

Introduction

The ability to proficiently use two or more languages, which often vary substantially in structure, form, and meaning, is among the most sophisticated of human cognitive abilities. The April 2016 CCERBAL conference that led to these proceedings was a unique occasion for researchers, teachers, students, and all others with an interest in bilingual development to come together and discuss bilingual acquisition and behaviour. They gathered and shared knowledge and ideas, with a specific focus on bilinguals who have learned both their languages from birth, otherwise known as simultaneous bilinguals.

Simultaneous bilinguals are not the primary focus of most psychological, linguistic, and pedagogical studies, thus giving this event a unique flavour and impact. In terms of language development, the extant literature on bilinguals has predominantly focused on children and adults learning a second language, known as sequential bilinguals (for a review, see Paradis, 2007). As most children begin learning a second language in school, this work necessarily involves bilinguals beyond the infancy/toddler period (e.g., Goldberg, Paradis, & Crago, 2006). While this literature is informative for parents who exclusively speak a language different from the majority language at home or who wish to place their children in immersion programs, it does not inform parents who raise children bilingually from birth. In Canada, for example, this is not a rare decision, especially for those living in a region that promotes official bilingualism (English, French), or for immigrant parents wishing to expose their children to a home language and an official language simultaneously (e.g., Mandarin–English). For these parents, questions often directly involve language development. When do bilinguals first comprehend and produce words? Do they have fewer words overall, or in their respective languages? Further, parents wish to know what environmental factors influence language acquisition in simultaneous bilinguals. Is there a critical amount of exposure to each language necessary? What family and cultural practices best promote early bilingualism? These questions are also increasingly of interest to researchers exploring how children begin to gain proficiency in two languages and are informative for theories of language development in general. These are the types of questions that were specifically addressed at our conference, and subsequently in these proceedings.

Our conference also had a decided focus on experimental work. The extant small literature on simultaneous bilinguals' language development contains many case studies (e.g., De Houwer, 1990; Lanza, 1997; Quay, 1995). Such studies can inspire experimental work (see Chan & Nicoladis, 2010), but are limited in scope and cannot be automatically generalized to larger populations.

Thus, one of our objectives was to highlight such experimental work. As can be seen in the papers contained herein, we accomplished this objective. The vast majority of the articles present novel experimental work and all review experimental studies involving simultaneous bilinguals.

Considering our focus on individuals learning two languages from birth, it is not surprising that our conference and these proceedings have a focus on developmental science. Many of the scientific findings presented there and herein involved infants and children who are in the process of acquiring two languages. It was therefore our hope that the meeting would contribute to language acquisition theories. Most theories over the last half-century have focused more on innate language mechanisms and less on input, in light of Chomsky's (1959) critique of behaviourist approaches. Accordingly, many theories would predict that children would rapidly learn words via these mechanisms in both languages, regardless of input differences (i.e., monolinguals and bilinguals would have similar development; see Fennell & Byers-Heinlein, 2014). Constructivist theories (e.g., Bates et al., 1999), on the other hand, focus on how children use innate, domain general learning mechanisms to extract language regularities (e.g., word-referent regularities, see Hoff, 2006) over time (i.e., their experiences). These usage-based theories are supported by findings that demonstrate that input is intricately tied to learning. Thus, bilinguals are an excellent test case for such theories, as we can vary input within the same child. Less experience with one language may lead to slower processing/less accuracy in that language. Again, the papers in these proceedings demonstrate that we accomplished this goal. Their results demonstrate that input does matter, and that these data with individuals learning two languages from birth can inform current theories of language acquisition and teaching.

Our final stated aim was to bring together international, high-calibre researchers, policy workers, and practitioners working in the field of the acquisition (learning and teaching) of multiple languages. In that regard, we have no doubt concerning our success. Our invited symposia and peer-reviewed presentations provided forums for in-depth discussions of how the seeds of bilingualism planted during infancy grow across the lifespan, with a particular focus on how the environment of the bilingual (e.g., parental input, cultural support, family practices) affects linguistic, social, and cognitive development. The richness of the conference was greatly enhanced by the diversity of approaches present, including those reflected in these proceedings, joined with the linguistic diversity of the bilinguals under study, from those learning Canada's official languages (French and English) to those learning native, heritage and minority languages. By inviting linguists, psychologists, neuroscientists, educators, and clinicians, we were able to explore the factors affecting dual-language comprehension and production in simultaneous bilinguals, how

this may change over the lifespan, and the influence of being bilingual on identity. We also explored practices that engender positive bilingual development across the lifespan.

We have put together these proceedings to reflect the spirit of the conference and in consideration of all of above objectives. In light of the developmental focus arising from our focus on simultaneous bilingualism, we have ordered the papers ontogenetically—beginning with infants, then moving to toddlers and school-age children, before finishing with aging populations.

Erika Hoff, one of our keynote speakers, begins this developmental scientific journey by presenting her powerful longitudinal research regarding how the language environments of infant simultaneous bilinguals affect their lexical and grammatical development. She argues that, while the basic language processes are similar between monolinguals and bilinguals, the differences in input have marked effects on their language output.

We then move to the work of Rojo and Echols, who examine novel word learning across English and Spanish in toddlers with a range of language experience—from simultaneous Spanish–English bilinguals to English near-monolinguals with some exposure to Spanish. Of interest, the authors also included a measure of language awareness to examine if explicit awareness of two languages enhances toddlers’ acceptance of labels across two languages. Similar to Hoff, the authors demonstrate that input matters early in development. Simultaneous bilinguals and English-dominant children with moderate exposure to Spanish accepted labels from both languages more so than English near-monolinguals with little exposure to Spanish. Further, there are hints that language awareness aids word learning in this two-language task.

Salvador, Nicoladis, and Diego examined toddlers and early school-age simultaneous English-Tagalog bilinguals, specifically siblings. The goal of the authors was to determine if the language behaviours of older siblings affect the language output of younger siblings. The focus on the familial environment of these young bilinguals reflects some of the ideas presented in the Hoff paper, and the specific concentration on siblings is a powerful contribution, as this is rarely studied in literature. Salvador, et al. discovered that all children in their study spoke the majority language more than the heritage language, regardless of the language behaviours of the older sibling. This is a revealing finding for parents trying to maintain a heritage language at home, although the authors stress their findings may be particular to the heritage culture of the participants.

Considering the next paper by Makarova and Terekhova, they may be correct. These authors examined Russian heritage language skills in young school-age Russian–English bilinguals in an English-dominant culture. When comparing the Russian abilities of these simultaneous bilinguals in English Canada to the same skills in Russian monolingual peers in Russia, the authors found very

few differences. This indicates that parents were successful in maintaining the heritage language in an English-dominant community with little cultural support for Russian.

Working with a similarly-aged population, Fraser, Gottardo, and Geva examined the literacy skills of young Spanish–English and Chinese–English (Mandarin and Cantonese) bilinguals. While not all simultaneous, the bilinguals in this study all learned both languages prior to Grade 2. Echoing the importance of linguistic balance discussed in depth by Hoff, the authors used vocabulary scores to divide the bilingual children into English-dominant, other-dominant, and two balanced groups: high and low. High balanced bilinguals were strong in both languages, whereas low-balanced children were weak in both. The authors found that vocabulary size positively affected reading comprehension across bilingual children with an interesting twist. The children’s English and other language vocabularies both positively correlated with English comprehension, perhaps indicating that general language skills drive reading ability.

The next study also examined young school-age children, but looked at a different high-level language skill: metalinguistic awareness, or one’s ability to consciously think about and examine one’s language(s). Pinto and El Euch’s ambitious research study took place in three different cultures and involved over 200 children of five different language backgrounds: English monolingual, French monolingual, Italian monolingual, English–Italian bilingual, and Italian–French bilingual — with the vast majority of the bilinguals being simultaneous. The authors found stable findings across these diverse samples: bilingual children scored better on a test of metalinguistic awareness than monolingual children. Perhaps unsurprisingly, exposure to two languages enhances children’s ability to think about language itself.

Finally, Dash and her colleagues presented a review of research on how bilingualism — both simultaneous and sequential — provides protection from the effects of aging on cognition. This article demonstrates how the seeds planted in infancy, seen in the first article by Hoff, grow into a strong skill set that can protect against cognitive decline in senescence.

We believe that the studies presented in these proceeding convey the richness and depth of the conference from which they originated. It is our hope that this research will inspire new experiments, new teaching techniques, and new policies and practices. It was our pleasure to host such a rewarding conference and to present you, the reader, with the most up-to-date and exciting findings regarding simultaneous bilinguals.

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