingual programs [36,37]. For example, in Phoenix, English-native speakers can attend a bilingual program to learn Spanish, but a Spanish–English bilingual is not eligible to attend [37]. Another challenge is that in spite of public schools' interest to establish bilingual programs, it has been extremely difficult to find bilingual educators [38].

Research that focus on the socio-ecologies of individuals shows that bilingualism has an impact on the labor market in the United States. For example, businesses prefer to hire multilingual employees [39], but are typically placed in sectors that require extensive interpersonal contact [40]. However, there is evidence that bilinguals are not necessarily paid more for their attractive ability to speak two languages [41]. Thus, the research on the bilingual advantage within the labor market has just begun and faces the same challenges as other research within the field. Specifically, it is incredibly difficult to control for level of bilingualism, as well as other confounding variables such as socio-economic status, immigration status, discrimination, and citizenship. Still, it seems that bilingualism benefits the United States labor market, especially for English-dominant bilinguals [37].

Another current line of research has focused on understanding the challenges of using a second-language in different environments. For example, bilingual individuals make different ethical decisions and judgments depending on whether the information is presented in their native, or second language ([42] for reviews see Refs. [43,44]). This research has implications not only in everyday choices made by multicultural and multilingual individuals, but also in decisions made by world leaders [45].

Concluding remarks

As discussed here, bilingualism has a positive impact on a wide range of cognitive and social aspects. Bilingualism is associated with having an open view of the world, as well as heightened social flexibility and empathy. Thus, we suggest that socio-ecologies that encourage bilingualism become the norm, rather than the exception. Given that

access to public bilingual education in the United States is still very difficult, we recommend that parents immerse their children in a bilingual environment from infancy. Bilingual caregivers should take the opportunity to use parentese-speech in both languages while engaging in one-on-one interactions with their infants. Although caregivers naturally stop using parentese-speech as children grow older, one-on-one interactions remain important for language development (e.g. [46]). Therefore, having these interactions and a well-established literacy environment at home [12,13] can benefit bilingual development during the preschool years.

For school-age years, caregivers should access other bilingual opportunities within the community. For example, the Chinese's high value towards bilingualism fueled the development of a school where children learn to speak and write Chinese during the weekends. This effort will certainly pay off in the future, and manifest as a blossoming labor market and an overall sense of affective well-being among adolescents (e.g. [47]).

Finally, it is important to highlight that bilinguals learn their two languages, as well as the cultural values associated with such languages, simultaneously [8**]. In other words, acquiring an additional language leads to acquiring an additional culture [48]. Therefore, current directions are aiming to provide evidence towards bilingualism's impact above and beyond multiculturalism [49]. Although there is much more to be done, today's globalized world provides exciting opportunities to concentrate efforts into understanding the minds and the socio-ecologies of individuals who speak multiple languages.

Conflict of interest statement

Nothing declared.

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