

## Defining Bilingualism

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*“The first [challenge] is to define bilingualism....” (Bialystok, 2015:5).*

Bilingualism is not a new linguistic phenomenon, and people have been speaking more than one language since ancient times (Cenoz, 2013). In fact, it is now the world’s monolinguals who are the minority, as the majority of the world’s population grow up speaking more than one language (Ortega, 2009). Despite this, a definition of the term “bilingualism” lacks consensus, and without a clear definition, the language sciences and related disciplines have developed multiple descriptions and interpretations throughout the last century (Hamers & Blanc, 2000).

Of course, when seeking to define any term, one always needs to look at why a definition is important. Bilingualism impacts on areas as diverse as education; in assessing which language instruction should be in, brain function; how the languages relate and affect the speaker, and identity; does the speaker relate to one language more than the other? With such a broad range of applications, it is important to work towards a way to ensure that the term is clearly defined and understood.

Factors such as the age of language acquisition and the domains of use (Bialystok, 2015; Grosjean, 2014; Li, 2000), all impact on the development of an all-encompassing definition, and this bilingual diversity has meant that such a definition has not been clearly established. Consequently, there are many different ways to describe bilinguals and researchers generally decide on their own definition according to their subjects’ classification, and their own research objectives (Cenoz, 2013).

Given the diversity of bilinguals, when researchers need to provide a measurement of their subjects, it becomes challenging. How can we give a starting point for what scholars and researchers are attempting to measure if there is no definition? (Slatyer, 2006). In recent years many bilingualism scholars have begun to call for measurement tools to be devised in order to make research more uniform and reliable within the field (The Authors, 2011).

In this essay, I will firstly outline why a definition of bilingualism is important. Secondly, I will provide an overview of how the definition has evolved over time. Thirdly, I will follow this with an analysis of why that definition has proven to be difficult, and finally I conclude with an outline of where the issue of a definition for bilingualism may go from here.

## Why is a Definition of Bilingualism Important?

While a unique definition of bilingualism has evaded even the experts (Myers-Scotton, 2009), it remains an important challenge because it has implications that span such diverse areas as immigration policies (Chen et al., 2008), designing linguistic and educational policy (Baetens Beardsmore, 2009; Shin 2017), cognition, thought, identity (Chen, 2014; Dressler, 2014), and in conducting research (Slatyer, 2006).

Many countries have long accepted immigrants who require language education for successful integration into their new country's population (Chen et al., 2008). As a result, bilingualism has heavily influenced language and education strategies within immigration policy. However, frequently there is little effort to educate the new arrivals in the country's dominant language, with much of the education being left to the immigrants themselves (Pillar, 2013). There is also little effort made in defining the level of language proficiency these new immigrants are required to acquire. Are they judged on verbal communication skills alone? How is their bilingual ability defined? How can we ascertain when immigrants have reached the level of cognition in their new language to feel that they are truly integrated?

Language and cognition have always been thought to have been deeply intertwined, and this is particularly prevalent in younger children, as it affects their cognitive development throughout their lifetime. Indeed, learning a language at any age may contribute to a change in one's cognitive systems (Bialystok, 2015). In earlier publications, bilingualism was presented with a negative view, as results such as IQ scores appeared to favour monolingual subjects (Saer, 1923).

In an early Welsh study by Saer (1923), bilingual children were reported to have a lower IQ than their monolingual peers, and it was thought their bilingualism had also led to language confusion. Arsenian (1937), Jensen (1962) and Diaz (1983) also reported that bilingualism was an intellectual handicap which confused children's minds (as cited in Hakuta & Gould, 1987, p. 41). It was Peal and Lambert's (1962) revolutionary study which reported positive effects of bilingualism, and discredited negative prejudices, paving the way for a more positive turn in the research. Although bilingualism is nowhere near clearly understood or defined, these studies were carried out before features such as the *lead-lag issue* (Myers-Scotton, 2009) or the *weaker links hypothesis* (Gollan et al., 2008) were recognized or established as phenomena which would produce so-called negative results.

The *lead-lag issue* proposes that bilingual children are found to have a smaller vocabulary when compared to monolinguals, but a larger or equal lexicon when their languages are combined. The *weaker links hypothesis* asserts that, as bilinguals have to share the frequency of use between two languages, they will show poorer language skills in each language compared to monolinguals who have exclusive use of the one language (Gollan et al., 2008). As a result, it was common for doctors, clinicians, teachers and psychologists to advise parents and carers against raising their children bilingually, consequently, many heritage languages were lost amongst these families (Romaine, 2017). However, how bilingual do children have to be for the *lead-lag issue* and the *weaker links hypothesis* to have an affect on their language abilities?

Research has shown that architects, London taxi drivers and jugglers all have adapted brain structures in keeping with their profession or experience, and that this impacts on their cognitive ability (Bialystok, 2010, p. 559). This is also increasingly evident among bilinguals, where evidence has been found of an impact upon cognitive function. Due to the demands of processing and controlling two languages, bilinguals have shown greater activity in the language related areas of the left hemisphere compared to monolinguals (Costa & Sebastian-Galles, 2014). Research is increasingly reporting the positive benefits of bilingualism and many now consider it to be an asset (Luk & Bialystok, 2013; Ramirez & Kuhl, 2017).

Research is now more focused on specific measurable details of bilingualism than was previously the case, and progress in technology now allows for neuroimaging, with the differences between monolinguals and bilinguals shown in physical images (van Heuvena & Dijkstra, 2010). This has led to an understanding that bilingualism, with its relationship to cognition, has the potential to affect neuroplasticity in the brain. While it was once believed that the brain could not rewire itself after brain injury, it is now understood that the brain constantly rewires itself throughout life (Bialystok, 2015). However, what proficiency is necessary for these bilingual brain differences to be observed in an individual? To truly understand how this rewiring is impacted by bilingualism, a definition is needed, and the means by which bilinguals with diverse experience can be measured against it.

In the 1930's the Sapir-Whorf hypothesis that language shaped thought was an exciting concept to linguists (Koerner, 1992). However, with no evidence, it was discredited and had lost the interest of researchers by the 1970's (Boroditsky, 2011). After several decades the hypothesis has re-emerged with a strong body of evidence, and some researchers (see Thibodeau et al., 2017; Boroditsky, 2011, 2018 for examples) have now begun to consider that language influence on thought is a reality. However, if a person is bilingual how much of their multiple languages will influence their thought patterns and interaction with the world? For example, metaphorical language used in everyday life influences the way we think, even if it is literally incorrect (Thibodeau et al., 2017). Again, a definition of bilingualism will greatly assist as these questions are researched.

Another area of research which focuses on the conception of time shows that whilst English speakers organize the conception of time vertically, Mandarin speakers will do so horizontally, and others in cardinal directions depending on the languages they speak (Boroditsky, 2001, 2018). That is, in a study by Boroditsky (2018), Australian Kuuk Thaayorre aboriginals were given pictures showing the natural progression of time and asked to organize them in chronological order. The subjects arranged the pictures in different cardinal directions depending on the direction in which they were seated. These people defined their understanding of time and chronology according to their location, and this was due to their language and how it dealt with such concepts (Boroditsky, 2018). So, a bilingual's linguistic repertoire will impact on their cognitive ability and how they see and interact with the world (Boroditsky, 2001, 2018). How will these findings affect a bilingual speaker, will they lean towards their dominant language or will they have two ways of thinking? And to what degree does this research need to be taken into account when seeking a definition of bilingualism?

Furthermore, how will a bilingual's languages influence their identity? With language and identity being inextricably intertwined, people across the globe have reported having felt lost with the demise of their ethnic languages (Borland, 2005). Whilst speakers of majority languages cannot identify with this loss, their bilingualism is in no way diminished, and certainly provides a piece of the puzzle that forms their identity. The degree of proficiency that a bilingual needs in order for it to have an influence on their identity is an area that does not appear to have been addressed in the literature, and is deserving of further research.

In more recent years, emerging research has also indicated that bilingualism has medical implications, such as the slowing of cognitive aging (Bak et al., 2014; Bialystok et al., 2014), and less severe aphasia following stroke (Paplikar et al., 2018). In an area such as this, where precision is essential, successful research will be dependent on having a clear set of definitions for degrees of bilingualism, and the means by which people can be measured against those.

Researchers working within the bilingualism field need to be able to categorize the type of bilingualism applicable to their subjects (The Authors, 2011). Having no consensus around a definition, researchers and scholars have proposed a range of terms and definitions to describe different types of bilingual speakers:

- Simultaneous—those who grow up learning two languages simultaneously;
- Early—those who learn two or more languages early in childhood;
- Late—those who learn another language later than childhood;
- Passive—those who can understand a language in its spoken or written form but cannot speak or write it;
- Balanced—someone whose two languages are of almost equal ability (see Li, 2000, p. 6 for other examples).

And the list goes on. This sort of substantial list reflects the significant diversity of experience across bilinguals (Grosjean, 1992).

As bilingualism intersects with a broad range of disciplines, including linguistics, psycholinguistics, psychology, sociology, education and neuroscience (Baker, Prys Jones, 1998), experts in each discipline have developed definitions of bilingualism that fit their particular research paradigms, research methods, and methods of measurement for testing their hypotheses (Cenoz, 2013).

In order to produce a universally accepted definition, interdisciplinary cooperation across a range of fields is required. Some of the factors that need to be taken into account in the definition are:

- The age of language acquisition
- How the language was learnt
- Domains of use
- The subject's proficiency in each language in each of the four skills (speaking, writing, listening and reading) (Li, 2000).

All of these points need to be carefully investigated and determined (Bialystok, 2015, p. 6). Only when there is a clearer definition of bilingualism, along with an understanding of which aspects of bilingualism

are the foundations of cognitive change, will the various fields influenced by it be truly able to advance with reliable scientific research.

### **How has the Definition of Bilingualism Evolved Over Time?**

In the late 20th century many linguists began to turn their efforts towards a newly recognized field (Romaine, 1989), one that would become known as bilingualism. Various definitions have been developed traversing the entire bilingual continuum. At one end of the scale is the maximalist high standard proposed by Bloomfield (1933), that bilingualism is “the native control of two languages” (p. 56). However, later researchers saw this view as too severe, and Diebold (1964) and MacNamara (1969) suggested a minimalist view stating that speakers who only knew or recognized a few phrases in another language were bilingual, or that one should be considered bilingual even with only basic skills.

Taking a more moderate stance, Haugen (1953) defined bilingualism as “the point where a speaker can first produce complete meaningful utterances in the other language” and although that requires more than Diebold and MacNamara’s definition, it is a significantly lower standard than Bloomfield’s (p. 7).

“The alternate use of two or more languages by the same individual” was a definition presented by Mackey (1962) in 1962 (p. 52). Weinreich (1968) also agreed with Mackey, proposing what would become one of the most influential definitions in 1968 saying “The practice of alternatively using two languages will be called [here] bilingualism, and the person involved bilingual” (p. 1). These researchers placed emphasis on the usage of the languages rather than the speaker’s proficiency levels, and this thinking was continued by Hamers and Blanc (2000) when they said that a speaker’s language may not be used equally, but that the ability to interchange and select the appropriate language in accordance to time, place, purpose and social context would make the individual considered bilingual. Later, Grosjean (2008) also placed focus on usage saying that “the bilingual uses the two languages—separately or together—for different purposes, in different domains of life, with different people” (p. 14).

Myers-Scotton (2009) in her book about bilingualism considered speaking skills most important, placing emphasis on proficiency towards the lower end of the bilingual continuum, she said that “bilingualism is the ability to use two or more languages sufficiently to carry on a limited casual conversation” (p. 44).

Perhaps the most flexible and liberal definition was proposed by Li (2008) when he defined a bilingual as “anyone who can communicate in more than one language, be it active (through speaking and writing) or passive (through listening and reading)” (p. 4).

Despite all of these attempts by scholars and others to define bilingualism, the term remains ambiguous. With definitions spanning the entire bilingual continuum, from minimalist comprehensible utterances at one end of the scale, to maximalist high functioning native-like speakers at the other, the question still remains: what exactly is bilingualism?

## **Why has a Definition of Bilingualism Been Difficult?**

As a result of these different definitions, papers in each disciplinary area often report contradictory findings (Cummins & Swain, 2014), and there have even been some scholars calling out publication bias in certain disciplines involving bilingualism (De Bruin et al., 2014; Sanchez-Azanza et al., 2017). A recent example of this involves some studies investigating the decline of cognitive skills and the aging process in bilinguals. Due to methodological weaknesses such as “the conception of bilingualism and the assessment of language proficiency” these studies reported inconsistent findings. Replication studies and meta analysis is also hampered when researchers define bilingualism with different criteria (Calvo et al., 2016, p. 4).

A standardized definition is also difficult when there are so many different types of bilingual experiences, how can bilingualism be defined when each bilingual’s experience is unique? For example, most people have taken a language course at some stage in their lives or have been required to learn a foreign language during their formal education (Block & Cameron, 2002; Harmer, 2015), but does having a few comprehensible phrases in a language make one bilingual? Then there is the case of the Swedes, Danes and Norwegians, who often become passive bilinguals with respect to one another’s Scandinavian languages, even though they never speak or write in that language. Are they also to be considered bilingual? (Gooskens, 2007). And are immigrants who refuse to speak their heritage language in their new country still thought to be bilingual? What about speakers who are fluent in Mandarin or Cantonese, but who cannot read or write the complex Chinese characters? According to bilingual definitions are all or any of these bilingual? And are we to base a definition solely on speaking skills?

In the face of diverse issues such as a bilingual’s age of acquisition, learning environments, and domains of use, it’s clear that the questions that surround bilingualism are many and varied, and one can soon see why a definition has been so elusive. Whilst there have been many proponents in various disciplines more than prepared to offer their view of bilingualism, the difficulties in providing a firm definition begin when measurement of the degree of bilingualism is attempted (Baker, 2001), as measurement requires something concrete against which to compare.

## **Where to From Here**

As a starting point for research into bilingualism, the first thing a researcher must do is to determine the skills of their subject, or measure the degree of their bilingualism (Mackey, 1962). Whilst a bilingual will rarely speak both languages with equal fluency (Fishman, 1972; Grosjean, 2010), determining their bilingual proficiency is of utmost importance for research to progress in any area of bilingualism (The Authors, 2011). One of the biggest challenges of bilingual research in the language sciences has been the fact that bilinguals have always been compared and measured against monolinguals, with the same aptitude tests being used to measure their language competence (Cenoz, 2013; Grosjean, 1992).

Recognizing the need for more models and criteria to assist with the production of more valid results,

and to provide more consistency across their research, in recent years researchers have begun to call for, and design, instruments to be used purely within the bilingual population. For example, Dunn and Fox Tree (2009) developed *The Bilingual Dominance Scale* which would put respondents on a gradient scale to measure their language dominance (Dunn & Fox Tree, 2009), and Luk and Bialystok (2013) created a *Language and Social Background Questionnaire* which investigates the demographics of the participants, the domains of usage and the frequency of use. This was used along with the *Peabody Picture Vocabulary Test III* (Dunn & Dunn, 1997) and the *Expressive Vocabulary Task* (Williams, 1997) to ascertain the participant's bilingual levels of speaking and listening. Despite these initiatives, the search for a more concrete definition of bilingualism and its determiners is far from over, with researchers continually developing and creating new instruments.

With bilingualism encompassing so many disciplines, research and sociological areas, it is necessary to work towards a universal definition. However, trying to define bilingualism is like opening a Pandora's box. There are so many factors influencing the diverse bilingual experience that it may continue to be a phenomenon with no real consensus around its definition. Ardila (1998) called "bilingualism a neglected and chaotic area", and whether a single clear definition can be developed is questionable (p. 131). As Malherbe (1969) concluded, it is doubtful that such a definition can be provided for the field, and perhaps a definition is only available in different terms to describe each individual speaker.

## References

- Ardila, A. (1998). Bilingualism: A neglected and chaotic area. *Aphasiology*, *12*, 131–137. doi:10.1080/02687039808250468
- Baetens Beardsmore, H. (2009). Bilingual Education: Factors and Variables. In O. Garcia (Ed.), *Bilingual education in the 21st Century* (137–157). Malden: Wiley-Blackwell.
- Bak, T. H., Nissan, J. J., Allerhand, M. M., & Deary, I. J. (2014). Does bilingualism influence cognitive aging? *Annals of Neurology*, *75*(6), 959–963. doi:10.1002/ana.24158
- Baker, C., & Wright, W. E. (2017). *Foundations of bilingual education and bilingualism*. (6th ed.). Bristol: Multilingual Matters.
- Baker, C. and Prys Jones, S. (Eds.). (1998). *Encyclopedia of bilingualism and bilingual education*. Clevedon: Multilingual Matters.
- Bialystok, E. (2010). Bilingualism. *Cognitive Science*, *1*(4), 559–572. doi:10.1002/wcs.43
- Bialystok, E. (2015). The impact of bilingualism on cognition. In R. Scott & S. Kosslyn (Eds.), *Emerging Trends in the Social and Behavioral Sciences*. ON: John Wiley & Sons. doi:10.1002/9781118900772
- Bialystok, E., Poarch, G., Luo, L., & Craik, F. I. (2014). Effects of bilingualism and aging on executive function and working memory. *Psychology and aging*, *29*(3), 696–705. doi:10.1111/cdep.12116
- Block, D., & Cameron, D. (Eds.). (2002). *Globalization and language teaching*. London: Routledge.
- Bloomfield, L. (1933). *Language*. New York: Henry Holt.
- Borland, H. (2005). Heritage languages and community identity building: The case of a language of a lesser status. *The International Journal of Bilingual Education and Bilingualism*, *8*(2&3), 109–123. doi:10.1080/13670050508668600
- Boroditsky, L. (2001). Does language shape thought?: Mandarin and English speakers' conceptions of time.

- Cognitive Psychology*, 43, 1–22. doi:10.1006/cogp.2001.0748
- Boroditsky, L. (2011, February). How language shapes thought: The languages we speak affect our perceptions of the world. *Scientific American*, 63–65.
- Boroditsky, L. (2018). Language and the construction of time through space. *Trends in Neurosciences*. Vol. 41(10), 651–653. doi:10.1016/j.tins.2018.08.004
- Calvo, N., García, A. M., Manoilloff, L., & Ibáñez, A. (2016). Bilingualism and cognitive reserve: A critical overview and a plea for methodological innovations. *Frontiers in Aging Neuroscience*, 7. doi:10.3389/fnagi.2015.00249
- Cenoz, J. (2013). Defining multilingualism. *Annual Review of Applied Linguistics*, 33, 3–18. doi:10.1017/S026719051300007X
- Chen, S. X. (2014). Toward a social psychology of bilingualism and biculturalism. *Asian Journal of Social Psychology*, 18, 1–11. doi:10.1111/ajsp.12088
- Chen, S. X., Benet-Martinez, V., & Bond, M. H. (2008). Bicultural identity, bilingualism, and psychological adjustment in multicultural societies: Immigration-based and globalization-based acculturation. *Journal of Personality*, 76(4), 803–838.
- Costa, A., & Sebastian-Galles, N. (2014). How does the bilingual experience sculpt the brain? *Neuroscience*, Vol. 15, 336–345.
- Cummins, J., & Swain, M. (2014). *Bilingualism in education : Aspects of theory, research and practice*. Oxon: Routledge.
- De Bruin, A., Treccani, B., & Della Sala, S. (2014). Cognitive advantage in bilingualism: An example of publication bias? *Psychological Science*, 26(1), 99–107. doi:10.1177/0956797614557866
- Diebold, R. (1964). Incipient bilingualism. In D. Hymes, (Ed.), *Language in Culture and Society*. (495–511). New York: Harper & Row.
- Dressler, R. (2014). Exploring linguistic identity in young multilingual learners. *TESL Canada Journal*, 32(1), 42–52. doi:10.18806/tesl.v32i1.1198
- Dunn, L. M., & Dunn, L. M. (1997). *Peabody Picture Vocabulary Test* (3rd ed.). Bloomington, MN: Pearson Assessments.
- Dunn, A. L. and Fox Tree, J. E. (2009). A quick, gradient bilingual dominance scale. *Bilingualism: Language and Cognition*, Vol. 12 (3), 273–289. doi:10.1017/S1366728909990113
- Fishman, J. (1972). *Advances in the Sociology of Language*. The Hague: Mouton.
- Gollan, T., Montoya, R. I., Cera, C., & Sadoval, T. C. (2008). 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. doi:10.1016/j.jml.2007.07.001
- Gooskens, C. (2007). The contribution of linguistic factors to the intelligibility of closely related languages. *Journal of Multilingual and Multicultural Development*, 28(6), 445–467. doi:10.2167/jmmd511.0
- Grosjean, F. (1992). Another view of bilingualism. *Advances in Psychology*, 83, 51–62. doi:10.1016/s0166-4115(08)61487-9
- Grosjean, F. (2008). *Studying Bilinguals*. Oxford: Oxford University Press.
- Grosjean, F. (2010). *Bilingual: Life and reality*. Cambridge, MA: Harvard University Press.
- Hakuta, K., & Gould, L. (1987, March). Synthesis of research on bilingual education. *Educational Leadership*, 38–43.
- Hamers, J., & Blanc. M. (2000). *Bilinguality and bilingualism*. (2nd ed.). Cambridge: Cambridge University Press.
- Harmer, J. (2015). *The practice of English language teaching*. (5th ed.). Essex: Pearson.
- Haugen, E. (1953). *The Norwegian language in America: A study in bilingual behavior*. Philadelphia:



- University of Pennsylvania Press.
- Hoff, E., & Luz Rumiche, R. (2012). Studying children in bilingual environments. In E. Hoff, (Ed.), *Research Methods in Child Language: A Practical Guide*. (300–316). Oxford, UK: Wiley-Blackwell.
- Koerner, E. F. K. (1992). The Sapir-Whorf hypothesis: A preliminary history and a bibliographical essay. *Journal of Linguistic Anthropology*, 2(2), 173–198. doi:10.1525/jlin.1992.2.2.173
- Li, W. (2000). Dimensions of bilingualism. In W. Li, (Ed.). *The bilingualism reader*. Oxon, UK: Routledge.
- Li, W. (2008). Research perspectives on bilingualism and multilingualism. In W. Li & M. Moyer (Eds.), *The Blackwell handbook of research methods on bilingualism and multilingualism* (3–17). Oxford, UK: Blackwell.
- Luk, G., & Bialystok, E. (2013). Bilingualism is not a categorical variable: Interaction between language proficiency and usage. *Journal of Cognitive Psychology*, 25(5), 605–621. doi:10.1080/20445911.2013.795574
- Mackey, F. W. (1962). The description of bilingualism. In J. Fishman (Ed.), *Readings in the sociology of language* (554–584). The Hague: Mouton.
- MacNamara, W. (1969). How can one measure the extent of one person's bilingual proficiency? In L. G. Kelly (Ed.), *Description and Measurement of Bilingualism: An International Seminar, University of Moncton, June 6–14, 1967*. (80–98). Buffalo, NY: University of Toronto Press.
- Malherbe, E. G. (1969). Comments on “How and when do persons become bilingual?” In L. G. Kelly (Ed.), *Description and Measurement of Bilingualism: An International Seminar, University of Moncton, June 6–14, 1967*. (41–52). Buffalo, NY: University of Toronto Press.
- Myers-Scotton, C. (2009). *Multiple Voices: An Introduction to Bilingualism*. MA: Blackwell Publishing.
- Ortega, L. (2009). *Second Language Acquisition*. Oxon: Routledge.
- Paplikar, A., Mekala, S., Bak, T. H., Dharamkar, S., Alladi, S., & Kaul, S. (2018). Bilingualism and the severity of poststroke aphasia, *Aphasiology*, 1–15. doi:10.1080/02687038.2017.1423272
- Peal, E., & Lambert, W. (1962). The relation of bilingualism to intelligence. *Psychological Monographs*, 76, 1–23. doi:10.1037/h0093840
- Pillar, I. (2013, December 4). Monolingualism is bad for the economy. *Language on the move*. Retrieved from <http://hdl.handle.net/1959.14/1076221>
- Ramirez, N. F., & Kuhl, P. (2017, May). The brain science of bilingualism. *Young Learners*, 38–44.
- Romaine, S. (1989). *Bilingualism*. Oxford: Blackwell Publishers Ltd.
- Romaine, S. (2017). *Multilingualism. The Handbook of Linguistics*, (541–556). (2nd ed.). In M. Aronoff & J. ReesMiller (Eds.), NJ: John Wiley & Sons. doi:10.1002/9781119072256.ch26
- Saer, D. J. (1923). The effects of bilingualism on intelligence. *British Journal of Psychology*, 14, 25–38.
- Sanches-Azanza, V., Lopez-Penades, R., Buil-Legaz, L., Aguilar-Mediavilla, E., & Adrover-Roig, D. (2017). Is bilingualism losing its advantage? A bibliometric approach. *PLoS ONE* 12(4): e0176151. doi:10.1371/journal.pone.0176151
- Shin, S. (2017). *Bilingualism in schools and society. Language, identity and policy*. (2nd ed.). New York: Routledge.
- Slatyer, H. (2006). *LING928 Bilingualism course notes*. Sydney: Macquarie University.
- The Authors. (2011). Special Issue, The measurement of bilingual proficiency: Introduction. *International Journal of Bilingualism*, 15(2), 1–5. doi:10.1177/1367006910380036
- Thibodeau, P., Hendricks, R., & Boroditsky, L. (2017). How linguistic metaphor scaffolds reasoning. *Trends in Cognitive Sciences*, Vol. 21(11), 852–863. doi:10.1016/j.tics.2017.07.001
- van Heuvena., W. J. B., & Dijkstrab, T. (2010). Language comprehension in the bilingual brain: fMRI and ERP support for psycholinguistic models. *Brain Research Reviews*, 64(1), 104–122. doi:10.1016/j.

brainresrev.2010.03.00

Weinreich, U. (1968). *Languages in contact: Findings and problems*. The Hague: Mouton.

Williams, K. T. (1997). *Expressive Vocabulary Test*. Circle Pines, MN: American Guidance Service.

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