

Chapter 13

Aleksandra Krawczyk & Selma Saad Merouwe

Stuttering and Bilingualism in Children and Adults: Current Research and Future Developments

Stuttering in bilinguals is an area of interest to both researchers and speech-language therapists; however, the current data on bilingualism and stuttering are still lacking, despite the increase in the number of bilinguals all over the world. This chapter aims to review the literature tackling the existing interactions between stuttering and bilingualism. More specifically, it provides the readers with evidence-based information regarding the manifestations of speech disfluencies and stuttering in bilingual children and adults, and some highlights to consider in assessing and treating bilingual children and adults who stutter.

Definition of bilingualism

Nowadays, bilingualism is becoming a norm since it characterizes the linguistic daily life of more than half of the world's population (Grosjean, 2010). In fact, bilingualism is the consequence of several phenomena (e.g. the opening of borders, peoples' movements, cultural and commercial exchanges between countries). Furthermore, it is very common to encounter mixed couples from different countries raising their children in a multilingual context (Bhatia & Ritchie, 2013; Kohl et al., 2008). Also important to mention is school and university education, which has an impactful role in learning a second language. As a result, it is currently more common to meet bilingual people than monolingual people (Kohnert, 2010).

This situation inspires researchers to understand the bases underlying the acquisition of several languages. However, they often find themselves faced with assumptions that cannot be generalized for many reasons. First of all, the information related to the bilingual participants is often insufficient, and their linguistic profiles are usually heterogeneous and described very briefly. This makes it difficult to



compare a bilingual person with others having the same combination of languages (Grosjean, 1998). It is therefore important to define bilingualism and the learning mechanisms that trigger it.

Bilingualism on a continuum

Many authors have tried to explain what bilingualism refers to. Earlier, a person was considered bilingual if his/her proficiency in his/her second language was similar to that of a native speaker (Bloomfield, 1933). A few years later, other authors revised this definition suggesting that it was sufficient to have a minimum proficiency in one of the four linguistic skills *understanding, speaking, reading* and *writing* to be identified as a bilingual person (Haugen, 1953; Macnamara, 1967; Hamers & Blanc, 1989). We notice that these definitions refer most importantly to the linguistic competency. On the other hand, other authors suggested explanations based on the use of languages. For instance, a bilingual person would be able to use two or more languages on a daily basis, in different contexts and with different interlocutors, without necessarily mastering them in the same way (Grosjean, 1982; Grosjean & Li, 2013; Weinreich, 1974).

Up until now, the authors do not agree on a mutual definition of bilingualism. Yet, it is obvious that perfectly mastering two languages is illusive (Fishman, 1971; Wei, 2007). Thus, it seems wiser to consider bilingualism as the ability to communicate in two or more languages, while being in the middle of a continuum of skills and language use, which could range from a minimum ability to a maximum ability (Chin & Wigglesworth, 2007). There would therefore be as much bilingualism as there are bilingual individuals.

Types of bilingualism

Different types of bilingualism can be identified depending on the age of acquisition of each language, its learning circumstances and contexts of use.

The acquisition of two languages could be done simultaneously or sequentially. Bilingualism is considered simultaneous when, for example, in mixed couples, each of the two parents speaks their mother tongue with the child from birth or before the age of two. On the other hand, sequential bilinguals usually speak only one language at home and do not use the second commonly used language in the country until around the age of three or four, when they start attending daycare or school that will support learning that language (Baker, 2001; Bhatia & Ritchie, 2013; De Houwer & Ortega, 2019; Paradis et al., 2005; Paradis, 2010). It turns out that simultaneous bilinguals achieve a high level of linguistic competency in both languages,

while sequential bilinguals are more likely to have limited second language skills (Paradis et al., 2005). That being said, it happens that children with a first (minority) language could develop and acquire very good skills in learning their second (community) language, and even master it better than their first language. This phenomenon is often related to some factors such as motivation (Dörnyei & Skehan, 2003), and the quality and context of language input in the child's environment (Jia, 2003), which could contribute to the change of the linguistic dominance (Genesee et al., 2004; Hoff & Shatz, 2007).

In addition, the age of acquisition makes it possible to differentiate early bilinguals from late bilinguals. The first case refers to the period preceding the age of 11 years, while the second refers to the period beyond this age (Hamers & Blanc, 1989). On the other hand, bilingualism can be considered as active if the speaker expresses himself easily in all languages and understands them perfectly, and passive when one of the languages is understood without being used orally (Bhatia & Ritchie, 2013; Valdés & Figueroa, 1994; Wei, 2005).

Finally, bilingualism is considered to be elective when the speakers willingly choose to learn and use another language, while it is considered as contextual when the latter are obliged to do so for social and professional success (Hapsburg & Peña, 2002). Consequently, bilingual people would rarely have a balanced bilingualism (Fishman, 1972), given the various criteria mentioned above. In fact, the literature exposes another type of bilingualism, based on the linguistic dominance, which refers to the knowledge and frequency of language use.

The maximum proficiency achieved by the bilingual speaker allows the differentiation between balanced bilingualism – where the level of mastery of the second language is similar to that of the mother tongue – and dominant bilingualism – where the speaker masters better one of the two spoken languages (Bhatia & Ritchie, 2013; De Houwer & Ortega, 2019). In this case, the better-spoken language is considered to be a dominant language, while the other one is considered as non-dominant (Kohnert, 2013). Other authors have identified the frequency of language use as a factor determining linguistic dominance (Gutiérrez-Clellen & Kreiter, 2003; Restrepo, 1998). A language would be considered as dominant when used 61 to 80% of the time, whereas it would be non-dominant when its use varies between 20 and 40% of the time. Balanced bilinguals would use both languages 41 to 60% of the time. Parental questionnaires are the main tools for identifying a child's linguistic dominance and understanding his profile. Several researchers have focused on the design of these questionnaires, for example: the *Alberta Language and Development Questionnaire-ALDeQ* (Paradis, Emmerzael & Duncan, 2010), the *Alberta Language Environment Questionnaire-ALEQ* (Paradis, 2011) and *Parents of Bilingual Children Questionnaire-PaBiQ* (Tuller, 2015). These questionnaires usually have com-



mon sections including the developmental history and current language skills of the child, as well as the exposure to different languages and their use at home and in other contexts. Their use is therefore important when assessing the language and fluency of bilingual speakers in a speech therapy context. For adults, self-report questionnaires are often used to determine linguistic background and proficiency. *The Language Experience and Proficiency Questionnaire* (LEAP-Q) by Marian, Blumenfeld, & Kaushanskaya (2007) and *Language History Questionnaire* (LHQ 2.0; Li, Sepanski, & Zhao, 2006; Li, Zhang, Tsai, & Puls, 2014) are examples of self-report questionnaires that provide deeper insight into an adult's linguistic history (e.g. age of exposure to different languages) and linguistic experience (e.g. functional use of each language spoken).

Indeed, speech and language therapists receive referrals of families who are concerned about the development of language and/or the fluency of their children. For adults, speech-language therapists often treat bilingual clients, even though it is likely that the speech-language therapist does not speak the same languages as the client (Jordaan, 2008). When children and adults are bilingual, treatment decisions can be particularly difficult to make given the context in which they evolve. Diagnostic errors leading to an under-estimation or over-estimation of the difficulties could occur in bilingual contexts (Bedore & Peña, 2008; Byrd et al., 2016; Paradis, 2010). Firstly, the child's difficulties could be attributed to the fact that he is learning several languages at the same time, resulting in a false-negative diagnosis. On the other hand, a disorder could be diagnosed when the deficiencies noted are part of typical bilingual language development, leading to a false-positive diagnosis.

Stuttering is one of the most common neurodevelopmental disorders. Bilingual children produce more interruptions in the flow of their speech than monolinguals (Bedore et al., 2006). Some authors consider that stuttering is more frequent in bilinguals than in monolinguals, due to the exposure to many languages (Shenker, 2011; Van Borsel et al., 2001). In the following, we will focus on the nature of stuttering and fluency in bilingual speakers, and will provide an overview of the identification and treatment of stuttering in a bilingual context.

Stuttering: definition, etiology and symptomatology

Stuttering is a complex speech disorder characterized by interruptions in the flow of speech with, quite often, a significant impact on the life of the person who stutters. According to the DSM-5, stuttering is categorized as a communication disorder and considered to be a developmental speech fluency disorder (American Psychi-

atric Association, 2013), affecting the rhythm and fluency of speech, and therefore hindering communication and the quality of life.

Over the past decades, several theoretical conceptualizations have emerged in an attempt to explain the causes of stuttering. Current data on etiological origins suggest multifactorial patterns, combining genetic, neurobiological, behavioral, emotional and environmental factors (Benito-Aragón et al., 2019; Bloodstein & Ratner, 2008; Drayna & Kang, 2011; Koenraads et al., 2019; Shapiro, 2011).

The symptomatology of stuttering includes in the first place the audible manifestations, considered to be primary characteristics. Those are separate from typical interruptions experienced by all speakers (for example, interjections such as “uh”). Specifically, stuttering behaviors manifest as prolongations (e.g. sssssoup), part and whole word repetitions (p-p-p-en), broken words (bo__tle) and blocks (_bottle).

The overt speech characteristics can oftentimes be accompanied by physical, emotional, cognitive and behavioral components secondary to stuttering (Bloodstein & Ratner, 2008; American Psychiatric Association, 2013; Guitar, 2013; Shapiro, 2011). These secondary behaviors can be divided into overt and covert concomitants as well as introspective variables (Bloodstein & Bernstein Ratner, 2008). Overt concomitants are visible to the eye, such as eye-blinking or jaw tension. Covert concomitants are only measurable through instrumentation, such as increased heartrate (Bloodstein & Bernstein Ratner, 2008). Introspective variables involve the individual's affective and/or cognitive reactions to stuttering, such as increased anxiety in certain speaking situations or negative beliefs about their communication abilities. All three of these factors occur as a result of stuttering.

To diagnose stuttering, a speech-language therapist must complete a holistic assessment that involves assessing the client's severity of stuttering as well as examining the affective, cognitive, and behavioral aspects of stuttering. People who stutter will often experience differing levels of fluency depending on the speech task (e.g. dialogue versus oral reading) or situation (e.g. talking on the phone versus speaking with a family member). It is important to consider this variability when diagnosing stuttering to get the most accurate understanding of the client's fluency abilities. In addition, there are self-report assessments that explore the client's affective, behavioral, and cognitive views of stuttering. Elevated or significant scores may indicate that the client has negative associations with his or her speaking abilities due to the impact of their stutter. Therefore, diagnosing stuttering involves objective information (such as frequency of stuttering during certain speaking tasks/situations) as well as subjective reports occurring from client interviews and self-report measures. For bilingual individuals who stutter, the researchers urge that comprehensive testing samples are needed in all languages spoken (Shenker, 2011). For example, it



is possible that stuttering will present in both languages, but it may manifest with different types, frequencies, or distributions (Caesar & Kohler, 2007; Lim, Lincoln, Chan, & Onslow, 2008a). Therefore, clinicians must be aware of these differences and collect speech samples in both languages as well as understand how the client uses both languages daily.

Diagnosis criteria in monolingual population

The diagnosis of stuttering, in its overt manifestations, is based on the type and frequency of disfluencies (Conture, 2001). These are divided into two categories: stuttering-like disfluencies (including whole and part word repetitions, prolongations, broken words and blocks) and other disfluencies (including multisyllable word and phrase repetitions, interjections, revisions and abandoned speech), which are not indicative of stuttering. Earlier, researchers have identified several factors that contribute to disfluencies in monolingual people who stutter: the initial sound of a word (Wendell & Brown, 1935); the length of the word (Brown & Moren, 1942); the position of the word in a sentence (Brown, 1938); the grammatical class of the word (Brown, 1937); and the accent pattern of the word (Brown, 1938). In addition, increased syntactic complexity (Blood & Hood, 1978; Bloodstein, 1974) and decreased word familiarity (Hubbard & Prins, 1994) have also been found to lead to more stuttering. The majority of stuttering occurs at the beginning of words and mostly on consonants compared to vowels.

Disfluencies usually appear in all children's speech (Ambrose & Yairi, 1999; Eggers & Elen, 2018), but those who stutter have an excessive number of stuttering-like disfluencies. Thus, it was determined that children with a minimum of 3 stuttering-like disfluencies in a 100-syllable speech sample (Ambrose & Yairi, 1999), 7% of other disfluencies (Tumanova et al., 2014), 10% total disfluencies per 100 words (Guitar, 2013) and a minimum of 2 iterations per repetition (Ambrose & Yairi, 1995, 1999; Pellowski & Conture, 2002) should be diagnosed with stuttering. Other authors suggest that the child's speech sample (100 words) should include a minimum of 3 disfluencies (part-word or monosyllabic word repetitions) to be diagnosed as a child who stutters (Bloodstein, 1995; Conture, 2001). This 3% criterion, used internationally, is mainly based on data from monolingual English speaking children (Ambrose & Yairi, 1999). Its relevance has been proven with other monolingual Spanish-speaking, French-speaking, German and Dutch children (Boey et al., 2007; Carlo & Watson, 2003, Leclercq et al., 2017; Natke et al., 2006; Tumanova et al., 2014). However, another more recent study analyzed disfluencies in typically developing Finnish children and suggested that the 3% criterion is not clinically relevant given

the length of Finnish words. Therefore, the authors encourage the identification of more reliable guidelines for differentiating stuttering-like disfluencies from other disfluencies (Jansson-Verkasalo et al., 2020).

Given the spread of bilingualism around the world (Bialystok et al., 2012, Chen et al., 2008; Dumont & Lemaître, 2005; Mahendra & Namazi, 2014), researchers and clinicians have attempted to study interlinguistic characteristics that can differentiate bilingual children who stutter and who do not stutter from their monolingual peers (Finn & Corders, 1997; Roberts & Shenker, 2007; Van Borsel et al., 2001). The conclusions of their studies often point to the critical need for empirical data on the nature of the disfluencies of bilingual children in all the spoken languages (Tetnowski et al., 2012). A better understanding of the manifestations of stuttering in bilinguals is therefore essential on both scientific and clinical levels (Shenker, 2011; Shin, 2017).

Stuttering and bilingualism: overview of current findings

Childhood

In former publications, Travis et al. (1937) postulate that stuttering appears more in bilinguals than in monolinguals, following the analysis of disfluencies affecting the speech of bilingual children between 4 and 17 years in spontaneous speech and reading samples. The conclusions of Blanton (1916), Eisenson (1984) and Karniol (1995) also converge in the same direction, knowing that the research carried out by Blanton and Karniol was based on single case studies. Much later, other authors suggest that exposure to several languages would put children at risk of developing stuttering (Van Borsel et al., 2001), and therefore agree with the conclusions of previous studies, assuming that bilingual children would have more disfluencies than their monolingual peers (Bedore et al., 2006; Firozjaei, 2013). More recently, some authors suggested that bilingualism puts children at risk of developing stuttering (Howell et al., 2009). The main conclusion of their study was that if a minority language were used at home up to age 5, the chance of starting to stutter would be lower and the recovery rate would be higher than for children who acquire English as well as a minority language during this period. In other words, postponing exposure to English would reduce the risk of onset of stuttering, and contribute to a subsequent recovery from stuttering. However, such findings are rare. Other researchers, on the other hand, have built an argumentation against the previous postulation, and suggested that bilingual children would be at risk for misdiagnosis as children who stutter, due to poor understanding of the nature of manifestation



of stuttering in two (or more) languages, and the reliance on monolingual-English diagnostic criteria (Byrd et al., 2015; Eggers et al., 2019). Lastly, Gahl (2020) identifies that the research of Travis et al. (1937) had inconsistent counts and rates reported-among other design issues-and cannot be used to assume that bilingual children are more prone to stuttering.

Given the data currently available, a number of clinicians consider that exposure to several languages would inevitably be a risk factor for the onset and development of stuttering. This finding was objectified through the study conducted by Byrd et al. (2016), which aimed at investigating whether clinicians perceive bilingualism as a risk factor for the development and persistence of stuttering. 207 speech-language therapists working in the United States took part in an online survey aiming to study their knowledge related to the risk factors for the development of stuttering, including bilingualism. 22.7% of the speech-language therapists considered bilingualism to be a risk factor for the development and persistence of stuttering. Indeed, identifying stuttering in bilinguals is not an easy task (Byrd, Watson et al., 2015). Speech-language therapists would find it difficult to differentiate the difficulties affecting speech fluency from those related to a lack of mastery of the second language in bilingual children, often considering that the particularities noted are due to bilingualism (Dockrell & Howell, 2015; Dockrell et al., 2017). It is therefore important to improve our understanding of the speech disfluencies produced by bilingual children who do not stutter taking into account the variety of linguistic profiles, as well as richness and amount of exposure to different languages. This will make it possible to better diagnose stuttering in a bilingual context.

Manifestation of stuttering in bilingual children

The data currently available on the manifestation of stuttering in bilingual people are few, but disparate. The main reasons are variables related to the number of participants, their age, the languages to which they are exposed, the age of acquisition, mastery and use of their languages, and the methodology followed to identify stuttering and define the bilingualism of subjects. Howell et al. (2009) studied the manifestations of stuttering in 69 bilingual children and concluded that disfluencies were present in all spoken languages in 95% of the participants, and that their frequency depended on the degree of language proficiency. Further studies followed, and although the number of participants was smaller, the authors found that bilingual children stuttered in all spoken languages (Koushik et al., 2009; Mamdoh & Gomaa, 2015; Mohammadi et al., 2012).

Several studies showed that people who stutter would have different stuttering manifestations from one language to another. For example, Shenker et al., (1998)

studied the case of a girl speaking English and French with a predominance of English. More stuttering-like disfluencies were identified in English than in French during spontaneous interactions with her parents. The findings of Carias and Ingram (2006) and Lee et al. (2014) also converge in that direction.

However, other studies suggest that stuttering occurs more in the less dominant language, or second language. Indeed, expressing oneself in the less dominant language would require most of the cognitive resources, since the expression would require the inhibition of the dominant language whose lexical activation is normally strong (Szmalec, 2013). This had led researchers to consider that the mastery of the language would have an effect on the distribution, frequency and nature of disfluencies (Maruthy et al., 2015; Schäfer & Robb, 2012).

In addition, some authors showed interest in the nature of disfluencies depending on the spoken language. Several studies suggest that bilingual people who stutter produce stuttering-like disfluencies as well as other disfluencies in all the languages they speak (Ambrose & Yairi, 1999; Carias & Ingram, 2006; Gkalitsiou et al., 2017). More particularly, interjections and prolongations would be more frequent in the less mastered language, while repetitions would be more frequent in the dominant language (Carias & Ingram, 2006). As for physical concomitants, their presence has been noted in both bilingual and monolingual children by several researchers (Howell & Davis, 2011; Karniol, 1992; Lee et al., 2014).

Other authors have looked at linguistic factors that can influence the onset of disfluencies in bilingual children, such as grammatical class of words. They were able to identify more disfluencies on content words in the first language, and on function words in the second language (Gkalitsiou et al., 2017; Howell et al., 2004). However, the number of participants was limited, so the assumptions cannot be generalized.

We therefore find it difficult to reach clear conclusions regarding the manifestation of disfluencies in bilingual children who stutter. The majority of the studies targeting this aspect are case studies, or based on a limited number of participants, so generalization of the findings is not possible. In addition, the profiles of bilinguals are very heterogeneous (Van Borsel, 2011), given the fact that they differ in the age of acquisition of the second language, the degree of mastery of their second language, the linguistic dominance characterizing their bilingualism, the combination of languages and many other factors (Werle et al., 2019). This makes it almost impossible to conclude on the psycholinguistic profile of bilingual children who stutter.

That being said, some authors have been interested in the possible effects of bilingualism on stuttering and have postulated that children exposed to several languages would be more vulnerable to develop stuttering (Howell et al., 2009). Other



subsequent studies have denied this finding (Byrd et al., 2015; Eggers et al., 2019; Eggers et al., 2019). It is therefore important to know whether early exposure to several languages would have an impact on the speech fluency of young children.

Speech disfluencies in bilingual children

Bilingual children produce more interruptions in their speech than their monolingual peers (Bedore et al., 2006). Those include filled pauses (interjections), repetitive use of connectors, repetitions of sounds, syllables, words and phrases, and revisions (Navarro-Ruiz & Rallo-Fabra, 2001). According to Fiestas et al. (2005), the revisions can be phonological, lexical and grammatical. In fact, speech interruptions can appear when the message is abstract, complicated or when ideas are difficult to formulate, especially if the language used is not fully developed or acquired. Thus, they are considered to be a reflection of linguistic uncertainties (Loban, 1976).

According to Byrd et al. (2015), bilingual children would have more difficulties in terms of lexical evocation and the formulation of complete ideas. They are therefore likely to experience a high level of linguistic uncertainty, which could clearly lead to a high production of disfluencies. These interruptions are more frequent than in monolinguals, but above all, they are different in terms of types of dysfluency, including more repetitions and revisions (Bedore et al., 2006; Fiestas et al., 2005; Karniol, 1992; Poulisse, 1999).

Some authors wanted to investigate the type of disfluencies in bilingual children. For instance, a few studies identified word and syllable repetitions as being the most produced by bilingual Spanish-English children who do not stutter (Bedore et al., 2006; Fiestas et al., 2005). In addition, pilot studies carried out with this same population (Byrd et al., 2015) and with bilingual Yiddish-Dutch children (Eggers et al., 2019) made it possible to identify significantly more disfluencies in their speech than what would be considered indicative of stuttering in monolinguals (3% criterion). In fact, Byrd et al. (2015) recruited 18 Hispanic children who do not stutter aged between 5;6 and 6;7 years, of whom 6 had Spanish as the dominant language, 6 were balanced bilinguals Spanish-English and 6 had English as the dominant language. The main goal of this study was to describe the frequency and types of speech disfluencies produced by bilingual children who do not stutter. Narrative speech samples were obtained in both spoken languages, then transcribed and analyzed, and the results were compared to the stuttering identification guidelines established on English monolingual children (Ambrose & Yairi, 1999). 14/18 children obtained more than 3% stuttering-like disfluencies in their speech samples (ranging from 3% to 22%), and 13/18 exceeded the threshold of 10% disfluencies (stuttering like and other disfluencies) in at least one of the

spoken languages. Repetitions of monosyllabic words and sounds predominated the stuttering-like disfluencies, while revisions and interjections predominated the other disfluencies. With regards to the number of iterations, averages of 5 and 6 were obtained for the cases of sound and word repetitions respectively. In addition, the rhythm and tension of these iterations were comparable and were not atypical. Finally, all participants produced significantly more stuttering-like disfluencies in Spanish, regardless of language dominance. This study was replicated on another population consisting of 59 bilingual Yiddish-Dutch children who do not stutter, divided into two age groups: 6.01–7.07 and 9.00–10.04 years (Eggers et al., 2019). All children had Yiddish as dominant language. The study methodology was similar to Byrd et al. in 2015. Among the main results, we note that all children produced significantly more stuttering-like disfluencies and other disfluencies in their second language, with a predominance of repetitions of monosyllabic words and syllables, and a presence of all sub-categories of other disfluencies. These were indeed more frequent in older children, with a majority of repetitions of sentences, lexical revisions and incomplete words. Finally, a good number of participants exceeded the 3% criterion in both languages (including 46% in their dominant language and 78% in their non-dominant language).

Moreover, clinicians seem to have difficulties in differentiating typical disfluencies from those specific to stuttering (Byrd et al., 2015). Therefore, it seems important to understand the origin of these difficulties, which in certain contexts might lead to false diagnoses.

Speech behaviors overlapping with stuttering

Bedore et al. (2006) mentioned a possible overlap between stuttering-like disfluencies, and interruptions in the flow of speech in bilingual children. They analyzed the types and frequency of these interruptions in 22 bilingual Hispanic-American children who do not stutter (average age 68.48 months), and compared them to 22 monolingual English-speaking children (average age 69.18 months). They identified repetitions as the most frequent disfluencies causing interruptions, exceeding those produced by monolingual children. The repetitions included phrases, multi-syllabic words – considered to be other disfluencies (Ambrose & Yairi, 1999; Howell, 2013), as well as repetitions of sounds, syllables and monosyllabic words – indicative of stuttering (Yairi & Seery, 2011). The frequency of repetitions of sounds and syllables was particularly high in bilingual Hispanic-American children who do not stutter, indicating that these children could therefore be diagnosed as having a stutter, given the presence of the excessive frequency of disfluencies (Shenker & Watson, 2009).



Adulthood

There is no evidence that learning a second language would cause stuttering to occur in adulthood. Researchers have been interested in understanding the relationship between stuttering, bilingualism, and linguistic analysis (Bernstein Ratner & Benitez, 1985). For example, some researchers looked at bilingual PWS to better understand whether syntax or phonology impacted stuttering. In German-English bilingual persons who stutter, participants stuttered more on content words in German, but overall stuttering frequency was higher in participants' second language-English (Schäfer & Robb, 2012). As it relates to phonetics, Morrish, Nesbitt, and Zsilavec (2017) identified that in the speech of a German, Afrikaans, and English adult who stutters, the voiceless plosive /k/, voiceless fricative /f/, and the consonant cluster /kl all evidenced more stuttering. The researchers also found increased stuttering on consonants compared to vowels overall, which is similar to monolingual PWS.

Another factor that has been found to potentially impact stuttering in bilingual PWS is language familiarity. As mentioned, stuttering will typically manifest in both languages, but to differing degrees (e.g. more stuttering in the native language, second language, or equal distribution). Although the body of research on bilingual PWS is small (but growing), the existing studies have found that stuttering is distributed across languages, with some studies showing more stuttering in participants' native language (Howell et al., 2004; Jayaram, 1983) and other studies showing more stuttering in the second language (Jankelowitz & Bortz, 1996; Lim et al., 2008; Nwokah, 1988; Roberts, 2002; Schäfer & Robb, 2012). Overall, however, many studies involving bilingual PWS were either single case studies or had small group sizes. More research in the area of bilingual adults who stutter is needed before making over-arching assumptions about any cross-linguistic patterns.

Considerations for the assessment of stuttering in a bilingual context

Childhood

Identifying stuttering is not an easy task. In 1948, Stern and Log showed that teachers mistakenly considered children who do not stutter as children who stutter. Much later, a study led by Byrd, Watson et al. (2015) investigated the ability of clinicians to identify stuttering in bilingual children. 86% of the speech-language therapists falsely diagnosed a bilingual Hispanic child who does not stutter as having stuttering, while 29% considered a bilingual Hispanic child who stutters as a child who

does not stutter, based on the analysis of audio recordings of their speech samples. Another study led by Van Zaalen-op't Hof et al. (2009) showed weak agreement between two speech-language therapists with experience in fluency disorders in identifying stuttering in monolingual and bilingual children.

In fact, there are several inter-individual and inter-linguistic differences in bilingual children, and the assessment tools currently available do not take into account these psycholinguistic peculiarities (Gutierrez-Clellen & Simon-Cereijido, 2010). Bilingual children may have a high frequency of ambiguous disfluencies, including pauses, repetitions, and interjections in their speech (Shenker & Watson, 2009). This overlap between the aspects of bilingualism and those of stuttering makes the differential diagnosis difficult, especially if the understanding of the linguistic environment of the child is limited, and if the 3% criterion of stuttering-like disfluencies, established on monolinguals, is used during the diagnosis process. This therefore puts bilingual children at risk of being wrongly diagnosed with stuttering (Byrd et al., 2015; Byrd et al., 2016).

On the other hand, some clinicians consider that they are not sufficiently trained to assess bilingual children, and to differentiate the difficulties related to bilingualism to those inherent in the children. In some cases, the disfluencies noted in children's speech could be explained by the bilingualism of the child, leading to a false negative diagnosis of stuttering (Dockrell et al., 2017). Consequently, it would be difficult to come up with appropriate care plans for children who need speech therapy services. A holistic speech therapy assessment, specific to the bilingual population and taking into account the linguistic characteristics of bilinguals is therefore required. It will lead to a reliable diagnosis, and subsequently to a suitable therapeutic plan.

Given the specificities related to the linguistic profile of bilinguals and the variability related to stuttering, it is important to take into account some key elements when assessing the fluency of a bilingual child.

First of all, parental concern about stuttering is a key element that should not be overlooked during the speech therapy assessment. According to Glascoe (1997), this is a reliable source calling for the need for further investigation. This concern is usually related to the tension and the atypical rhythm coming along with the disfluencies, in both monolingual and bilingual children (Byrd et al., 2015). In fact, Byrd (2018) suggests that the presence of these two characteristics worries the parents more than the frequency of disfluencies itself.

Second, an understanding of the child's linguistic environment is important for an assessment leading to a reliable diagnosis. According to studies led by Werle et al. (2019) and Byrd (2018), it is not enough to indicate that the child is living in a bilingual environment. In fact, three fundamental aspects should be included to de-



scribe a person's linguistic profile: the linguistic history, which is defined by the age and the context of exposure to different languages; the linguistic function, which refers to the current frequency of exposure and use of different language; and the language proficiency, which refers to the person's overall ability to speak and understand a language. Thus, clinicians are strongly encouraged to use questionnaires especially designed to objectify these data, such as the *Alberta Language and Development Questionnaire* (Paradis et al., 2010), *Bilingual Language Profile* (Birdsong et al., 2012) and *Parents of Bilingual Children Questionnaire* (Tuller, 2015).

Third, it is recommended to collect speech samples in all spoken languages by the child, and not only in his dominant language (Shenker, 2011; Byrd, 2018). The available data in the literature are quite divergent with regards to the manifestation of disfluencies according to the language dominance. Studies showed that the disfluencies of bilinguals could be more frequent in their L2 (Eggers et al., 2019), in their L1 (Brejon-Teitler, 2015) or do not depend on the linguistic dominance (Byrd et al., 2015). Speech samples collected in all spoken languages will therefore allow a more exhaustive assessment of the speech disfluencies. Furthermore, Byrd et al. (2012) showed that bilingual children who do and do not stutter show more disfluencies in a story telling than in a spontaneous conversation. They suggested varying the speech samples collection contexts for a complete assessment. It has also been recommended to obtain recordings of the child's speech in his family context at home for a better representativeness (Shapiro, 2011; Volpin et al., 2020).

Finally, based on the findings of Byrd et al. (2015), Eggers et al. (2019) and Jansson-Verkasalo et al. (2020), the diagnostic criteria for stuttering established on the English-speaking monolingual population (3% stuttering-like disfluencies) cannot be used to identify stuttering in all monolingual populations, and certainly not in a bilingual context. Bilingual children who do not stutter are likely to produce well beyond 3% stuttering-like disfluencies in their speech, which could easily put them at risk of being wrongly diagnosed with stuttering if the 3% criterion is used. It would therefore be more appropriate to seek other clinical features in favor of a reliable differential diagnosis. At the present time, we distinguish two characteristics that should be examined to confirm that the disfluencies observed are related to stuttering: the presence of physical tension coming along with the disfluencies, and an abnormal rhythm of the iterations. Usually, the disfluencies of children who do not stutter are produced without tension, and the rhythm of iterations is regular and relaxed (Boey et al., 2007; Byrd et al., 2015). Another aspect to be considered with caution is the production of monosyllabic word repetitions. Although these are categorized as stuttering-like, they should not be considered as indicative of stuttering unless they are accompanied by atypical physical tension, as recent studies have shown that these disfluencies are produced very frequently by bilingual chil-

dren who do not stutter (Byrd et al., 2015; Eggers et al., 2019). Along with these two characteristics, there are other components that should be studied closely through clinical observation and questionnaires. These are the child's reactionary attitudes to disfluencies (showing the degree of discomfort underlying negative emotions and cognitions) and a certain change in the general behavior (anger, sadness, aggressiveness, isolation etc.) and in his verbal behavior (minimum speech, loss of communication appetite). Several studies have indeed shown that children who stutter exhibit negative reactive attitudes towards their speech, unlike children who do not stutter, which should be considered when establishing a differential diagnosis (e.g. Kefalianos et al., 2014; Brce & Vanryckeghem, 2017).

While waiting to obtain a set of well-defined and adapted diagnosis criteria aiming to identify stuttering in a bilingual population, it is recommended to take into consideration the aforementioned key elements in a context of assessment and diagnosis.

Adulthood

When assessing bilingual adults who stutter, clinicians are likely to find disfluencies in both languages. However, stuttering may present differently across languages specific to frequency and types. For this reason, it is important to conduct a comprehensive assessment (Shenker, 2011). It is likely that the clinician does not speak the same languages spoken by the client and will need to use their clinical skills to discern stuttering from typical bilingual speaking disfluencies. Few studies have looked into the clinician's ability to evaluate stuttering in a foreign language. In these studies, clinicians were able to discern fluent versus stuttered speech in an unfamiliar language (Einarsdóttir & Ingham, 2009) as well as severity (Lee et al., 2014; Van Borsel & Britto Pereira, 2005). However, clinicians had trouble specifying the type of stutter heard (e.g. repetition, prolongation, etc.) (Van Borsel & Britto Pereira, 2005). Based on these findings, speech-language therapists have the necessary skillset to analyze the speaking samples of bilingual adults who stutter, even if in a foreign language. Speech samples (in order to identify the frequency of stuttering) are just one part of this assessment, however.

In addition to speech samples, bilingual assessment should include a detailed self-report tool to gain a holistic understanding of language history and experience. Coalson, Peña, and Byrd (2013) and Werle, Byrd, and Coalson (2019) reviewed multiple self-report questionnaires and noted that various language factors (such as accent) were not included in the majority of self-report questionnaires. Therefore, clinicians may generate their own questionnaires to ensure that all important parts are included (e.g. years of language exposure, frequency and places of use, types of



language skills used) or use the ones mentioned previously in this chapter, such as LEAP-Q (Marian, Blumenfeld, & Kaushanskaya, 2007) and LHQ 2.0 (Li et al., 2014). The data collected in these questionnaires can guide the clinician's assessment decisions as well as provide insight into the ways a bilingual adult who stutters uses the languages they speak in their lives.

As previously mentioned, stuttering involves more than the auditory components (repetitions, prolongations, and blocks). The covert characteristics of stuttering—such as affect and cognitions—are a monumental piece of stuttering assessment. By understanding how stuttering impacts a bilingual adult's participation and overall emotional experience, the clinician can address these aspects in therapy in addition to various speaking techniques, if appropriate (Yaruss & Quesal, 2006). There are a few self-report questionnaires available that address the affective, behavioral, and cognitive components of stuttering. One such tool is the *Overall Assessment of the Speaker's Experience of Stuttering* (OASES; Yaruss & Quesal, 2016). Based on the *World Health Organization's International Classification of Functioning, Disability, and Health* (ICF; WHO, 2001), this questionnaire measures the impact that stuttering has on an individual's life. It is available in both English and Spanish. The other tool is the *Behavior Assessment Battery for Adults Who Stutter* (BAB; Vanryckeghem & Brutton, 2018). The BAB provides normative data via subtests for the following areas: speaking situations, emotional reactions, reactions, behaviors used during speech, and communication attitude. The scores allow the clinician to evaluate which of these areas are elevated compared to speakers who do not stutter, leading to better diagnosis of stuttering and eventual treatment targets. The BAB has been translated into multiple languages, including Polish, Greek, and Italian.

Overall, assessing bilingual adults who stutter does not differ much from monolingual adults who stutter. Clinicians must include a detailed case history or interview (with the consideration of language history and experience), speech samples (in both languages), and insight into the affective, behavioral, and cognitive impacts of stuttering (via self-report tools). This holistic approach—with consideration for bilingualism—will prepare the clinician to work with the client on individually tailored therapy goals.

Considerations for treatment of stuttering in a bilingual context

Up until now, there are neither specific guidelines nor standard therapeutic approaches for the treatment of bilingual speakers. However, the available literature suggests some factors that should be considered when treating bilinguals who stutter. Among these factors, the most recurrent are the language used during

the therapy and the generalization of progress from the treated language to the untreated one.

Childhood

Many authors suggested temporarily reducing the number of languages to which the bilingual child is exposed, and choosing the language that is most often used by all family members (e.g. Rustin et al., 1996). The rationale behind this recommendation was that if the second language was introduced when the child had a good control of his first language, the chance of stuttering onset would be reduced (Eisenson, 1986; Howell et al., 2009; Karniol, 1992). This reasoning is based on the demands/capacity model implying that increasing demands on a developing linguistic system might result in disfluencies. There is actually some evidence from Karniol (1992) who described the case of a Hebrew-English speaking boy who started to stutter at age 2 years 1 month. He was exposed to English and Hebrew from birth, and also to Hungarian through his maternal grandparents. According to the author, the stuttering disappeared when the parents began speaking only Hebrew with the child; so it was assumed that the cause for the boy's stuttering was bilingualism. However, the characteristics of the stuttering and its development were not clearly described. In addition, given the young age of the boy, and the short duration of the stuttering, it is very likely that it was the case of a natural recovery from early stuttering. In fact, not everyone agrees with Karniol's assumption. For example, Stahl and Totten (1995) believed that bilingual families should not be advised to limit themselves to one language in order to prevent chronic stuttering. They suggested however that temporarily eliminating bilingualism would be a reasonable action in bilingual children who are at risk for chronic stuttering. However, Shenker et al. (1998) stated that temporary eliminating bilingualism is not a necessary prerequisite to successfully reduce disfluencies in children who stutter. This conclusion was illustrated by the case of a bilingual English-French speaking preschooler. The authors initiated indirect treatment while maintaining bilingualism. The parents were encouraged to pursue bilingualism at home but not to mix languages. At a later stage, a more direct operant approach was initiated, and the child showed progress in her fluency in both languages. Moreover, Guttman and Shenker (2006) described the case of four bilingual preschoolers whose language continued to progress while disfluencies decreased. They clearly concluded that placing linguistic demands on these children for speaking more than one language did not increase stuttering. Accordingly, to date, there are not sufficiently reliable findings to consider that bilingualism is a risk factor to stuttering. The available literature is mostly based on clinical case studies, a limited number of participants or a vague methodology. In addition,



the description of the linguistic profile of the participants is often insufficient. Postponing exposure to a second language or completely eliminating bilingual education should therefore not be advised to children at risk of developing stuttering. We currently know that bilingualism has many advantages, so we need sufficiently significant evidence to give parents of bilingual children such advices. In addition, in some cases, it would be even harmful to limit the parents to using one language (for example, when both parents speak different mother tongue and do not express themselves easily in the spouse's language). A flexible and pleasant practice of bilingualism seems to us to be the most appropriate advice to give to parents, seeing the available scientific data at the present time.

On the other hand, only a few studies had provided documentation on the treatment of bilingual children who stutter with regards to the generalization of treatment progress within languages. For example, Humphrey et al. (2001) presented an individual case study of 11-year-old identical twin bilingual English-Arabic girls using a combination of fluency shaping and stuttering modification techniques. The language treatment was Arabic. It was documented that fluency increased in Arabic reading and generalized to English reading. However, this case study is not enough to conclude that cross-generalization can always take place. In fact, Conture and Curlee (2007) discussed that gains made in therapy in one language might generalize to an untreated language in some cases. Yet, in some other cases, there might be some improvement in the untreated language but less than in the treated one. So ideally, providing treatment in both spoken languages seems to be the best approach. But, not all speech-language therapists are bilingual, or they do not necessarily speak all languages spoken by the child who stutters. That's the reason why the treatment should be collaboration between the skills of the clinician and the linguistic knowledge of the child's family. Effective treatment of bilingual children using parents as partners has been described in different contexts (e.g. Yaruss et al., 2006).

Adulthood

Best practice would be to provide bilingual therapy for adults who stutter and are speakers of two languages. However, it is likely that the speech-language therapist only speaks one of the two languages spoken by the client. Therefore, the clinician must use their skillset in one language to support the client in both languages. For example, the clinician can demonstrate fluency techniques in one language and have the client practice in both languages. Although there is a lack of research on bilingual adults who stutter generalizing treatment gains in one language to another, some preliminary information exists. Three comprehensive reviews (Roberts & Shenker, 2007; Van Borsel et al., 2001) on generalization in bilinguals who stutter

revealed that treatment in one language led to reduction of stuttering in the other language as well. However, a note of caution exists: These studies are mostly anecdotal and lack convincing empirical data to make assumption (Lim, Lincoln, Onslow, & Chan, 2015). A more recent study, therefore, was undertaken by Lim et al., (2015) to gain a better understanding of generalization. The study featured 19 English-Mandarin bilingual adults who stuttered who received treatment only in English. The study showed that participants presented with reduced stuttering in Mandarin following English-only treatment, indicating a generalization effect. The reduction in stuttering was still present three months later. However, as mentioned previously, there is an overall lack of research in this area, with a need for generalization to be studied between different languages and time periods (e.g. 6 months post-treatment).

Conclusion

Although this chapter includes a summary of what is known about stuttering and bilingualism in children and adults, there are still gray areas where additional research is needed. Taking the current research together, it can be understood that bilingual children and adults may experience stuttering just as the monolingual population would, but bilingualism cannot be viewed as the cause of stuttering manifestation. Instead, the research points to the fact that bilingual children and adults who stutter experience disfluencies in both languages, though possibly with differing frequencies and types. For this purpose, assessment and treatment of bilingual children and adults who stutter must take into consideration the linguistic environment of the individual and use this knowledge to guide diagnostic and treatment decisions.

Review questions / Multiple Choice Questions

1. Which of the following is **not** considered when assessing bilingual adults who stutter?
 - a) Bilingual speech sample
 - b) In-depth case history including language history and proficiency
 - c) Oral motor abilities
 - d) Interview
2. Which of the following is **true**?
 - a) Research shows that speech-language clinicians are able to identify stuttering in a foreign language



- b) The majority of bilingual adults who stutter only stutter in one language
 - c) The LEAP-Q is a bilingual stuttering assessment
 - d) Bilingualism can cause stuttering
3. Bilingual children produce more interruptions in their speech than monolinguals because: (choose all that apply)
- a) Bilingualism causes stuttering
 - b) The spoken languages might be not fully acquired yet
 - c) Bilingualism causes language delay
 - d) Bilingual children might have difficulties in terms of word retrieval and the formulation of complete ideas
4. When considering stuttering in bilingual children, we should: (choose all that apply)
- a) Analyze spontaneous speech samples only
 - b) Assess all spoken languages
 - c) Look for physical tension associated to disfluencies and arhythmicity of iterations
 - d) Assess only the dominant language

Suggested reading

- Ambrose, N.G. & Yairi, E. (1999). Normative disfluency data for early childhood stuttering. *Journal of Speech, Language, and Hearing Research*, 42(4), 895–909. <https://doi.org/10.1044/jslhr.4204.895>
- Byrd, C. (2018). Assessing bilingual children: Are their disfluencies indicative of stuttering or the by-product of navigating two languages? *Seminars in Speech and Language*, 39, 324–332. <https://doi.org/10.1055/s-0038-1667161>
- Byrd, C.T., Bedore, M.L., & Ramos, D. (2015). The disfluent speech of bilingual Spanish-English children: Considerations for differential diagnosis of stuttering. *Language, Speech, and Hearing Services in Schools*, 46(1), 30–43. https://doi.org/10.1044/2014_LSHSS-14-0010
- Shin, S.J. (2017). *Bilingualism in schools and society: Language, identity and policy* (2nd ed.). Routledge. <http://doi.org/10.4324/9781315535579>
- Wendell, J., & Brown, S.F. (1935). Stuttering in relation to various speech sounds. *Quarterly Journal of Speech*, 21(4), 481–496.
- Werle, D.R., Byrd, C., & Coalson, G. (2019). Description of multilingual participants who stutter: An update 2011–2018. *Communication Disorders Quarterly*, 41(1), 50–57.
-

References

- Ambrose, N. & Yairi, E. (1995). The role of repetition units in the differential diagnosis of early childhood incipient stuttering. *American Journal of Speech-Language Pathology*, 4(3), 82–88. <https://doi.org/10.1044/1058-0360.0403.82>
- Ambrose, N.G. & Yairi, E. (1999). Normative disfluency data for early childhood stuttering. *Journal of Speech, Language, and Hearing Research*, 42(4), 895–909. <https://doi.org/10.1044/jslhr.4204.895>
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders DSM-5* (5th ed.). <https://doi.org/10.1176/appi.books.9780890425596>.
- Baker, C. (2001). *Foundations of bilingual education and bilingualism* (3rd ed.). Multilingual Matters.
- Bedore, L.M., Fiestas, C.E., Peña, E.D., & Nagy, V.J. (2006). Cross-language comparisons of maze use in Spanish and English in functionally monolingual and bilingual children. *Bilingualism: Language and Cognition*, 9(3), 233–247. <https://doi.org/10.1017/s1366728906002604>
- Bedore, L.M. & Peña, E.D. (2008). Assessment of bilingual children for identification of language impairment: Current findings and implications for practice. *International Journal of Bilingual Education and Bilingualism*, 11(1), 1–29.
- Benito-Aragón, C., Gonzalez-Sarmiento, R., Liddell, T., Diez, I., Uquillas, F. d., Ortiz- Terán, L., . . . Sepulcre, J. (2019, October). Neurofilament-lysosomal genetic intersections in the cortical network of stuttering. *Progress in Neurobiology*. Volume: 184. <https://doi.org/10.1016/j.pneurobio.2019.101718>.
- Bernstein Ratner, N., & Benitez, M. (1985). Linguistic analysis of a bilingual stutterer. *Journal of Fluency Disorders*, 10, 211–219.
- Bhatia, T. & Ritchie, W. (2013). *The handbook of bilingualism and multilingualism* (2nd ed.). Wiley-Blackwell.
- Bialystok, E., Craik, F.I. & Luk, G. (2012). Bilingualism: Consequences for the mind and brain. *Trends in Cognitive Sciences*, 16(4), 240–250. <https://doi.org/10.1016/j.tics.2012.03.001>
- Birdsong, D., Gertken, L.M., & Amengual, M. (2012). *Bilingual language profile: An easy-to-use instrument to assess bilingualism*. Center for Open Educational Resources and Language Learning, The University of Texas at Austin. Retrieved from <https://sites.la.utexas.edu/bilingual/>
- Blanton, S. (1916). A survey of speech defects. *Journal of Educational Psychology*, 7(10), 581.
- Blood, G.W. & Hood, S.B. (1978). Elementary school-aged stutterers disfluencies during oral reading and spontaneous speech. *Journal of Fluency Disorders*, 3, 155–165.
- Bloodstein, O. (1974). The rules of early stuttering. *Journal of Speech and Hearing Disorders*, 39, 379–394.
- Bloodstein, O. (1995). *A handbook on stuttering*. Language. Arts et Disciplines, Singular.



- Bloodstein, O. et Bernstein-Ratner, N. (2008). *A handbook on stuttering* (6th ed.). Thomson Delmar Learning.
- Bloodstein, O., & Bernstein Ratner, N. (2008). *A handbook on stuttering* (6th ed.). Learning, Inc. Thomson.
- Bloomfield, L. (1933). *Language*. Holt, Rinehart and Winston.
- Boey, R.A., Wuyts, F.L., Van de Heyning, P.H., De Bodt, M.S., & Heylen, L. (2007). Characteristics of stuttering-like disfluencies in Dutch-speaking children. *Journal of Fluency Disorders*, 32(4), 310–329. <https://doi.org/10.1016/j.jfludis.2007.07.003>
- Brcce, J. & Vanryckeghem, M. (2017). Communication attitude of Slovenian preschool children who do and do not stutter. *Journal of Speech Pathology et Therapy*, 02(01), 1–5.
- Brejon, N.T. (2015). Implications du multilinguisme dans les manifestations du bégaiement. *Revue de laryngologie-otologie-rhinologie*, 136(5), 203–208.
- Brown, S.F. (1937). The influence of grammatical function on the incidence of stuttering. *The Journal of Speech Disorders*, 2, 207–215.
- Brown, S.F. (1938). Stuttering with relation to word accent and word position. *Journal of Abnormal and Social Psychology*, 33, 112–120.
- Brown, S.F., & Moren, A. (1942). The frequency of stuttering in relation to word length during oral reading. *Journal of Speech Disorders*, 7, 153–159.
- Byrd, C. (2018). Assessing bilingual children: Are their disfluencies indicative of stuttering or the by-product of navigating two languages? *Seminars in Speech and Language*, 39, 324–332. <https://doi.org/10.1055/s-0038-1667161>
- Byrd, C.T., Bedore, M.L., & Ramos, D. (2015). The disfluent speech of bilingual Spanish-English children: Considerations for differential diagnosis of stuttering. *Language, Speech, and Hearing Services in Schools*, 46(1), 30–43. https://doi.org/10.1044/2014_LSHSS-14-0010
- Byrd, C.T., Haque, A.N., & Johnson, K. (2016). Speech-language therapists' perception of bilingualism as a risk factor for stuttering. *Communication Disorders, Deaf Studies and Hearing Aids*, 4(2), 1000158.
- Byrd, C.T., Watson, J., Bedore, L., & Mullis, A. (2015). Identification of stuttering in bilingual Spanish-English speaking children. *Contemporary Issues in Communication Science and Disorders*, 42, 72–87. https://doi.org/10.1044/cicsd_42_S_72
- Byrd, C.T., Vallely, M., Anderson, J.D. & Sussman, H. (2012). Nonword repetition and phoneme elision in adults who do and do not stutter. *Journal of Fluency Disorders*, 37(3), 188–201.
- Caesar, L.G., & Kohler, P.D. (2007). The state of school-based bilingual assessment: Actual practice versus recommended guidelines. *Language, Speech & Hearing Services in Schools*, 38, 190–200.
- Carias, S. & Ingram, D. (2006). Language and disfluency: Four case studies on Spanish-English bilingual children. *Journal of Multilingual Communication Disorders*, 4, 149–157. <http://doi.org/10.1080/14769670601092663>
-

- Carlo, E. & Watson, J. (2003). Disfluencies of 3- and 5-year old Spanish-speaking children. *Journal of Fluency Disorders*, 28(1), 37–53. [https://doi.org/10.1016/S0094-730X\(03\)00004-4](https://doi.org/10.1016/S0094-730X(03)00004-4)
- Chen, S.X., Benet-Martinez, V., & Bond, M.C. (2008). Bicultural identity, bilingualism, and psychological adjustment in multicultural societies: Immigration-based and globalization-based acculturation. *Journal of Personality*, 76(4), 803–838. <https://doi.org/10.1111/j.1467-6494.2008.00505.x>
- Chin, N.B. & Wigglesworth, G. (2007). *Bilingualism: An advanced resource book*. Routledge.
- Coalson, G.A., Peña, D.E., & Byrd, C.T. (2013). Description of multilingual participants who stutter. *Journal of Fluency Disorders*, 38, 141–156.
- Couture, E.G. (2001). *Stuttering: Its nature, diagnosis, and treatment*. Allyn & Bacon.
- Couture, E.G., & Curlee, R.F. (2007). *Stuttering and Related Disorders of Fluency*. Thieme Medical Publishers.
- Craig, A., Hancock, K., Tran, Y., Craig, M., & Peters, K. (2002). Epidemiology of stuttering in the community across the entire life span. *Journal of Speech, Language, and Hearing Research*, 45, 1097–1105.
- De Houwer, A. & Ortega, L. (2019). *The Cambridge handbook of bilingualism*. Cambridge University Press.
- Dockrell, J. & Howell, P. (2015). Identifying the challenges and opportunities to meet the needs of children with speech, language and communication difficulties. *British Journal of Special Education*, 42(4), 411–428.
- Dockrell, J., Howell, P., Leung, D., & Fugard, A.J.B. (2017). Children with speech language and communication needs in England: Challenges for practice. *Frontiers in Education*, 2(35). <https://doi:10.3389/educ.2017.00035>
- Dörnyei, Z. & Skehan, P. (2003). Individual differences in second language learning. In: C. Doughty & M. Long (dir.), *The handbook of second language acquisition* (p. 589–630). Blackwell.
- Drayna, D. & Kang, C. (2011). Genetic approaches to understanding the causes of stuttering. *Journal of Neurodevelopmental Disorders*, 3(4), 374–380.
- Dumont, J.C. & Lemaître, G. (2005). *Counting immigrants and expatriates in OECD countries: A new perspective*. United Nations expert group meeting on international migration and development.
- Dworzynski, K., Remington, A., Rijdsdijk, F., Howell, P. & Plomin, R. (2007). Genetic etiology in cases of recovered and persistent stuttering in an unselected longitudinal sample of young twins. *American Journal of Speech and Language Pathology*, 16, 169–178.
- Eggers, K. & Elen, R. (2018). Spraakonvloeienheden bij personen die niet stotteren (3–82J): Invloed van geslacht en leeftijd. [Speech disfluencies in people who do not stutter (3–82y): Influence of gender and age]. *Logopedie [Logopedics]*, 3, 11–25.
- Eggers, K., Van. Eerdenbrugh, S., & Byrd, C.T. (2019). Speech disfluencies in bilingual Yiddish-Dutch speaking children. *Clinical Linguistics Phonetics* 34(6), 576–592.



- Eggers, K., Van Eerdenbrugh, S., & Byrd, C. (2020). Spraakonvloeïendheden bij tweetalig Jidisch-Nederlands-en Turks-Nederlandstalige kinderen en een Nederlandstalige controlegroep. *Logopedie*, 21–33.
- Einarsdóttir, J., & Ingham, R. (2009). Does language influence the accuracy of judgments of stuttering in children? *Journal of Speech, Language, and Hearing Research*, 52(3), 766–779. [https://doi.org/10.1044/1092-4388\(2009/07-0248\)](https://doi.org/10.1044/1092-4388(2009/07-0248))
- Einarsdóttir, J., & Ingham, R.J. (2009). Does language influence the accuracy of
- Eisenson, J. (1984). Stuttering as an expression of language development. In L.R. Raphael, C.B. Raphael, & M.R. Valdovinos (Eds.), *Language and Cognition*. (pp. 59–72). Plenum Press. https://doi.org/10.1007/978-1-4899-0381-5_6
- Eisenson, J. (1986). *Language and speech disorders in children*. Pergamon Press.
- Fiestas, C.E., Bedore, L.M., Peña, E.D., & Nagy, V.J. (2005). Use of mazes in the narrative language samples of bilingual and monolingual 4- to 7-year old children. In J. Cohen, K.T. McAllister, K. Rolstad, & J. MacSwan (Eds.), *Proceedings of the 4th international symposium on bilingualism*, (pp. 730–740). Cascadilla Press.
- Finn, P. & Cordes, A.K. (1997). Multicultural identification and treatment of stuttering: A continuing need for research. *Journal of Fluency Disorders*, 22, 219–236.
- Firozjahi, A.K. (2013). Prevalence of stuttering in bilingual and monolingual primary schools. *International Research Journal of Applied and Basic Sciences*, 4, 1328–1331.
- Fishman, J.A. (1971). The sociology of language. In: J. Fishman (dir.), *Advances in the sociology of language*, 1, 217–404. Mouton.
- Fishman, J.A. (1972). *Advances in the Sociology of Language* (vol. 2). Mouton.
- Gahl, S. (2020). Bilingualism as a purported risk factor for stuttering: A close look at a seminal study (Travis et al., 1937). *Journal of Speech, Language, and Hearing Research*, 63, 3680–3684.
- Genesee, F., Paradis, J., & Crago, M. (2004). *Dual language learning and disorder: A handbook on bilingualism and second language learning*. Brookes.
- Gkalitsiou, Z., Byrd, C., Bedore, L., & Taliacich-Klinger, C. (2017). Stuttering on function words in bilingual children who stutter: A preliminary study. *Clinical Linguistics & Phonetics*, 31, 791–805
- Glascoe FP. (1997). Parents' concerns about children's development: prescreening technique or screening test? *Pediatrics*, 99(04), 522–528
- Grosjean, F. & Li, P. (2013). *The Psycholinguistics of Bilingualism*. Wiley-Blackwell.
- Grosjean, F. (1982). *Life with two languages: An introduction to bilingualism*. Harvard University press.
- Grosjean, F. (1998). Studying bilinguals: Methodological and conceptual issues. *Bilingualism: Language and Cognition*, 1, 131–149.
- Grosjean, F. (2010). *Bilingual: Life and reality*. Harvard University Press. <https://doi.org/10.4159/9780674056459>
-

- Guitar, B. (2006). *Stuttering: An integrated approach to its nature and treatment* (3rd ed.). Lip-pincott Williams & Wilkins.
- Guitar, B. (2013). *Stuttering: An integrated approach to its nature and treatment* (4th ed.). Lip-pincott Williams & Wilkins.
- Gutiérrez-Clellen V.F. & Kreiter, J. (2003). Understanding child bilingual acquisition using parent and teacher reports. *Applied Psycholinguistics*, 24, 267–288.
- Gutiérrez-Clellen V.F. & Simon-Cerejido G. (2010). Using nonword repetition tasks for the identification of language impairment in Spanish-English speaking children: does the language assessment matter? *Learning Disabilities Research & Practice*, 25(01), 48–58.
- Hamers, J.F. & Blanc, M. (1989). *Bilinguisme et bilinguisme*. Mardaga.
- Hapsburg, D.V. & Peña, E.D. (2002). Understanding bilingualism and its impact on speech audiometry. *Journal of Speech, Language, and Hearing Research*, 45(1), 202–213.
- Haugen, E. (1953). *The Norwegian language in America; A study in bilingual behavior*. University of Pennsylvania Press.
- Hoff, E. & Shatz, M. (2007). *Handbook of language development*. Wiley Blackwell.
- Howell P. (2013). Screening school-aged children for risk of stuttering. *Journal of Fluency Disorders*, 38(02), 102–123.
- Howell, P., & Davis, S. (2011). Predicting persistence of and recovery from stuttering by the teenage years based on information gathered at age 8 years. *Journal of Developmental and Behavioral Pediatrics*, 32(3), 196–205.
- Howell, P., Davis, S., & Williams, R. (2009). The effects of bilingualism on stuttering during late childhood. *Archives of Disease in Childhood*, 94, 42–46. <http://doi.org/10.1136/adc.2007.134014>
- Howell, P., Ruffle, L., Fernandez-Zuniga, A., Gutierrez, R., Fernandez, A.H., & O'Brian, M.L., Tarasco, M., Vallejo Gomez, I. et Au-Yeung, J. (2004). *Comparison of exchange patterns of stuttering in Spanish and English monolingual speakers and a bilingual Spanish-English speaker*. University College London.
- Howell, P., Ruffle, L., Fernandez-Zuniga, A., Gutierrez, R., Fernandez, A.H., O'Brien, M.L., Tarasco, M., Vallejo Gomez, I., & Au-Yeung, J. (2004). Comparison of exchange patterns of stuttering in Spanish and English monolingual speakers and a bilingual Spanish-English speaker. In: A. Packman, A. Meltzer, and H.F.M. Peters (Eds.), *Theory, Research and Therapy in Fluency Disorders. Proceedings of the 4th World Congress on Fluency Disorders, Montreal, Canada* (pp. 415–422). Nijmegen University Press.
- Hubbard, C.P., & Prins, D. (1994). Word familiarity, syllabic stress pattern, and stuttering. *Journal of Speech and Hearing Research*, 37, 564–57.
- Humphrey, B., Natour, Y., & Amayreh, M. (2001). Bilingual stuttering: Comparing treatment studies of children vs. adults. Paper presented at the annual convention of the Florida Association of speech-Language Therapists and Audiologists. Orlando, FL.



- Jankelowitz, D.L., & Bortz, M.A. (1996). The interaction of bilingualism and stuttering in an adult. *Journal of Communication Disorders*, 29, 223–234. [http://doi.org/10.1016/0021-9924\(95\)00050-X](http://doi.org/10.1016/0021-9924(95)00050-X)
- Jankelowitz, D.L. & Bortz, M.A. (1996). The interaction of bilingualism and stuttering in an adult. *Journal of Communication Sciences and Disorders*, 29, 223–234.
- Jansson-Verkasalo, E., Lehtio, I., Silvén, M., & Eggers, K. (2020). Speech disfluencies in typically developing Finnish-speaking children - preliminary results. *Clinical Linguistics and Phonetics*, 35(8), 707–726.
- Jayaram, M. (1983). Phonetic influences on stuttering in monolingual and bilingual stutters. *Journal of Communication Disorders*, 16, 287–297. [http://doi.org/10.1016/0021-9924\(83\)90013-8](http://doi.org/10.1016/0021-9924(83)90013-8)
- Jia, G. (2003). The acquisition of the English plural morpheme by native Mandarin Chinese-speaking children. *Journal of Speech, Language, and Hearing Research*, 46, 1297–1311.
- Jordaan, H. (2008). Clinical intervention for bilingual children: An international survey. *Folia Phoniatrica et Logopaedica*, 60, 97–105.
- Karniol, R. (1992). Stuttering out of bilingualism. *First Language*, 12, 255–283.
- Karniol, R. (1995). Stuttering, language, and cognition: A review and a model of stuttering as suprasegmental sentence plan alignment (SPA). *Psychological Bulletin*, 117(1), 104.
- Kefalianos, E., Onslow, M., Ukoumunne, O.C., Block, S., & Reilly, S. (2014). Stuttering, temperament, and anxiety: Data from a community cohort ages 2–4 years. *Journal of Speech, Language and Hearing Research*, 57(4), 1314–1322.
- Koenraads, S., Marroun, H.E., Muetzel, R., Chang, S., Vernooij, M., Jong, R.B., . . . Schroeffer, M.V. (2019). Stuttering and gray matter morphometry: A population-based neuroimaging study in young children. *Brain and Language*, 194, 121–131.
- Kohl, M., Beauquier-Maccota, B., Bourgeois, M., Clouard, Ch., Donde, S., Mosser, A., Pinot, P., Rittori, G., Vaivre-Douret, L., Golse B., & Robel L. (2008). Bilinguisme et troubles du langage chez l'enfant: étude rétrospective. *La Psychiatrie de l'Enfant*, 51, 577–595.
- Kohnert K. (2010). Bilingual children with primary language impairment: Issues, evidence and implications for clinical actions. *Journal of Communication Disorders*, 43, 456–473.
- Kohnert, K. (2013). *Language disorders in bilingual children and adults*. Plural Publishing.
- Koushik, S., Shenker, R., & Onslow, M. (2009). Follow-up of 6–10-year-old stuttering children after Lidcombe Program treatment: A Phase I trial. *Journal of Fluency Disorders*, 34, 279–290. <http://doi.org/10.1016/j.jfludis.2009.11.001>
- Leclercq, A.-L., Suaire, P., & Moyse, A. (2017). Beyond stuttering: Speech disfluencies in normally fluent French-speaking children at age 4. *Clinical Linguistics & Phonetics*, 32(2), 166–179. <http://doi.org/10.1080/02699206.2017.1344878>
- Lee, A.S., Robb, M.P., Ormond, T., & Blomgren, M. (2014). The role of language familiarity in bilingual stuttering assessment. *Clinical Linguistics & Phonetics*, 28, 723–740. <http://doi.org/10.3109/02699206.2014.892154>
-

- Lee, A., Robb, M., Ormond, T., & Blomgren, M. (2014). The role of language familiarity in bilingual stuttering assessment. *Clinical Linguistics and Phonetics*, 28, 723–740.
- Li, P., Sepanski, S., & Zhao, X. (2006). Language history questionnaire: A web-based interface for bilingual research. *Behavior Research Methods*, 38(2), 202–210.
- Li, P., Zhang, F., Tsai, E., Puls, B., (2014). Language history questionnaire (LHQ 2.0): A new dynamic web-based research tool. *Bilingualism: Language and Cognition*, 17(3), 673–680.
- Lim, V.P.C., Lincoln, M., Chan, Y.H., & Onslow, M. (2008). Stuttering in English–Mandarin bilingual speakers: The influence of language dominance on stuttering severity. *Journal of Speech, Language, and Hearing Research*, 51, 1522–1537. [http://doi.org/10.1044/1092-4388\(2008/07-0054\)](http://doi.org/10.1044/1092-4388(2008/07-0054))
- Lim, V.P.C., Lincoln, M., Chan, Y.H., & Onslow, M. (2008a). Stuttering in English–Mandarin bilingual speakers: The influence of language dominance on stuttering severity. *Journal of Speech, Language, and Hearing Research*, 51, 1522–1537.
- Lim, V.P.C., Lincoln, M., Onslow, M., & Chan, Y.H. (2015). English-only treatment of bilingual speakers who stutter: Generalization of treatment effects from English to Mandarin. *International Journal of Speech Language Pathology*, 17(5), 431–440.
- Lim, V.P.C., Rickard Liow, S.J., Lincoln, M., Chan, Y.H., & Onslow, M. (2008). Determining language dominance in English–Mandarin bilinguals: Development of a self-report classification tool for clinical use. *Applied Linguistics*, 29, 389–412.
- Loban, W. (1976). *Language development: Kindergarten through grade twelve*. National Council of Teachers of English.
- Macnamara, J. (1967). The linguistic independence of bilinguals. *Journal of Verbal Learning and Verbal Behavior*, 6, 729–736.
- Mahendra, N. & Namazi, M. (2014). Becoming Bilingual. *The ASHA Leader*, 19, 40–44.
- Mamdoh, H. & Gomaa, M.A. (2015). Assessment of severity of stuttering in native versus foreign language in secondary (late) bilingual children. *Indian Journal of Otolaryngology and Head & Neck Surgery*, 67, 132–134.
- Marian, V., Blumenfeld, H.K., & Kaushanskaya, M. (2007). The Language Experience and Proficiency Questionnaire (LEAP-Q): assessing language profiles in bilinguals and multilinguals. *Journal of Speech, Language and Hearing Research*, 50(4), 940–967.
- Maruthy, S., Raj, N., Geetha, M.P., & Priya, C.S. (2015). Disfluency characteristics of Kannada –English bilingual adults who stutter. *Journal of Communication Disorders*, 56, 19–28.
- Mohammadi, H., Bakhtiar, M., Rezaei, M., & Sadeghi, K. (2012). Stuttering behavior in Kurdish–Persian bilingual speakers. *Procedia – Social and Behavioral Sciences*, 32, 283–287.
- Morrish, T., Nesbitt, A., & Zsilavec, U. (2017). Sounds affecting moments of stuttering in multilingualism: A case study. *Communication Disorders Quarterly*, 38(3), 154–160.
- Natke, U., Sandrieser, P., Pietrowsky, R., & Kalveram, K. (2006). Disfluency data of German preschool children who stutter and comparison children. *Journal of Fluency Disorders*, 31(3), 165–176. <http://doi.org/10.1016/j.jfludis.2006.04.002>



- Navarro-Ruiz, M.I. & Rallo-Fabra, L. (2001). Characteristics of mazes produced by SLI children. *Clinical Linguistics and Phonetics*, 15(1), 63–66. <http://doi.org/10.1080/026992001461325>
- Nwokah, E.E. (1988). The imbalance of stuttering behavior in bilingual speakers. *Journal of Fluency Disorders*, 13, 357–373. [http://doi.org/10.1016/0094-730X\(88\)90004-6](http://doi.org/10.1016/0094-730X(88)90004-6)
- Nwokah, E. E. (1988). The imbalance of stuttering behavior in bilingual speakers. *Journal of Fluency Disorders*, 13(5), 357–373.
- Paradis J., Emmerzael K., & Sorenson Duncan, T. (2010). Assessment of English language learners: using parents report on first language development. *Journal of Communication Disorders*, 43, 474–497.
- Paradis, J. (2010). The interface between bilingual development and specific language impairment. *Applied psycholinguistics*, 31, 227–252.
- Paradis, J. (2011). Individual differences in child English second language acquisition: Comparing child- internal and child-external factors. *Linguistic Approaches to Bilingualism*, 1(3), 213–237.
- Paradis, J., Crago, M. & Bélanger, C. (2005). Le développement langagier bilingue chez les enfants : incidence sur l'évaluation du trouble primaire du langage. *Fréquences*, 17(3), 27–30.
- Pellowski, M.W. & Conture, E.G. (2002). Characteristics of speech disfluency and stuttering behaviors in 3- and 4-year-old children. *Journal of Speech, Language, and Hearing Research*, 45(1), 20–34. [http://doi.org/10.1044/1092-4388\(2002/002\)](http://doi.org/10.1044/1092-4388(2002/002))
- Poulisse, N. (1999). *Slips of the tongue: Speech errors in first and second language production*. John Benjamins.
- Restrepo, M.A. (1998). Identifiers of predominantly Spanish-speaking children with language impairment. *Journal of Speech, Language, and Hearing Research*, 41, 1398–1411.
- Roberts, P.M., & Shenker, R.C. (2007). Assessment and treatment of stuttering in bilingual speakers. In: E. Conture, & R.F. Curlee (Eds.), *Stuttering and related disorders of fluency* (3rd ed., pp. 183–209). Thieme Medical Publishers, Inc.
- Roberts, P.M. (2002). Disfluency patterns in four bilingual adults who stutter. *Journal of Speech Language Pathology*, 26(1), 5–19.
- Rustin, L., Botterill, W., & Kelman, E. (1996). *Assessment and therapy for young dysfluent children: family interaction*. Whurr Publishers.
- Schäfer, M. & Robb, P. (2012). Stuttering characteristics of German-English bilingual speakers. *Clinical Linguistics & Phonetics*, 26(7), 597–612.
- Shapiro., D. (2011). *Stuttering intervention*. (2nd ed.). Pro-ed.
- Shenker, R.C. (2011). Multilingual children who stutter: Clinical issues. *Journal of Fluency Disorders*, 36, 186–193.
- Shenker, R.C., Conte, A., Gingras, A., Courcey, A., & Polomeno, L. (1998). The impact of bilingualism on developing fluency in a preschool child. In: E.C. Healey, & H.F.M. Peters (Eds.), *Second world congress on fluency disorders proceedings*, San Francisco, August 18–22 (pp. 200–204). Nijmegen Univ. Press.
-

- Shenker, R.C. & Watson, J. (2009). Cultural and linguistic diversity in stuttering treatment: Embracing the challenges. Short course presented at American Speech and Hearing Association. New Orleans, November.
- Shin, S.J. (2017). *Bilingualism in schools and society: Language, identity and policy* (2nd ed.). Routledge. <http://doi.org/10.4324/9781315535579>
- Stahl, V., & Totten, G. (1995). Bilingualism in young dysfluent children. In: C.W. Starkweather, & H.F.M. Peters (Eds.), *Stuttering: proceedings of the first world congress on fluency disorders*, Munich, Germany, August 8–11, 1994 p. 213.
- Stern, E. & Log, D. (1948). A preliminary study of bilingualism and stuttering in four Johannesburg schools. *Journal of Logopedics*, 1, 15–25.
- Szmalc, A. (2013). Bilinguisme et bégaiement chez l'enfant. *Enfance*, 3, 287–298.
- Tetnowski, J.A., Richels, C., Shenker, R., Sisskin, V., & Wolk, L. (2012, February 14). When the diagnosis is dual. *The ASHA Leader*. www.asha.org/Publications/leader/2012/120214/When-the-Diagnosis-Is-Dual/
- Travis, L.E., Johnson, W. & Shover, J. (1937). The relation of bilingualism to stuttering: A survey of the East Chicago, Indiana, schools.
- Travis, L.E., Johnson, W., & Shover, J. (1937). The relation of bilingualism to stuttering. *Journal of Speech Disorders*, 2, 185–189.
- Tuller, L. (2015). Clinical use of parental questionnaires in multilingual contexts. In S. Armon-Lotem, J. D. Jong, & N. Meir (Eds.), *Assessing Multilingual Children Disentangling Bilingualism from Language Impairment* (pp. 300–330). Multilingual Matters.
- Tumanova, V., Conture, E.G., Lambert, E.W., & Walden, T.A. (2014). Speech disfluencies of preschool-age children who do and do not stutter. *Journal of Communication Disorders*, 49, 25–41. <http://doi.org/10.1016/j.jcomdis.2014.01.003>
- Valdés, G. & Figueroa, R.A. (1994). *Bilingualism and testing: A special case of bias*. Ablex Publishing.
- Van Borsel, J. (2011). Review of research on the relationship between bilingualism and stuttering. In Howell P, Van Borsel J, (Eds.). *Multilingual Fluency Disorders*. (pp. 253–253), Multilingual Matters.
- Van Borsel, J., & Britto Pereira, M.M. (2005). Assessment of stuttering in a familiar versus an unfamiliar language. *Journal of Fluency Disorders*, 30, 109–124.
- Van Borsel, J., Maes, E., & Foulon, S. (2001). Stuttering and bilingualism: A review. *Journal of Fluency Disorders*, 26, 179–205.
- Van Borsel, J., Maes, E., & Foulon, S. (2001). Stuttering and bilingualism: A review. *Journal of Fluency Disorders*, 26, 179–205. [http://doi.org/10.1016/S0094-730X\(01\)00098-5](http://doi.org/10.1016/S0094-730X(01)00098-5)
- Van Zaalén-op't Hof, Y., Wijnen, F., & De Jonckere, P.H. (2009). Differential diagnostic characteristics between cluttering and stuttering—Part one. *Journal of Fluency Disorders*, 34(3), 137–154.



- Vanryckeghem, M. & Brutten, G.J. (2018). Behavior Assessment Battery for Adults who Stutter. Plural Publishing Inc
- Volpin, L., De Weck, G., & Rezzonico, S. (2020). Enfants bilingues et prise en charge logopédique: panorama des pratiques déclarées. *Glossa*, 129, 16–31.
- Wei, L. (2005). *The bilingualism reader*. Psychology Press.
- Wei, L. (2007). *The Bilingual Reader*. (2nd ed.), Routledge.
- Weinreich, U. & Martinet, A. (1974). *Languages in contact: Findings and problems*. The Hague by Mouton.
- Werle, D., Byrd, C., & Coalson, G. (2019). Description of Multilingual Participants Who Stutter: An Update 2011–2018. *Communication Disorders Quarterly*, 1–8.
- World Health Organization. (2001). *International Classification of Functioning, Disability and Health: ICF*. World Health Organization.
- Yairi, E. & Seery, Ch. (2011). *Stuttering: Foundation and clinical applications*. Pearson Education.
- Yaruss, J.S., Coleman, C., & Hammer, D. (2006). Treating preschool children who stutter: Description and preliminary evaluation of a family-focused treatment approach. *Language, Speech, and Hearing Services in Schools*, 37, 118–136. doi: 10.1044/0161-1461(2006/014)
- Yaruss, S. & Quesal, R.W. (2016). *Overall Assessment of the Speaker's Experience of Stuttering (OASES)*. Stuttering Therapy Resources.
-