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**Abstract:** Speech-language pathologists play important roles in supporting people to be competent communicators in the languages of their communities. However, with over 7000 languages spoken throughout the world and the majority of the global population being multilingual, there is often a mismatch between the languages spoken by children and families and their speech-language pathologists. This paper provides insights into service provision for multilingual children within an English-dominant country by viewing Australia's multilingual population as a microcosm of ethnolinguistic minorities. Recent population studies of Australian pre-school children show that their most common languages other than English are: Arabic, Cantonese, Vietnamese, Italian, Mandarin, Spanish, and Greek. Although 20.2% of services by Speech Pathology Australia members are offered in languages other than English, there is a mismatch between the language of the services and the languages of children within similar geographical communities. Australian speech-language pathologists typically use informal or English-based assessments and intervention tools with multilingual children. Thus, there is a need for accessible culturally and linguistically appropriate resources for working with multilingual children. Recent international collaborations have resulted in practical strategies to support speech-language pathologists during assessment, intervention, and collaboration with families, communities, and other professionals. The International Expert Panel on Multilingual Children's Speech was assembled to prepare a position paper to address issues faced by speech-language pathologists when working with multilingual populations. The Multilingual Children's Speech website (<http://www.csu.edu.au/research/multilingual-speech>) addresses one of the aims of the position paper by providing free resources and information for speech-language pathologists about more than 45 languages. These international collaborations have been framed around the World Health Organization's International Classification of Functioning, Disability and Health (ICF-CY) and have been established with the goal of supporting multilingual children to participate in society.

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## **Resourcing speech-language pathologists to work with multilingual children\***

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Running head: SLPs in multilingual contexts

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## **ABSTRACT**

Speech-language pathologists play important roles in supporting people to be competent communicators in the languages of their communities. However, with over 7000 languages spoken throughout the world and the majority of the global population being multilingual, there is often a mismatch between the languages spoken by children and families and their speech-language pathologists. This paper provides insights into service provision for multilingual children within an English-dominant country by viewing Australia's multilingual population as a microcosm of ethnolinguistic minorities. Recent population studies of Australian preschool children show that their most common languages other than English are: Arabic, Cantonese, Vietnamese, Italian, Mandarin, Spanish, and Greek. Although 20.2% of services by Speech Pathology Australia members are offered in languages other than English, there is a mismatch between the language of the services and the languages of children within similar geographical communities. Australian speech-language pathologists typically use informal or English-based assessments and intervention tools with multilingual children. Thus, there is a need for accessible culturally and linguistically appropriate resources for working with multilingual children. Recent international collaborations have resulted in practical strategies to support speech-language pathologists during assessment, intervention, and collaboration with families, communities, and other professionals. The International Expert Panel on Multilingual Children's Speech was assembled to prepare a position paper to address issues faced by speech-language pathologists when working with multilingual populations. The Multilingual Children's Speech website (<http://www.csu.edu.au/research/multilingual-speech>) addresses one of the aims of the position paper by providing free resources and information for speech-language pathologists about more than 40 languages. These international collaborations have been framed around the World Health

Organization's International Classification of Functioning, Disability and Health (ICF-CY) and have been established with the goal of supporting multilingual children to participate in society.

## INTRODUCTION

### **We live in a multilingual world**

There are 7,413 primary languages in the world (Lewis, 2009), and it has been estimated that approximately half of the world speaks more than one language (Grosjean, 1982). Although the majority of people in English-speaking countries such as US, UK, and Australia are predominantly monolingual, “bilingualism and multilingualism are normal, unremarkable necessities of everyday life for the majority of the world’s population” (Romaine, 2013, p. 445). Within this paper, the term *multilingualism* is used as an overarching term for *bilingualism* since these terms are often used interchangeably (Crystal, 2003; Romaine, 2013). The following definition of multilingualism will be used: “People who are multilingual are able to comprehend and/or produce two or more languages in oral, manual, or written form [with at least a basic level of functional] proficiency or use, regardless of the age at which the languages were learned” (International Expert Panel on Multilingual Children’s Speech, 2012, p. 1, adapted from Grech & McLeod, 2012, p. 121). This paper will also include consideration of bi-dialectal speakers, and will draw on cross-linguistic studies from around the world.

Multilingualism is a complex phenomenon. People who are multilingual differ in the number of languages spoken, the timing and extent of exposure to languages, conversational partners and contexts where the languages are spoken, the prestige or status of the languages spoken, whether they use the language in written or spoken contexts, and their receptive and expressive proficiency (Grech & McLeod, 2012; Grosjean, 2010). People may be born into multilingual families; they may learn a language because of friendships, marriage, occupation, or education; they may choose to become multilingual through personal interest or travel; or they may learn a language because of relocation as a result of migration, refugee status, or

international adoption. As Grosjean (2010, p. 3) suggested people “usually acquire and use their languages for different purposes, in different domains of life, with different people.”

A framework for understanding acquisition and use of more than one language was proposed by Paradis, Genesee, and Crago (2011). They suggested a 2 x 2 quadrant by juxtaposing the timing of language acquisition (simultaneous versus sequential) with the context of acquisition (majority versus minority ethnolinguistic communities). Simultaneous acquisition occurs when a child learns two (or more) languages within the first year(s) of life (de Houwer, 2009; Genesee, Paradis, & Crago, 2004). Sequential acquisition occurs when a child (or adult) has mastered one language, and then adds another language. The defining age of sequential acquisition is debated within the literature, but many authors suggest sequential acquisition occurs when a person learns a subsequent language after 3 years of age (De Houwer, 2009; Genesee, Paradis, & Crago, 2004). A majority ethnolinguistic community refers to people who speak the dominant language of the community (e.g., English within Australia); whereas, a minority ethnolinguistic community is a language-minority group within the larger community (e.g., Vietnamese within Australia). Previously, it was thought that multilingual speakers functioned as multiple monolingual people within one person, explained by the *Unitary Language System Hypothesis* (Volterra & Taeschner, 1978). However, most people now subscribe to a view that multilingual people function with two (or more) interactive language systems, explained by the *Dual Language System Hypothesis* (Genesee, 1989). It has been proposed that during language learning, interaction manifests in delay (i.e., slower acquisition), acceleration, and transfer between one language and another (Paradis & Genesee, 1996). Delay, acceleration, and variation in acquisition order are temporary effects during typical development;

however, transfer, that typically appears in the non-dominant language, may be long-lasting (Lleó, 2013).

### **National and international endorsements for multiculturalism and multilingualism**

Across the world there is strong support for and commitment to the preservation and respect of cultures and languages. Three examples are provided to exemplify the strength of endorsement. The UNESCO Universal Declaration on Cultural Diversity states: “Affirming that respect for the diversity of cultures, tolerance, dialogue and cooperation, in a climate of mutual trust and understanding are among the best guarantees of international peace and security” (UNESCO, 2001). The United Nations Declaration on the Rights of Indigenous Peoples states “Indigenous peoples have the right to revitalize, use, develop and transmit to future generations their histories, languages, oral traditions, philosophies, writing systems and literatures. . .” (Article 13) and “Indigenous peoples have the right to the dignity and diversity of their cultures, traditions, histories and aspirations. . .” (Article 15) (United Nations, 2008, pp. 7, 9). The Early Years Learning Framework for Australia includes the following statements within Outcome 5: Children are effective communicators: “Children’s use of their home languages underpins their sense of identity and their conceptual development. Children feel a sense of belonging when their language, interaction styles and ways of communicating are valued. They have the right to be continuing users of their home language as well as to develop competency in Standard Australian English” (Commonwealth of Australia, 2009, p. 38). These statements provide evidence for international support for encouraging and nurturing multilingualism. By implication, these statements support the work of speech-language pathologists of enhancing communicative skills of multilingual children.

### **Australia is a microcosm of ethnolinguistic minorities**

Australia provides a useful case study of a multilingual society since it is a microcosm of minority ethnolinguistic communities. Many other predominantly English-speaking countries have a second dominant language after English; for example, many people in the US speak Spanish (Shin & Kominski, 2010) and in Canada speak French (Statistics Canada, 2012). In contrast, Australia does not have a dominant language after English. The most recent census showed that 23.2% of Australians over 5 years speak a language other than English at home (Australian Bureau of Statistics, 2012). The most common languages spoken were Mandarin (1.6%), Italian (1.4%), Arabic (1.3%) Cantonese (1.2%), and Greek (1.2%) (Australian Bureau of Statistics, 2012). The fluidity of the Australian linguistic landscape is demonstrated by the fact that five years earlier, the 2006 census showed that 21.5% spoke a language other than English at home and the order of the most commonly spoken languages other than English was different: Italian (1.6%), Greek (1.3%), Arabic (1.2%), Cantonese (1.2%), Mandarin (1.1%) (Department of Immigration and Citizenship, 2008). The languages of the Australian population are spoken in vastly different regions of the world and represent different waves of migration to Australia.

Aboriginal and Torres Strait Islander people (Indigenous Australians) have rich cultural and linguistic traditions and make up approximately 2.5% of the entire Australian population. Approximately 250 Indigenous Australian languages have been described (AIATSIS, 2005; Victorian Aboriginal Corporation for Languages, 2010); however, many are “no longer fully or fluently spoken” (AIATSIS, 2005, p. 7). Twelve percent of the Indigenous population speaks an Indigenous language at home (Australian Bureau of Statistics, 2006) and there are less than 20 Indigenous languages that are spoken across all generations (AIATSIS, 2005; Obata & Lee, 2010). Many Indigenous Australians (83%) speak a form of English including Aboriginal English (see Butcher, 2008; Toohill, McCormack, & McLeod, 2012).

### ***Languages spoken by Australian children***

The descriptions above predominantly focus on languages spoken by Australian adults. Population-based studies of Australian children have shown different patterns of language use compared with adult usage. For example, the nationally representative Longitudinal Study of Australian Children has documented language use of approximately 10,000 children in two cohorts (Birth (B) and Kindergarten (K)) over four waves of data collection. In 2004, when the K cohort was 4- to 5-years-old ( $n = 4,983$ ), 21.9% were regularly spoken to in a language other than English and 12.2% of the children spoke one of 35 languages other than English. After English, the most common first languages were: Arabic (1.6%), Cantonese (1.3%), Vietnamese (1.0%), Greek (0.8%), and Mandarin (0.8%) and Italian was spoken by 2.9% of the children as the most common additional language (McLeod, 2011a). Four years later in 2008, when the B cohort was 4- to 5-years-old ( $n = 4,386$ ), more of the children (15.3%) spoke languages other than English. After English, the most common first languages were: Arabic (1.5%), Italian (1.2%), Greek (0.9%), Spanish (0.9%), and Vietnamese (0.9%) (Verdon, McLeod, & Winsler, 2014b). These data demonstrate the diversity of the non-Indigenous Australian linguistic landscape. At the population level there are differences between languages spoken by adults versus children and the specific languages spoken changed within a 4 to 5 year period. The diversity of the linguistic landscape increases the complexity of providing culturally and linguistically targeted health and education services and demonstrates the importance of SLPs having cultural competence to work with all children, rather than focusing on specific language skills.

The languages spoken by Indigenous Australian children recently have been examined using data from the Child cohort of the Longitudinal Study of Indigenous Children (McLeod,

Verdon & Bennetts Kneebone, 2014). The Longitudinal Study of Indigenous Children was undertaken in 11 metropolitan, rural, and remote sites located in six of the eight states and territories in Australia (excluding Tasmania and the Australian Capital Territory) (Department of Families, Housing, Community Services and Indigenous Affairs, 2012). The 692 3- to 5-year-old children in wave 1 spoke between one and eight languages each. There were 91.2% who spoke English, 24.4% who spoke Indigenous languages, 11.5% who spoke creoles, 2.0% who spoke “foreign languages” and 0.6% who spoke sign languages. Two years later, of the 570 5- to 7-year-old children in wave 3, 99.6% spoke English, 26.8% spoke Indigenous languages, 13.7% spoke creoles, 5.1% spoke “foreign languages” and 0.4% used sign languages. The increase in English language usage could be due to the fact that the children were attending school, and English is the language of instruction in Australian schools. Children who lived in regions of moderate to extreme isolation were more likely to speak an Indigenous language.

Djambarrpuyngu was the most commonly spoken Indigenous language in wave 1 ( $n = 21$ , 3.7%) followed by Arrernte, Anindilyakwa, Galpu, Kalaw Kawaw Ya/Kalaw Lagaw Ya, Luritja, Meriam Mir, and Warlpiri (each spoken as the main language by one to two children). (McLeod, Verdon, & Bennetts Kneebone, 2014). These findings direct SLPs to consider all of the languages spoken by Indigenous children, to acknowledge their competence in languages other than the dominant language of the country, and to respect their rich language learning environments.

### **Children’s language learning, maintenance, and loss**

Children’s language maintenance is an important consideration to enact international endorsements for cultural and linguistic diversity into the future. Some of the reasons cited for children’s language loss within English-speaking countries include attendance at English-

dominant early childhood education settings (Wong Fillmore, 1991), a lack of input of the home language (Pearson, 2007), the language choice of siblings (Pease-Alvarez, 1993), and children's own language choice (Pearson, 2007; Pease-Alvarez, 1993; Wong Fillmore, 1991; Taft & Bodi, 1980). Verdon, McLeod, and Winsler (2014a) examined language maintenance and loss over time (between 0- and 5-years-old) for 4,252 children in the B cohort of the Longitudinal Study of Australian Children across 3 biannual waves of data. Using a univariate analysis, language maintenance was positively associated with being a first- or second-generation migrant, attending family-based childcare (as opposed to centre-based childcare), parental use of the home (non-English) language, presence of a grandparent in the home, and support for languages other than English in the learning environment. Language maintenance was not associated with gender or presence of an older sibling in the home. Using a multivariate analysis, the factors that remained significant were first- and second-generation immigrant status (OR = 5.42), and experiencing family-based early childhood care (OR = 1.95) (e.g., being cared for by grandparents). Patterns of language maintenance and loss differed according to the languages spoken by the children.

Indigenous Australian children's language maintenance and loss has been studied by considering information about 533 children (3- to 7-years-old) across 2 waves of the Longitudinal Study of Indigenous Children (McLeod, Verdon, & Bennetts Kneebone, 2014). The majority (83.9%) of children who spoke an Indigenous language when they were 3 to 5 years maintained speaking an Indigenous language at 5 to 7 years. The children's families and friends told oral stories, read books, and listened to the children read in English as well as in Indigenous languages. Almost one third (30.5%) of their parents wanted to pass on "speaking the language" and 46.1% parents wanted an Indigenous language available as a second language at school.

Considering the languages spoken by young children with hearing loss provides another example of language use and maintenance. The Language Outcomes for Children with Hearing Impairment (LOCHI) is a longitudinal population-based study of Australian children with hearing loss. When the children ( $n = 406$ ) were 3-years-old, 75.3% used oral communication at home, 0.7% used manual communication (e.g., sign language), and 23.9% used a mixed communication mode (oral + manual) (Crowe, McLeod & Ching, 2012). Of the oral language users, the majority used English; however, 12.7%<sup>1</sup> spoke 27 languages other than English at home. These languages included Arabic, Cantonese, Vietnamese, Spanish, Italian, and Mandarin. Only 2.1% of the children spoke a language other than English in their early education environment. This is in contrast to the number of caregivers who spoke languages other than English: 19.9% of female caregivers and 21.2% of male caregivers (Crowe, McLeod & Ching, 2012). The factor that most influenced children's communication mode and language use in the home was the mode and language used by their female caregiver (Crowe, McKinnon, McLeod & Ching, 2013). In subsequent research with children and their families from the LOCHI study, parents were asked to complete a questionnaire outlining factors that influenced their choice between (1) speech and sign and (2) using English or languages other than English in the home with their children with hearing loss (Crowe, Fordham, McLeod, & Ching, in press; Crowe, McLeod, McKinnon, & Ching, 2012). Questionnaires were completed by 177 caregivers of 157 children with hearing loss (aged 3 to 9 years). A quantitative analysis revealed that children's speaking a language other than English at home was significantly associated with the female caregivers' use of English. Whether children spoke a language other than English in early

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<sup>1</sup> Children who only communicated using Australian Sign Language (Auslan) were not included within this figure.

education was significantly associated with the use of languages other than English at home (Crowe, McLeod, McKinnon, & Ching, 2012). Decisions regarding communication mode and language use were most influenced by the parents' concerns about children's future opportunities, children's audiological and intervention characteristics, and advice of speech-language pathologists, audiologists, and specialist teachers. When parents responded about choosing between whether their child spoke English or other languages they indicated that important factors were children's participation in mainstream / family culture and access to intervention and education services (Crowe, McLeod, McKinnon, & Ching, 2012). A qualitative analysis of open-ended responses to the question "Overall, which factors were most influential in making your decision" revealed four major themes: (1) sources of information (e.g., advice from professionals, family, and friends), (2) practicalities of communication (e.g., within the family and the community), (3) children's individual characteristics (e.g., additional disabilities), and (4) hopes for their children's future lives (e.g., fostering a sense of belonging) (Crowe, Fordham, et al., in press).

To summarize, language maintenance is supported by many factors. One of the factors highlighted within the studies of children with hearing loss was advice by professionals such as speech-language pathologists. It is important that SLPs engage in evidence-based practice throughout all aspects of their work with children and families. When providing advice to families, SLPs can discuss maintenance of home languages (Genessee, 2007), using home languages in intervention (Gutiérrez-Clellen, 1999; Kohnert et al., 2005), and can provide evidence for and against multilingualism.

### **Multilingualism: Advantage or disadvantage?**

Prevailing understandings of the benefits or disadvantages of multilingualism can be a factor in language maintenance or loss. As Paradis (2007) summarized “In the first half of the 20th century it was commonly thought that bilingualism in early childhood was detrimental to children’s linguistic and intellectual development, but an established body of research since that time has shown that bilingualism either has neutral or enhancing effects on children’s cognitive development” (p. 551). Much of the evidence that has been used to demonstrate disadvantages of bilingualism has only examined one of the languages spoken by children (typically the second, less dominant language). For example, within English-speaking countries there is some evidence that children’s accuracy and mastery of *English* language skills may be delayed in children who speak English as a second or subsequent language. Nicholls, Eadie, and Reilly (2011) compared the acquisition of English morphology by 74 monolingual English-speaking and 74 multilingual 3-year-old children who were participating in the Early Language in Victoria (ELVS) study. The multilingual children spoke two or three of 31 different languages (including English). Nicholls et al. (2011) found that the monolingual children had greater accuracy and mastery of English morphemes. However, both groups showed a similar sequence of acquisition with both groups mastering progressive, locative, third person singular, regular plural, and regular past tense morphemes earlier than other English morphemes. Nicholls et al. (2011) acknowledged that assessing only one of the children’s languages (English) provided an incomplete picture of these children’s language skills.

Consideration of both or all of the languages spoken by children is a more complex task, but one that has been undertaken by some researchers to demonstrate multilingual children’s abilities. For example, Hemsley, Holm, and Dodd (2010) compared the lexicons of nine Samoan-English speaking children and nine monolingual English-speaking children at two time points

during their first year at school in Australia. Both singlets (words known in one language) and doublets (words known in both languages) were considered. When the English-only receptive and expressive vocabularies of the two groups of children were compared, the monolingual English children achieved significantly higher scores than the bilingual Samoan-English group. In contrast, when composite scores in English and Samoan were compared, there was no significant difference between the two groups of children on the receptive language task, but there remained a significant difference on the expressive language task with the bilingual children scoring lower than the monolingual English-speaking children. The authors concluded that the use of composite language scores may be an appropriate clinical method to differentiate children with language difference compared with language disorder.

A systematic review of the influence of bilingualism on children's speech included 66 studies describing 23 bilingual populations (e.g., Spanish-English, Cantonese-English, Welsh-English, Arabic-English) of typically developing children (53 studies) and children with speech sound disorders (13 studies) (Hambly, Wren, McLeod, & Roulstone, 2013). The review outlined a complex picture of rate of acquisition of phonemes with some studies showing no difference in rate of acquisition, some showing delayed acquisition, and others showing accelerated acquisition compared with monolingual English peers. Typically developing bilingual children showed a different pattern of development to monolingual peers. Most studies provided evidence of transfer between languages but the amount of transfer varied.

One recent study has attempted to disentangle some of the complexity within the literature regarding multilingualism. McLeod, Walker, Whiteford, and Harrison (2013) considered the two-way interaction of speaking more than one language and having speech and language impairment when 4 to 5 years for 4,983 children within the Longitudinal Study of

Australian Children. Using multiple regression analyses they discovered that children's literacy, numeracy, and social-emotional outcomes at 8 to 9 years were influenced by: sex and socioeconomic position, speech and language competence at 4 to 5 years, and learning competence at 6 to 7 years, but not by their multilingual status. Speaking a language other than English at 4 to 5 years did not have a significant impact on language and literacy scores or social-emotional scores at 8 to 9 years; however, these multilingual children were more likely to have better mathematical outcomes than their monolingual peers. More importantly, children who were identified with speech and language concern at 4 to 5 years (regardless of whether they were monolingual or multilingual) were more likely to have poorer language and literacy scores, poorer mathematical thinking scores and poorer socio-emotional skills at 8 to 9 years. These poorer outcomes were found over and above the effects of sex, age, Indigenous status, language background, and socioeconomic position. This study underscores the importance of supporting children with speech and language impairment, regardless of the number of languages spoken and demonstrates positive outcomes for typically developing multilingual children. Thus, it is appropriate to refer children who are having difficulty with speech and language acquisition (in any language) to a speech-language pathologist.

### **Some multilingual children have a communication disorder**

Speech and language impairment is not caused by speaking a language other than English; however, people who are multilingual can have speech and language impairment. Some multilingual children have been described as having: speech sound disorder (e.g., Hambly et al., 2013), specific language impairment (e.g., Paradis, 2007), a stutter (e.g., Van Borsel, Maes, & Foulan, 2001), autism (e.g., Bird, Lamond, & Holden, 2012), hearing loss (e.g., Crowe & McLeod, 2014), and some may require AAC (e.g., Binger & Light, 2006). As Winter (2001)

indicated “There is no reason why bilingualism should lead to a greater or lesser need for speech and language therapy (SLT). If there are proportionately more or less bilingual than monolingual children receiving SLT then this difference may be an indication of inequality” (p. 465). In the UK Stow and Dodd (2005) found that bilingual children were significantly less likely to be referred to speech-language pathology than monolingual English-speaking children, particularly for children with speech sound disorder. In addition, Stow and Dodd (2005) found that referring agents frequently provided incorrect information about the language spoken by the children that they referred. In the US, Bedore, Peña, Joyner, and Macken (2011) found that while parents and teachers were reliable sources of information about English language proficiency, only parents were reliable sources of information about Spanish language proficiency. To date, similar studies have not been undertaken in other English-speaking countries.

Recently, a number of large-scale studies have described the prevalence of speech and language impairment in Australian children typically to be between 12-20% (range 0.12-41.2%) (McLeod, McAllister, McCormack, & Harrison, in press). For example, two studies of Australian preschool children show remarkably similar results. Within the Longitudinal Study of Australian Children ( $n = 4,983$ ), parents of almost a quarter of the preschool-aged children were concerned about speech and language skills (yes = 11.8%, a little = 13.4%) with “speech not clear to others” (12.0%) being the area of highest concern (McLeod & Harrison, 2009). Similarly, within the Longitudinal Study of Indigenous Children ( $n = 692$ ), parents of almost a quarter of the preschool-aged children in wave 1 were concerned about speech and language skills (yes = 13.9%, a little = 10.4%) with “speech not clear to others” being the area of highest concern (13.0%) (McLeod, Verdon, & Bennetts Kneebone, 2014). Subsequently, correspondence between parent report of concern and speech-language pathologists’ identification of speech

sound disorder on direct assessment was confirmed in 86.7% of cases within the Sound Effects Study ( $n = 143$ ) using the same identifying questions as in the LSAC and LSIC studies (McLeod, Harrison, McAllister, & McCormack, 2013). Within each of these three studies unmet need for speech-language pathology services was noted; however, the prevalence or need for services was not separated for children from monolingual versus multilingual backgrounds. Risk and protective factors associated with speech and language impairment in early childhood also have been described in a number of these large-scale Australian studies. While factors such as being male and family history of speech and language difficulties are consistently identified as risk factors (Zubrick, Taylor, Rice, & Slegers, 2007), multilingualism has only been found to be a risk factor for English proficiency on a receptive language task within univariate analyses (Harrison & McLeod, 2010). In contrast, having parents who speak a language other than English was found to be a protective factor for expressive speech and language difficulties and attendance at speech-language pathology (Harrison & McLeod, 2010). An additional factor considered in these large-scale studies has been to examine children's outcomes and associated factors. Speech and language impairment in early childhood has been found to be associated with poorer social and educational outcomes, and these outcomes have been found over and above the effects of sex, age, Indigenous status, language background, and socioeconomic position (e.g., McCormack, Harrison, McLeod, & McAllister, 2011).

### **Speech-language pathology services for multilingual children**

Speech-language pathologists have critical roles to play in supporting children with speech and language impairment to be competent communicators in the languages of their communities. However, often there is a mismatch between the languages spoken by children and their families and the languages spoken by speech-language pathologists, particularly in

predominantly English-speaking countries (Caesar & Kohler, 2007; Guiberson & Atkins, 2012; Jordaan, 2008; Williams & McLeod, 2012). In a study of services offered by practicing Speech Pathology Australia members ( $n = 2,849$ ) it was found that 20.2% of members' services were offered a language other than English. Of the 70 languages that services were offered in, the most common (after English) were Australian Sign Language (Auslan) (4.3%), French (3.1%), Italian (2.2%), Greek (1.6%), and Cantonese (1.5%) (Verdon, McLeod, & McDonald, 2014). A geographical and statistical study comparing services offered by Australian speech-language pathologists and languages spoken by Australian preschool children highlighted that despite the relatively similar rates of multilingualism in both groups, a large mismatch existed between languages spoken by speech-language pathologists and children in different locations across the country (Verdon, McLeod, & McDonald, 2014). This research highlights the importance of speech-language pathologists' cultural competence when working with multilingual children.

Researchers conducting surveys frequently report that speech-language pathologists typically used informal or English-based assessments and intervention tools with multilingual children (McLeod & Baker, 2013; Skahan, Watson & Lof, 2007; Williams & McLeod, 2012). Bedore et al. (2011) suggested that “. . . speech-language pathologists are often uncertain as to how to effectively work with children from diverse backgrounds because they do not know enough about cultural and linguistic diversity and its impact on language development” (p. 489). Additionally, the need for increasing speech-language pathologists' transcription skills and knowledge of speech sounds has been highlighted (McLeod, 2011b; Verdon, McLeod, & Wong, 2013). In order to meet the challenge of working effectively with multilingual children, speech-language pathologists need cultural competence (skills, knowledge, and confidence) and resources (e.g., normative information, transcription, assessment, intervention) to “close the gap

between the linguistic homogeneity of the profession and the linguistic diversity of its clientele” (Caesar & Kohler, 2007, p. 198). Recent international collaborations have resulted in innovative and practical strategies to support speech-language pathologists during assessment, intervention, and collaboration with families, communities, and other professionals. These international collaborations have been framed around the World Health Organization’s (2007) International Classification of Functioning, Disability and Health (ICF-CY) and have been established with the goal of supporting multilingual children to participate in society.

The International Expert Panel on Multilingual Children’s Speech (2012) was assembled to prepare a position paper to address issues faced by clinicians in working with multilingual populations. The panel comprised 57 speech-language pathologists, phoneticians, linguists and speech scientists who had worked in 33 countries and used 26 languages in professional practice. A position paper was developed by the panel after consideration of issues relating to referral, assessment, intervention, service delivery, cultural competence, knowledge of other languages, training, and collaboration with interpreters. The position paper is “an aspirational document, grounded in both currently available empirical evidence and expert opinion, concerning best practice guidelines for working with multilingual children with speech sound disorder” (McLeod, Verdon, Bowen, & International Expert Panel on Multilingual Children’s Speech, 2013). The position paper contains recommendations for children and families, speech pathologists’ assessment and intervention, speech pathologists’ professional practice, and collaboration with other professionals and is based around the International Classification of Functioning, Disability and Health (ICF-CY) (World Health Organization, 2007). The overarching position statement is as follows:

“The International Expert Panel on Multilingual Children’s Speech ... recommends that:

1. Children are supported to communicate effectively and intelligibly in the languages spoken within their families and communities, in the context of developing their cultural identities.
2. Children are entitled to professional speech and language assessment and intervention services that acknowledge and respect their existing competencies, cultural heritage, and histories. Such assessment and intervention should be based on the best available evidence.
3. SLPs aspire to be culturally competent and to work in culturally safe ways.
4. SLPs aspire to develop rich partnerships with families, communities, interpreters, and other health and education professionals to promote strong and supportive communicative environments.
5. SLPs generate and share knowledge, resources, and evidence nationally and internationally to facilitate the understanding of cultural and linguistic diversity that will support multilingual children's speech acquisition and communicative competence.
6. Governments, policy makers, and employers acknowledge and support the need for culturally competent and safe practices and equip SLPs with additional time, funding, and resources in order to provide equitable services for multilingual children." (International Expert Panel on Multilingual Children's Speech, 2012, p. 2).

The Multilingual Children's Speech website

(<http://www.csu.edu.au/research/multilingual-speech>) addresses one of the aims of the position paper by providing free resources and information for speech-language pathologists about more than 40 languages. The Position Paper page of the website provides a link to the International Expert Panel on Multilingual Children's Speech Position Paper and includes information about its creation. The Languages page of the website contains information about the speech sounds and phonotactics of different languages and links to International Phonetic Alphabet charts of the languages' vowels and consonants and (in most cases) includes documents with extensive comparisons between English and the other languages. The Speech Acquisition page contains a summary of speech acquisition milestones in languages other than English based on 250 cross-linguistic studies of speech acquisition and a 10-page summary of English speech acquisition organized according to yearly age groups. The Speech Assessments page of the website includes a list of over 100 published tests and word lists that can be used to assess children's articulation and phonology in languages other than English. Finally, the Intelligibility in Context Scale page includes information about the creation and use of the ICS and translations in over 40 languages.

The remainder of the paper will provide a few examples of innovations to enact principles of this position paper, with particular reference to children with speech sound disorder.

### **Typical speech and language acquisition.**

Understanding children's speech and language acquisition provides a foundation for subsequent assessment and intervention practices. For speech-language pathologists working in English-speaking countries, knowledge of English acquisition is insufficient for working with multilingual children (Davis, 2007). McLeod (2010) considered data from 250 studies of children's speech acquisition reported in McLeod (2007). While the majority of studies were about English-speaking children's speech acquisition, there were many studies of Finnish (28 studies), Japanese (20), Korean (18), Portuguese (18), and Turkish (18). The majority of studies were about monolingual acquisition. Multilingual acquisition studies were rare. A summary of the findings can be found at <http://www.csu.edu.au/research/multilingual-speech/speech-acquisition>. However, an overarching finding is as follows. By 4 to 5 years most children are able to (1) speak intelligibly to most people (even strangers), (2) produce most vowels and consonants, (3) put these sounds together into syllables, (4) use intonation, pausing, stress, tones that are appropriate for their dialect/language(s). To provide a recent example, a study was undertaken of the acquisition of Cantonese by 1,726 children in Hong Kong aged 2;4 to 11;7 (To, Cheung, & McLeod, 2013). It was reported that all 19 initial consonants were acquired by 6;0 with /p-, m-, j-/ were being the first and /ts<sup>h</sup>-, s-/ the last. Final consonants were acquired in a different order from their initial counterparts. Vowels were acquired by 5;0, diphthongs were acquired by 4;0, and all nine tones were acquired by 2;6. Common phonological patterns included stopping, fronting, deaspiration, delabialization, affrication, and nasalization. Factors

that influenced speech acquisition were age, sex, higher maternal education, and higher household income (To et al., 2012; To, Cheung & McLeod, 2013).

### **Assessment and intervention for multilingual children**

The International Expert Panel on Multilingual Children's Speech recommends that: "Speech-language pathology assessment and intervention will take place in the child's languages (as identified by the family) using culturally and linguistically appropriate tools and evidence-based procedures" (International Expert Panel on Multilingual Children's Speech, 2012; p. 2). There are many studies that describe SLPs' reports of the lack of culturally appropriate tools for the assessment of multilingual children's speech (Caesar & Kohler, 2007; Jordaan, 2008; Kritikos, 2003; Roseberry-McKibbin, Brice, & O'Hanlon, 2005; Skahan, Watson, & Lof, 2007; Williams & McLeod, 2012). Recently, a review of speech assessments in languages other than English was undertaken, in part to determine whether these reports reflected a true lack of assessments or a lack of time and resources for identifying and accessing speech assessments in different languages (McLeod & Verdon, 2013). A total of 96 speech assessments designed for assessing languages other than English were identified and a continually updated list can be found at <http://www.csu.edu.au/research/multilingual-speech/speech-assessments>. Of these 96 assessments, 60 were commercially published assessments, 17 were published in journal articles, and were 19 informal measures available through university and other websites. As a part of the review, 28 commercially available speech assessments were able to be obtained and reviewed. These 28 assessments were designed to assess 18 languages: Cantonese, Danish, Finnish, German, Greek, Korean, Maltese-English, Norwegian, Pakistani-heritage languages (Mirpuri, Punjabi, Urdu), Portuguese, Putonghua (Mandarin), Romanian, Slovenian, Spanish, Swedish, and Turkish. The majority (71.4%) were designed for assessing monolingual children; however,

some (21.4%) were designed for assessing one language (Spanish, Turkish) of bilingual speakers (Spanish-English, Turkish-German) and two (7.1%) were designed for assessing two or three languages of multilingual speakers (Maltese+English, Mirpuri+Punjabi+Urdu). Almost half (46.4%) of the assessments were norm-referenced with sample sizes ranging from 145 to 2,568 children ( $M = 716.1$ ). It was suggested that English-speaking SLPs may be able to use the stimuli from these assessments with multilingual children instead of creating informal assessments. However, it would not be appropriate to use the normative information created for a monolingual population with a multilingual population residing in a different country. Most assessments would require an interpreter for English SLPs' administration (92.9%) and scoring (85.7%) of these assessments.

When appropriate assessments are not available SLPs may consider creating their own assessments. McLeod (2012) summarized procedures for the conceptualization and operationalization of multilingual speech assessments. To conceptualize an assessment the purpose, scope, intended population, and target skill need to be identified. Decisions need to be made regarding the stimuli, presentation, scoring, and analysis. Next, five stages are required to operationalize an assessment: (1) determine reliability by considering internal consistency, test-retest reliability, and rater reliability (2) determine content, criterion, and construct validity, (3) conduct an item analysis to determine item difficulty and item discrimination scores, (4) describe the proportion of cases classified correctly using sensitivity and specificity, and (5) standardize on a normative sample. Limbrick, McCormack, and McLeod (2013) provide further guidelines for the review and creation of informal speech assessments based on these conceptualization and operationalization criteria.

Although it is desirable for speech-language pathologists to assess children in the language that they speak and are professionally trained in, this is not always practical or appropriate, particularly in early stage of assessments. Consequently, preliminary research has been undertaken to determine the competency of English-speaking speech pathologists to transcribe non-native languages. Lockart and McLeod (2013) described how 33 English-speaking speech pathology students had skills to transcribe Cantonese consonant production. There was higher accuracy on transcription of shared English and Cantonese consonants (syllable-initial consonants /m, n, f, s, h, j, w, l/ and syllable-final consonants). Their accuracy increased when a Cantonese-adult model was provided as an audio file, and written information about Cantonese phonology was provided.

The Intelligibility in Context Scale (ICS, McLeod, Harrison, & McCormack, 2012a) was developed as a screening tool using parent report of children's speech intelligibility with seven different conversational partners. To date it has been translated (and checked via back translation) into more than 40 languages (e.g., Arabic, Bulgarian, Icelandic, Turkish) (available at <http://www.csu.edu.au/research/multilingual-speech/ics>). The validity of the ICS has been reported for 120 English-speaking preschoolers in Australia (McLeod, Harrison, & McCormack, 2012b), and 72 Cantonese-speaking preschoolers in Hong Kong (Ng, To, & McLeod, 2014). In both studies there was a significant difference between ICS total scores for children who were typically developing and those with a speech sound disorder as assessed by a speech-language pathologist. Additional validation studies in other languages currently are underway.

Further innovations in the assessment of multilingual children's speech uses dynamic assessments (Hasson, Camilleri, Jones, Smith, & Dodd, 2013), child-friendly techniques for listening to children (McLeod, 2011c; Roulstone & McLeod, 2011), and adaptations of scoring

and analysis to account for dialectal variations (Toohill, McCormack, & McLeod, 2012). There is more to be done regarding appropriate interventions for children who speak languages other than English. Chapter authors in Williams, McLeod, and McCauley (2010) described adaptations of English interventions for multilingual children, including adaptations of minimal pairs, multiple oppositions, core vocabulary, Parents and Children Together (PACT), Nuffield Dyspraxia Programme, and Nonlinear phonology techniques. Chapter authors in McLeod (2007) listed interventions that were developed and/or used in a range of languages other than English. A narrative review of 134 interventions for children with speech sound disorders showed a strong evidence-base for a number of intervention techniques (Baker & McLeod, 2011). Recent reviews of multilingual intervention for children with speech sound disorders show that interventions in one language can have an impact on the children's other language(s); however, these findings predominantly come from small-scale studies (Gildersleeve-Neumann & Goldstein, 2012; Grech & McLeod, 2012; Gutiérrez-Clellen, 1999 ). Larger-scale studies of children's language have shown that intervention focussing on the children's home language is beneficial (e.g., Kohnert, Yim, Nett, Kan, & Duran, 2005). A greater evidence-base is required across the speech and language domains for a range of language pairs.

## **Summary**

Children and families from throughout the world work with speech-language pathologists; however, often there is a mismatch between their languages and cultural understandings. This paper describes a number of initiatives to resource monolingual speech-language pathologists' understanding and assessments of children who speak a range of languages. Continued international collaboration capitalizing on technologies will facilitate the development and dissemination of additional resources, research, and knowledge.

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The author alone is responsible for the content and writing of the paper. Editorial responsibility for this manuscript was undertaken by the guest editor, Dr Nicole Watts Pappas, since the author was the editor of this journal.

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