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Crosslinguistic Analysis of Stuttering and Typical Disfluencies in Polish-English Bilingual Adults Who Stutter

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CROSSLINGUISTIC ANALYSIS OF STUTTERING AND TYPICAL DISFLUENCIES IN POLISH-ENGLISH BILINGUAL ADULTS WHO STUTTER

by

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ABSTRACT

This research study examines the types and frequencies of stuttering, typical disfluencies, and speech rate in Polish-English bilingual adults who stutter across a variety of speaking situations. As Polish and English are phonetically and morpho-syntactically disparate languages, they provide grounds for evaluating the cross-linguistic correlates that may contribute to dysfluency in bilingual individuals who stutter in hopes of contributing to more effective assessment, diagnostic determination, and clinical practice.

Participants were all native Polish speakers who spoke English at an intermediate or higher level, were diagnosed with a developmental stutter, and were at least 18 years old. Given that the participants resided in Poland, the study took place via Skype. Participants were first subjected to an English proficiency test, then engaged in three speech tasks (oral reading, monologue, and dialogue) to collect a 200-word speech sample in both Polish and English. Tasks were randomized for language, order of administration, and set of images and conversation topics to minimize the possibility of an order effect.

No significant differences in stuttering frequency or stutter types between Polish and English within tasks were found. Similar patterns of stuttering types occurred within Polish and English. There were significantly more typical disfluencies in English compared to Polish during oral reading, with significantly more interjections occurring in the second language during monologue and oral reading. Correlational analyses revealed high positive correlations between stuttering types in all three tasks. Speech rate did not differ significantly between both languages. The percentage of typical disfluencies correlated negatively with dialogue and monologue for language proficiency. Results

provide implications for assessment and treatment of stuttering in all languages spoken by the client.

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I can recall the first day that I begin writing this thesis. It was one of those stormy Florida summer afternoons and I had just returned from a bike ride, soaking wet and energized. With my bike parked in the garage, I put aside one journey and began another. It's difficult to string together the days that followed this first day, mostly because this thesis began in a way that many projects of the heart and mind begin—serendipitously, and much before the first day that I actually began writing. This thesis has traveled with me from my time in Poland as a Fulbright student, partaking in stuttering support groups and conferences throughout the country, and back to graduate school in coffee shops and libraries throughout Orlando. Thank you to everyone I met in Poland and Fulbright Polska for paving this path for me.

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LIST OF ABBREVIATIONS

Adults who Stutter (AWS)

Adults who do not Stutter (AWNS)

Bilinguals who Stutter (BWS)

Children who Stutter (CWS)

Children who do not Stutter (CWNS)

Native Language – Polish (L1)

People who Stutter (PWS)

People who do not Stutter (PWNS)

Second Language – English (L2)

Speech-Situation Checklist—Emotional Reaction (SSC-ER)

CHAPTER ONE: LITERATURE REVIEW

1.1 Stuttering

Stuttering is a multifaceted speech disorder characterized by interruptions in the fluency of speech. It affects approximately 1% of the world's population (Bloodstein & Bernstein Ratner, 2008). Specifically, stuttering encompasses the presence of oral and silent sound prolongations (e.g. "ffffffor" and "____good"); sound and syllable repetitions (e.g. "m-m-movie" and "ta-ta-ta-table"), monosyllabic-word repetitions (e.g."of-of-of-course"); and broken words (e.g. "su__gar"). The presence of these behaviors are key symptoms for differential diagnosis of stuttering versus disfluencies of a different nature, such as multisyllabic word and phrase repetitions, interjections, revisions, and incomplete phrases.

Compared to people who do not stutter (PWNS), another defining feature is that the dysfluencies of people who stutter (PWS) will typically be accompanied by physical tension. Additionally, PWS may experience symptoms secondary to stuttering, which manifest themselves as *overt concomitants, covert concomitants*, and *introspective variables* (Bloodstein & Bernstein Ratner, 2008). Overt concomitants incorporate the behaviors that are observable, such as mouth distortions or the use of atypical vocal inflections, whereas the covert concomitants are the physiological accompaniments that occur during a stutter and can only be detected by means of instrumentation (e.g. increased heart rate or tremors) (Bloodstein & Bernstein Ratner, 2008). In addition to the behaviors secondary to stuttering, PWS may experience affective and/or cognitive reactions to stuttering, such as the subjective appraisal towards his or her stuttering,

muscular tension, or emotional reactions (Bloodstein & Bernstein Ratner, 2008). When assessing and treating the PWS, it is important to consider these aforementioned components for a holistic view of how stuttering impacts the individual. In addition to the characteristics secondary to stuttering, researchers have found linguistic correlates that contribute to stuttering, providing more insight into this relationship.

1.2. Stuttering and Language

When examining the relationship between stuttering and language, it is important to consider how language is affected by stuttering as well as which linguistic components contribute to stuttering. As dysfluencies affect the flow of speech, researchers have wondered whether this disruption impacts the greater sphere of language in both receptive and expressive capacities. In addition, as pointed out, many PWS use coping strategies secondary to their stuttering, which might include linguistic or para-linguistic phenomenon such as the use of word substitutions, word omissions, pausing before a feared word, or using a different intonation or speech rate (Vanryckeghem, Brutten, Uddin, & Van Borsel, 2004). Thus, the extent to which language is affected—potentially partially due to these coping behaviors—has been questioned. In an effort to understand the relationship between language development and stuttering, much of the research has focused on children, although increasingly more research has been conducted with adults to better comprehend how developmental stuttering affects language in the long-term.

Stuttering onset typical happens between the ages of two and six, (Bloodstein & Bernstein Ratner, 2008), with increasing rates of disfluency occurring until the age of four, and then declining at ages five or six (Ito, 1986). It is clear that this onset timeframe coincides with

the seminal period of overall language acquisition and development and thus raises the question of whether stuttering onset and language development impact one another. One research finding that supports the notion that stuttering and language are inextricable is the rate of co-morbidity of stuttering and other communication disorders. For example, Blood, Ridenour, Qualls, and Hammer (2003) studied 2,628 cases of school-age children who stutter (CWS) and found that over 45% had coinciding articulation or phonological difficulties, approximately 33% were also diagnosed with a receptive and/or expressive language disorder, and about 6% were diagnosed with specific language impairment. Given the high rate of co-morbidities, it is imperative to research the language abilities of CWS compared to children who do not stutter (CWNS) in order to understand where the differences occur between both groups, whether these effects continue into adulthood, and, if so, how they manifest in adults who stutter.

A respectably sized body of research on stuttering and CWS's language abilities has revealed varied expressive/receptive language abilities compared to CWNS (Bloodstein & Bernstein Ratner, 2008). Further, a meta-analytical review of 22 studies involving CWS and CWNS between the ages of 2;0 and 8;0 revealed that CWS scored significantly lower than CWNS on standardized assessments and speech samples assessing receptive and expressive language abilities (Ntourou, Conture, & Lipsey, 2011).

1.2.1. Receptive language.

To compare the receptive language abilities of CWS, the *Peabody Picture Vocabulary Test (PPVT)* (Dunn & Dunn, 1997) was administered, with results indicating that CWS did not perform as well as CWNS (Anderson & Conture, 2000; Murray & Reed, 1977), evidencing poorer comprehension abilities between these two groups. However, recent studies have shown

that the early findings indicating that CWS have depressed receptive language abilities may not be accurate due to various research limitations, such as the use of convenience sampling and small samples (Nippold, 2012). Nippold asserts that, given the body of available research, it cannot be concluded that CWS have depressed language abilities compared to CWNS or that stuttering adversely affects language development; rather, Nippold states that the findings reflect the range of linguistic abilities generally found in children as language develops (2012).

Another caveat pointed out by Anderson and Conture (2000) is that the discrepancy in receptive language abilities between CWS and CWNS may lessen as children grow older, which they hypothesize may be due to the fact that CWS essentially "catch up" as they mature and become more educated. The researchers found that CWNS and CWS did not differ significantly in their scores on receptive and expressive language tests; rather, CWNS showed a greater imbalance between their receptive and expressive scores. The researchers explain this as an imbalance between the speech and language systems of CWS leading to fluency breakdowns. Their data parallel other research that suggests fluency breakdowns occur because of linguistic processing difficulties (Au-Yeung & Howell, 1998; Bernstein Ratner, 1997; Howell, Au-Yeung, & Sackin, 2000).

Specifically, processing difficulties have been used to explain fluency breakdowns in developmental stuttering. This may be due to increased processing demand based on the notion that stuttering may occur because of slow lexicalization processes (Prins, Main, & Wampler,1997) and linguistic planning breakdowns (Bosshardt, Ballmer, & de Nil, 2002). Lexicalization can be understood as the process of receiving linguistic information, encoding it, and producing semantically and phonologically appropriate output. Processing demands required

for planning speech impact stuttering in both children (Melnick & Conture, 2000) and adults (Silverman & Bernstein Ratner, 1997). Further, in children, Watkins, Yairi, and Ambrose (1999) state that dysfluency occurs as the product of a breakdown because of the discrepancy between the child's ability to actively process the linguistic demands of a statement and their ability to be fluent. The Demands and Capacities model by Adams (1990) and Starkweather and Gottwald (1990) explains this further as dysfluencies occurring when the demands for a child to be fluent surpass his or her relative developmental capacity in linguistic, motoric, affective and/or cognitive domains. As mentioned earlier, it has been implied that language disorders may increase the risk that a child will develop a stutter, which may explain the increased number of CWS with concomitant language disorders.

For children who do recover spontaneously, it can be assumed, then, that the discrepancy between the receptive language abilities of CWS and CWNS would lessen as children mature and essentially become non-existent in adulthood. However, in an experiment aimed at understanding lexicalization abilities of adults who stutter (AWS) and adults who do not stutter (AWNS), Prins et al., (1997) found that AWS had poorer receptive vocabulary abilities compared to AWNS counterparts, when measuring how speech response latency was affected during picture naming tasks. In addition, Bosshardt et al. (2002) implied that AWS have depressed receptive abilities due to the increased processing capacity needed to produce sentences while making appropriate adjustments when stuttering occurs.

1.2.2. Expressive language.

In Ntourou et al.'s systematic review (2011), it was pointed out that, out of the eight studies assessing the expressive vocabulary abilities of CWS by means of norm-standardized

assessments, such as The Expressive Vocabulary Test (Williams, 1997), CWS as a group scored 68% lower than their CWNS counterparts. Further, mean length of utterance (MLU) analysis in eleven studies revealed that CWNS mean scores surpassed CWS mean scores by 59%, indicating a lower overall expressive language output in CWS (Ntourou et al., 2011). A drawback, as mentioned by Ntourou et al. (2011), is that norm-referenced assessments provide a task-specific (rather than skill-specific) view of linguistic abilities. Thus, it may be valuable to assess more contextual expressive language abilities to understand the disparity between CWS and CWNS.

Scott, Healey, and Norris (1995) compared the story retelling abilities of CWS and CWNS by analyzing the sophistication level of the retell and the story grammar elements included. There was no significant between-group difference, indicating that CWS and CWNS have similar story re-telling abilities. Findings such as these contribute to the inconclusive data and continued debate that surround whether CWS exhibit significantly different language abilities compared to CWNS. In adults, it has been speculated that the speech production systems of AWS are potentially more vulnerable to breakdowns when the processing load is increased, leading to greater attempts to maintain fluency (Lee, Robb, van Dulm, & Ormond, 2016). According to Cream, Onslow, Packman, and Lewellyn (2003), after a prolonged period of fluency therapy, AWS have described operating “on two levels” while formulating their statements and consciously using the fluency techniques learned in therapy. This dual-processing mentality lends itself to the various coping strategies that AWS tend to use to avoid being dysfluent. They include word substitutions, interjections, omissions, topic changes, generic responses to questions, or generally limiting their spontaneous speech output (Cream et al., 2003; Crichton-Smith, 2002; Lee et al., 2016). As such, the expressive language of PWS has been

studied to understand the effect that dysfluency may have on speech output, given the understanding that PWS make linguistic alterations in order to avoid stuttering.

From a qualitative perspective, AWS have reported that they experience "communication restriction as a result of verbal avoidance" (Cream et al., 2003), which can be further explained by the use of the aforementioned avoidance strategies. Language measures have been used to more objectively understand the language output of AWS by examining how expressive language is affected by dysfluency. For example, Spencer, Packman, Onslow, and Ferguson (2009) utilized Systemic Functional Linguistics to analyze and describe the differences in language use between AWS and AWNS. The researchers found that AWS used language that was significantly less complex compared to AWNS, with AWS saying fewer words overall and speaking with decreased grammatical complexity (Spencer et al., 2009). These findings parallel Packman, Hand, Cream, and Onslow's (2001) findings, indicating that the speech of AWS is grammatically more simplistic, possibly due to the fact that AWS feel limited when speaking because of the fear that they may stutter. More recently, Lee, van Dulm, Robb, and Ormond (2015), used Systematic Analysis of Language Transcripts – New Zealand (SALT-NZ) and Systemic Functional Linguistics to quantify the linguistic output of AWS compared to AWNS matched for age and gender. Their results also revealed depressed language output both in quantity (e.g. words spoken) and complexity (Lee et al., 2015). Taken these research findings together, one must consider that the increased amount of time it takes to speak when experiencing a dysfluency— in addition to the use of avoidance behaviors (e.g. interjections, passing opportunities to speak in fear of being dysfluent, etc.)—may all contribute to the depressed expressive language abilities of PWS that have been found in some studies.

1.2.3. Other linguistic considerations.

In addition to the relationship between language and stuttering, other particular features of language have been said to contribute to the occurrence of stuttering. Early work by Brown (1937, 1938, 1945) identified specific linguistic attributes of words that led to consistent stuttering occurrences, providing a framework for which the loci of stuttered moments could potentially be predicted for words. Specifically, Brown attributed the following phonetic and syntactic factors to increased dysfluencies: 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). Since Brown's seminal work, additional research in this area has shed light on other linguistic components eliciting higher stuttering occurrences, such as syntactic complexity (Blood & Hood, 1978; Bloodstein, 1974) and word familiarity (Hubbard & Prins, 1994).

As it relates to phonetic factors, Brown (1938) found that 92% of stuttering occurs on the initial sound or syllable of a word. Thus, the phonetic factor can be considered one of the most salient contributors of dysfluency. In addition, consonant sounds generally produce more dysfluency than vowel sounds, at least in the English language (Brown, 1945). Research following Brown's work was aimed at determining the specific factors of phonemic complexity that lead to increased stuttering occurrences in both children and adults. In children, Throneburg, Yairi, and Padden (1994) used the phonemic framework of words containing late emerging consonants (LEC) in English-speaking children, consonant strings (CS) (which occur less frequently than singleton consonant sounds), and syllable counts, to determine if these factors contributed to increased stuttering frequency. Both LEC and CS are acquired later compared to

other phonological structures (Howell et al., 2000), thus providing the rationale that these phonemic attributes may be more difficult and lead to increased stuttering. The researchers concluded that LEC, CS, and syllable count did not relate to increased stuttering occurrences in children (Throneburg, Yairi, & Padden, 1994).

However, this was not the case in adults. Howell et al., (2000) extended the aforementioned study to analyze the stuttering frequency under LEC and CS conditions in children, adolescents, and adults. The researchers reported that speakers who were older than twelve stuttered more on content words with LEC and CS in the initial position of a word (Howell et al., 2000). This finding was supportive of previous research showing that children typically stutter more on function words (Bloodstein & Gantwek, 1967; Bloodstein & Grossman, 1981) while adults stutter more on content words (Howell, Au-Yeung, & Sackin, 1999), in addition to LEC and CS being phonetic factors contributing to dysfluency. Thus, not only can the phonemic structure of a word impact dysfluency, but so can the grammatical class of a word. Specifically, content words (e.g. nouns and verbs) are typically stuttered upon more frequently in adults than function words (e.g. prepositions) (Brown, 1945) and syntactically complex sentences are more likely to be stuttered upon (Bernstein, 1981; Bloodstein, 1974). The increase in dysfluencies observed in content words could potentially be due to the importance in communicative meaning of these types of words (Quarrington, 1965).

Other features of words that evidence more dysfluencies include length, accent pattern, frequency, and the individual's familiarity with the word. In general, it has been found that lengthier words evidence more dysfluencies (Brown & Moren, 1942; Logan & Conture, 1995; Sawyer, Chon, & Ambrose, 2008), possibly due to the phonetic complexity of longer words.

Accent pattern and word stress have also been identified as contributors of dysfluency, with accented syllables containing a greater amount of dysfluency than words with unaccented syllables (Brown, 1938). This can be explained by the fact that increased tension is necessary to produce accented syllables, potentially increasing the possibility of dysfluency. In addition, Howell et al., (1999) asserted that stress in the English language changes the meaning and word class, producing greater dysfluencies on content words compared to function words, as most content words contain stressed syllables and function words typically do not. Lastly, the familiarity of a speaker with a word contributes to the amount of dysfluency present. According to Hubbard and Prins (1994), more stuttering events occur when the speaker is less familiar with the words in a sentence. The researchers posited that this could be due to a greater encoding issue where an unfamiliar word causes a breakdown, leading to a stuttered moment (Hubbard & Prins, 1994).

Although no one single factor contributes to a greater frequency of stuttered events, understanding which linguistic components evidence increased dysfluency provides more insight into stuttering itself. Though most of the research explores this phenomenon within the English language, more research is necessary to reveal whether these same linguistic factors affect fluency in languages other than English.

1.3. Bilingualism

It is generally understood that bilingual individuals have knowledge of two languages. This definition, however, is not enough to encompass the different levels of knowledge and conditions that make an individual "bilingual" and, therefore, it is important to define the different variations that bilingualism can encompass. For example, Grosjean (2013) defines

bilinguals as those who use two languages or dialects in their everyday lives. Alternatively, Macnamara (1967) identifies bilinguals as persons who can comprehend, read, speak, and/or write another language—even if to a minimal extent. Considering these two definitions, would a bilingual be someone who can *understand* another language, but does not *use* it in his or her daily life? In other words: When does a monolingual speaker become bilingual and when, if at all, does a bilingual speaker stop being bilingual due to language attrition? The factors by which a bilingual is defined have been debated by researchers and include language proficiency relative to the speaker's comprehension, reading, speaking, and writing abilities in both languages. As postulated by Grosjean (1998), it is likely that most researchers would agree that bilinguals use languages for different purposes and with various conversation partners, contingent upon their environment and context. As such, rarely is a bilingual equally fluent in both languages and oftentimes his or her proficiency in either language changes over time depending on use.

Davison (2009) explains distinctive typologies that differentiate between levels of bilingualism based on competence and exposure. They are as follows: *additive bilinguals* are speakers who learn a second language that does not affect the first language in terms of proficiency; *subtractive bilinguals* include speakers who learn a second language but consequently experience declined proficiency in their first language; *dominant bilinguals* encompass speakers who speak two languages, but remain more proficient in one language over the other; *balanced bilinguals* are speakers of two languages demonstrating equal proficiency in both; s*imultaneous bilinguals* are speakers who had equal exposure to both languages from birth; and *sequential bilinguals* are speakers who acquired a second language later in their development. Most bilinguals exhibit incongruous proficiency in both languages and therefore

can be defined as any of the above-mentioned typologies except for the "balanced bilingual," who is defined by Grosjean as "one who does as well in one language as in the other" (2008, p. 11). The majority of bilinguals are sequential, learning a second language after being exposed to their first language. In addition to the types of bilinguals, it is also important to consider the age of acquisition of each language, the manner of acquisition (e.g. formally versus informally), how the language is used, and the proficiency level for each language (Roberts, 2002).

Bilingualism has been of particular interest to researchers in an effort to understand the benefits and drawbacks of possessing bilingual capabilities. For one, bilinguals have previously been thought of as "two monolinguals in one person," (Grosjean, 2008, p. 10) essentially the sum of two complete (or incomplete) monolinguals containing two separate language systems. However, with the advent of brain imaging and related studies, researchers are increasingly understanding the cognitive processes encompassing the bilingual brain, which point to a more shared process where both languages influence cognition (Rodriguez-Fornells, Rotte, Heinze, Nosselt, & Munte, 2002). Further, brain imaging studies have shown similar areas of activation for speech production and comprehension tasks, even in disparate languages such as English and Mandarin (Wong, Yin, & O'Brien, 2016), evidencing the interconnectivity of bilingual language processes. Given the knowledge of activation sites for various language processes in bilingual communicators, behavioral studies have revealed that bilinguals have an advantage over monolinguals when performing executive functioning tasks (Bialystok, Craik, & Luk, 2012; Carlson & Meltzoff, 2008). Though a more precise understanding of these executive functioning advantages is debated by researchers, some consensus has been reached in that bilinguals implement domain-general executive control when switching between languages, emphasizing

that executive functioning abilities influence language processing in the bilingual brain (Wong et al., 2016). A side-effect of this executive functioning, however, is depressed word retrieval abilities (Bialystok et al., 2012), possibly due to language interference (Marian & Shook, 2012). Brain imaging has also supported the notion that bilinguals exhibit greater phonological awareness as well as morphosyntactic and semantic abilities compared to monolinguals, which is supported by anatomical differences in areas such as brain structure, structural connectivity, and function (Wong et al., 2016). The researchers suggest that the increased phonological, morpho-syntactic and semantic abilities of bilinguals parallel the milestones of language development (Wong et al., 2016). Such findings, once again, suggest a linguistic advantage that adds to the body of literature supporting overall increased language abilities in bilingual communicators.

1.4. Stuttering and Bilingualism

According to Bernstein Ratner and Benitez, the bilingual PWS has been considered an "ideal clinical case for the application of linguistic analysis" (1985, p. 212) due to the possibility of examining the loci of stuttering that remain consistent across both languages. Indeed, a second language provides a litmus test of sorts from which to make clinical judgments regarding fluency breakdowns, as well as contribute to research on fluency disorders, most of which has been conducted on monolingual English speakers (Van Borsel, Maes, & Foulon, 2001).

To date, few studies have examined the relationship between bilingualism and stuttering in adults. Clinically speaking, the clinician's knowledge of the relationship between stuttering and bilingualism is valuable, as the clinician must have sufficient knowledge and resources to assess fluency in both languages and know how to treat bilingual clients. Given that at least 50% of the world's population is raised in a bilingual or multilingual environment and there are fewer

native English speakers compared to English-as-a-second-language (ESL) speakers (Shenker & Lim, 2015), it is imperative that speech-language pathologists and researchers work together to establish the best practices regarding assessment and intervention for bilingual individuals who stutter. However, there are few multilingual speech-language pathologists available to meet the needs of multilingual clients (Jordaan, 2008), which poses a multitude of issues when working with bilingual clients who stutter. For one, bilingual individuals may be misdiagnosed as having a language *disorder*, as their language *difference* may make it seem as though they have a linguistic deficit (Bedore & Peña, 2008), reflecting the necessity for clinicians to be sensitive to bilingual language development and proficiency. The potential for misdiagnosis speaks to the greater issue of misconceptions and questions related to stuttering and bilingualism, which will be discussed below.

1.4.1. Perspectives on bilingualism and stuttering.

A bilingual individual may experience typical, non-stuttering disfluencies (e.g. interjections and phrase repetitions) when he or she is not proficient enough to express a desired idea in one or both languages. Indeed, many individuals who speak a second language can attest to this experience. Though these disfluencies differ from the stuttering behaviors experienced by PWS— as a PWS demonstrate language proficiency but is unable to say a desired utterance fluently—many have questioned whether there is a causal relationship between bilingualism and stuttering. Early research on the matter suggested that bilingualism did in fact cause stuttering (Eisenson, 1986; Karniol, 1992; Mattes & Omark, 1991; Shames, 1989), a conclusion possibly influenced by the common belief that children should not be introduced to a second language until they had mastered the first (Van Borsel et al., 2001).

However, it is important to note that these early research endeavors had varying definitions of what was considered "bilingual," in addition to having methodological issues, and thus should be interpreted with caution (Van Borsel et al., 2001). This is not to discount the seminal and undoubtedly necessary research regarding bilingualism and stuttering, but rather to herald further research on the subject in order to provide more conclusive information. Though more recent research consists mostly of single-subject case studies (see Coalson, Peña, & Byrd, 2013 for systematic review), the overall consensus is that bilingualism itself does not cause stuttering (Shenker & Lim, 2015), which provides a significantly different position compared to earlier research. In addition, there has been no noted case where stuttering onset occurred when an individual learned a second language in adulthood (Van Borsel et al., 2001), adding more evidence to dispel the notion of a causal link between bilingualism and stuttering. Thus, this shift in mentality is important for a clinician to be aware of, as recommending that bilingual parents speak only one language to their child in order not to cause stuttering may be ill-advised (Shenker, 2013). However, conflicting views continue to exist on whether bilingualism directly contributes to stuttering (e.g. Howell, Davis, & Williams, 2009; Packman, Onslow, Reilly, Attanasio, & Shenker, 2009), reflecting the need for still more conclusive evidence. It is possible that other factors, such as the use of two or more languages, may bring about stuttering in a child who is already pre-disposed to stuttering (Lebrun & Paradis, 1984), or a multitude of other factors may precipitate the development of a stutter.

1.4.2. The bilingualism-stuttering connection.

Given the intersection of bilingualism, stuttering, and language development, researchers have considered linguistic differences between bilinguals and monolinguals to understand how

bilingualism contributes to stuttering. For example, Travis, Johnson, and Shover (1937) compared the prevalence of stuttering between monolingual, bilingual and trilingual school-age children, with findings showing a higher prevalence of stuttering in the bilingual and trilingual children. The researchers noted that for 26% of the bilingual CWS in their study, the age of second language acquisition and stuttering onset coincided. A drawback of this study is that a one-time measure of fluency during dialogue and reading was used to assess stuttering occurrences—which is arguably an invalid measure of overall stuttering, as stuttering changes over time (Van Borsel et al., 2001). However, the researchers drew an interesting parallel between stuttering and language development, specifically in bilingual speakers.

As noted earlier, stuttering has been considered within the framework of language development, with some studies showing that CWS had depressed language abilities compared to their non-stuttering peers and AWS expressing less complex language. Research on bilingualism (not specifically with PWS) has also shown performance differences between monolinguals and bilinguals, such as the ability to switch tasks, attention to detail, and protection against cognitive decline (Marian & Shook, 2012). As stuttering involves cognitive linguistic processes affecting the interaction between speech motor performance and language structures, cross-linguistic research of the linguistic components in the speech of bilinguals who stutter (BWS) would provide an "increased understanding of the dynamics of this disorder and perhaps the role of central planning involved in stuttered speech" (Jankelowitz & Bortz, 1996, p. 224).

1.4.3. Syntactic factors in bilingualism and stuttering.

Syntactic complexity has been noted to affect fluency, with more dysfluencies occurring on syntactically complex statements (e.g. Bernstein, 1981; Blood & Hood, 1978). Karniol (1992)

further posits the notion that bilingual language development and stuttering are linked by discussing the aforementioned Demands and Capacities Model (Adams, 1990; Starkweather & Gottwald, 1990), in which the linguistic demands of a child's environment exceed his or her capabilities, leading to fluency breakdowns. Although Karniol (1992) mentions this model's lack of circularity, she attributes fluency breakdowns to more of a processing issue in which bilingualism contributes to greater opportunities for fluency breakdowns due to the increased processing time and demands necessary for a bilingual to formulate speech. Following a bilingual child before and after stuttering onset, Karniol (1992) suggests that the syntactic overload involved with processing two languages caused the child to stutter. Subsequently, she links this cognitive load to adult second language learners, as "such learning taxes the cognitive system significantly" (p. 278) since a difficult utterance requires more planning, time, and decisions to execute. Studying a Spanish-English bilingual AWS, Bernstein Ratner and Benitez (1985) also posit that syntactic structure contributed to stuttering frequency. The BWS in the study was predominantly dysfluent on vowels; however, English verbs (a majority of which began with consonants), encompassed more stuttered moments than Spanish verbs (a majority of which begin with vowels and, therefore, would have been said dysfluently if, as stated by the researchers, phonetic components contributed to dysfluencies rather than syntactic) (Bernstein Ratner & Benitez, 1985).

As discussed earlier, CWS typically stutter more on function words while AWS stutter more on content words. Only a few studies have examined this pattern in BWS, but the same pattern has been found, with Spanish and German-speaking CWS being more dysfluent on function words, and Spanish and German-speaking AWS being more dysfluent on content words

(Dworzynski & Howell, 2004a, 2004b; Howell et al., 2004). Schafer and Robb (2012) found that bilingual German-English AWS (with German as the native language and English as the second language) stuttered more on content words in German than in English, even though overall stuttering frequency was higher in English. Although the researchers suggest that language dominance contributed to stuttering frequency rather than linguistic factors (such as phonemic complexity), they noted that content words are more complex and German content words, specifically, are longer and therefore phonetic factors - while maybe not the main contributors of stuttering - can still contribute to dysfluency (Schafer & Robb, 2012).

1.4.4. Phonetic factors in bilingualism and stuttering.

When considering the aforementioned link between phonology and stuttering, bilingualism provides grounds to test this link, should stuttering be consistent across phonological parameters between both languages (Van Borsel et al., 2001). As such, in Morrish, Nesbitt, and Zsilavecz (2017) study, the researchers found that there were indeed consistent stuttered moments across the speech of a German, Akrikaans, and English-speaking individual who stutters—specifically with the voiceless plosive /k/, voiceless fricative /f/, and the consonant cluster /kl/, all of which caused higher occurrences of stuttering. Overall, more stuttering occurred on consonants compared to vowels, which parallels previous research (Brown, 1945; Jayaram, 1977; Morrish et al., 2017).

When studying Igbo and English-speaking AWS, however, Nwokah (1988) found that, when dialogue and oral reading were combined, participants stuttered mostly on initial consonants (83.3%) in English compared to Igbo, where the participants had higher proportions of dysfluencies on vowels (63.9%). However, Nwokah (1998) noted that Igbo has more vowels

than English, including both voiced and nasalized vowels. In Igbo, participants were more dysfluent on vowel sounds when reading aloud compared to the proportion of vowels found in the reading passage; in English, the proportion of vowels in the passage was close to the amount of vowels stuttered (Nwokah, 1998). However, when looking at the overall dysfluencies between English and Igbo, there were no differences in either oral reading or extemporaneous speech (Nwokah, 1998). These results indicate that it cannot be assumed that all languages will evidence greater dysfluencies on one type of sound versus another, as previous research on monolingual English-speaking AWS indicated, weakening the assumption that specific phonetic factors—such as consonants—influence all PWS (Nwokah, 1988). Overall, phonetic complexity does contribute to stuttering frequency, but most likely is not the sole or main proponent of stuttering in BWS (Morrish et al., 2017).

1.4.5. Language familiarity.

Further, Van Borsel, Sunaert, and Engelen (2005) allude to another linguistic factor that connects bilingualism and stuttering: language familiarity. As previously mentioned, word familiarity may contribute to decreased stuttering (Hubbard & Prins, 1994). According to Van Borsel et al. (2005), levels of language familiarity in bilingual speakers may contribute to the amount of dysfluency present in both languages. Indeed, bilinguals typically differ in the type, frequency, and distribution of dysfluencies they present within each language (Lim, Lincoln, Chan, & Onslow, 2008a). According to Schafer and Robb (2012), there are three possible stuttering patterns in bilinguals: (1) stuttering is present in only one language, (2) stuttering is present in both languages but differs cross-linguistically, and (3) the distribution of stuttering is similar across both languages. At present, only one study with four Spanish-English bilinguals

(Dale, 1977) found evidence for the fact that BWS stuttered in only one language. Therefore, it was hypothesized by the researcher that this was due to environmental pressure to speak Spanish fluently. The majority of studies with BWS have, however, evidenced that stuttering is distributed across languages, with some findings pointing to more stuttering in participants' native language (L1) (Howell et al., 2004; Jayaram, 1983) while others have found more stuttering in participants' second language (L2) (Jankelowitz & Bortz, 1996; Lim et al., 2008; Nwokah, 1988; Roberts, 2002; Schafer & Robb, 2012).

The fact that language dominance contributed to decreased dysfluencies was suggested in studies with speakers of Mandarin and English (Lim et al., 2008), German and English (Schafer & Robb, 2012), and Kannada and English (Maruthy, Raj, Geetha, & Priya, 2015), with fewer dysfluencies observed in the participants' L1 compared to their L2. For example, Lim et al. (2008) found that participants who were Mandarin-dominant were more dysfluent in English and the opposite was observed for the English-dominant participants. The discrepancy between stuttering in L1 and L2 may be due to the increased demands placed on formulating statements in the non-dominant language, or the phonetic complexity of both languages (Maruthy et al., 2015), circumnavigating back to the aforementioned contributions of syntax and phonetics to the stuttering distribution and frequency observed in BWS.

1.5. Dysfluency in the Polish and English Languages

As stuttering presents across cultures, languages, and in monolinguals and bilinguals (Van Borsel et al., 2001), there is an ever-growing need for research and practices that support bilingual PWS in assessment, diagnosis, and treatment. As stuttering may affect different languages in varying degrees (Kohnert & Medina, 2009), cross-linguistic research including

BWS provides clinicians working with such populations grounds for treatment and an awareness of how stuttering can manifest in the client's second language, which might not be the same as the clinician's. Current research trends reflect a greater interest in BWS; however, the research is limited to particular languages and populations. At this time, Polish-English BWS have not been studied cross-linguistically.

The Polish language is spoken by approximately 40 million people across the world ("Polish Language," 2016). It is part of the Indo-European branch of languages, specifically Slavic languages such as Czech and Slovak ("Polish Language," 2016). The Polish language consists of an estimated 200,000 words—more than the English language, which has an estimated 170,000 words (Kennedy, 2016). Both Polish and English are based on the Latin alphabet, but Polish consists of more vowels and consonants collectively compared to English, with 7 consonants and 35 vowels ("Polish Language," 2016, p. 1). In addition, the Polish language features a large number of consonant clusters (e.g. "*drz*ewo" for "tree"), with as many as six consonants occurring together (Sadowska, 2012) (see Table 1). As previously mentioned, the majority of stuttering has been found to occur on consonant sounds; thus, should this hold true cross-linguistically, increased consonant clusters in the Polish language could contribute to more dysfluencies in Polish speakers who stutter.

Additionally, cross-linguistic differences in stress patterns may also play a role in stuttering type and frequency, as it has been found that words with accented syllables have increased dysfluencies (Brown, 1938). In Polish, the majority of stress can be found in the second-to-last syllable (e.g. "te/*le*/fon") (Sadowska, 2012). Like English, sentence stress is placed on the word in which the speaker desires to emphasize the meaning (Sadowska, 2012)

which can also contribute to dysfluencies since, according to Howell et al. (1999), stressed words are typically more meaningful and therefore the speaker is more focused on the desire to say them fluently.

Morpho-syntactically speaking, Polish contains many inflections to indicate the role that a word plays in a sentence. These inflections are made with the use of *cases*, which are different endings attached to nouns, adjectives, pronouns, numerals, and/or participles (Sadowska, 2012). Also, compared to English, Polish word order is less rigid (Sadowska, 2012) meaning that words can take different slots in a sentence and still be grammatically correct. In addition, Polish has three noun genders: masculine, feminine, and neuter, warranting additional morpho-syntactic changes to reflect the gender of the subject being discussed. As such, Polish requires a greater amount of morpho-syntactic changes than English to accommodate for the inflections. In reference to stuttering, it is known that syntactic complexity can affect fluency. Thus, given the morpho-syntactic differences between Polish and English, it may be useful to examine the cross-linguistic dysfluencies to better understand the impact that morpho-syntax might have on stuttering.

Table 1
Linguistic Differences between English and Polish

Language	Word Count	Alphabet	Consonant Clusters	Stress	Morpho-syntactic Features
Polish	200,000	35 consonants 7 vowels	up to 6 (*pszczyna*)	typically penultimate syllable (mi*kro*skop)	flexible word order 7 cases 3 noun genders
English	170,000	24 consonants 7 vowels	up to 3 (e.g. *strife*)	irregular stress patterns	strict word order 3 cases No gender nouns

1.6. Assessment of Stuttering in Bilingual Individuals

According to Shenker (2011), it is imperative to use a comprehensive testing sample to evaluate a PWS who speaks more than one language. This is especially true given that dysfluencies will be present in both languages, yet may affect each language differently (Caesar & Kohler, 2007). The clinician is thus presented with challenges when assessing BWS especially because, typically, the clinician will not speak one of the languages of the BWS, yet the professional must possess the necessary skills to consider linguistic and cultural differences when assessing BWS (Williams & McLeod, 2012). There are currently only a few studies that have examined the clinician's ability to evaluate stuttering in a foreign language. The findings indicated that therapists could identify fluent versus stuttered speech in a foreign language

(Einarsdóttir & Ingham, 2009) and severity (Lee et al, 2014; Van Borsel & Britto Pereira, 2005), but had more difficulty specifying the characteristics of the observed dysfluencies, such as type of stutter (Van Borsel & Britto Pereira, 2005). Therefore, establishing common assessment practices supported by research is imperative for clinicians to conduct an accurate assessment and reach a valid diagnosis of stuttering in bilinguals.

As clinicians will increasingly be confronted with a bilingual caseload, understanding cross-linguistic features of stuttering will ultimately support the clinician in establishing accurate and detailed diagnoses of stuttering in bilingual individuals. To do so, researchers and clinicians must have a strong understanding of which stuttering patterns may be present in bilinguals who stutter, specifically in various languages. It is thus the aim of this study to identify stuttering correlates that contribute to stuttering in both Polish and English in order to add to the growing body of research about BWS. Through examining the types and frequency of dysfluencies present in both languages during typical fluency assessment procedures (monologue, dialogue, and oral reading), the researcher hopes to contribute to the understanding of the factors that precipitate stuttering.

CHAPTER TWO: METHODOLOGY

2.1. Participants

Participants included in this study were 7 adults (defined as age 18 or older) who stuttered, spoke Polish as their native language, and English as their second language. Inclusionary criteria consisted of the following: (1) stuttering onset during early childhood to signify developmental stuttering, (2) no additional speech and/or language disorders, (3) minimum of 2% words stuttered in a 200-word language sample, (4) native Polish language abilities, and (5) intermediate English proficiency as evidenced by an ability to engage in everyday conversational topics and read text aloud.

The average age of the participants was 25 years 8 months. There were 5 males and 2 females included in this study, which nears the gender ratio of 4:1 for individuals who stutter (Craig, Train, Craig, & Peters, 2002). Six of the sixteen voivodeships (provinces) of Poland were represented: Śląskie, Świętokrzyskie, Małopolskie, Mazowieckie, Wielkopolskie, and Lubelskie. Per self-report, English was learned via school, private lessons, and self-teaching; use of English included professional, social, and information-gathering (i.e. media) settings. The majority of participants indicated that they are exposed to English (hear, read, and write it) on a daily basis, but speak it on a weekly/monthly basis, signifying a higher level of receptive English-language engagement rather than expressive. The average age at which English language education began was eight. Two participants indicated—via questionnaire—the presence of articulation disorders in addition to stuttering. Through self-report and informal observation, the researcher confirmed with one of the participants that the articulation errors were resolved. The other participant had residual articulation errors; however, he was included in the study due to the errors being

consistent across both English and Polish and therefore not impacting his fluency in a differential manner depending upon the language, as noted by the researcher and two of the committee members who are fluency specialists and reviewed the speech samples relative to their language abilities (i.e. English and Polish). One participant was not included due to the stuttering being judged as psychogenic, rather than developmental, in nature.

Table 2
Participant Demographics for Age, Educational Level, Occupation, and Languages Spoken

Age	*N*	Highest Education	*N*	Occupation	*N*	Other Languages	*N*
20	1	High School	2	Student	4	French	2
23	1	Bachelor's	1	Jr. Accountant	1	German	2
26	2	Master's	4	Software Engineer	1	Spanish	1
27	1	PhD	0	Software Test Manager	1		
28	1						
31	1						

A call for participants (Appendix A) was sent to stuttering self-help groups throughout Poland via e-mail and social media, as well as posted on the self-help groups' webpages by one of the committee members. As Polish is her and the potential participants' native language, the call for participants was written in Polish. Details for how participants' language history and proficiency as well as stuttering diagnosis were ascertained are detailed below.

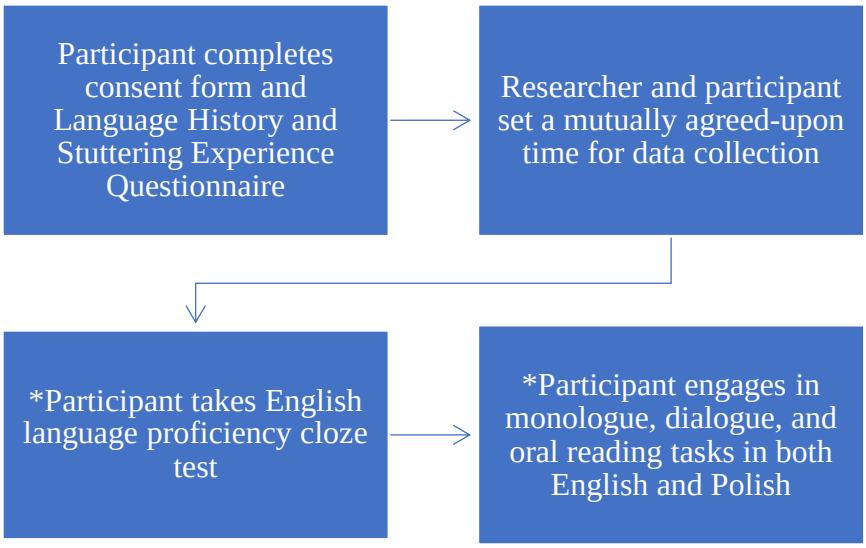
2.2. Procedure and Materials

A consent form (Appendix B) and questionnaire (Appendix C), both of which had been approved by the University of Central Florida's Institutional Review Board (IRB) (IRB number: SBE-17-13558), were first sent to potential participants via e-mail. Upon return and review of

the questionnaire for inclusionary purposes, participants were contacted by the researcher to establish a time to complete the study.

Due to the researcher's location in the US and the participants' in Poland, the study was conducted online through the video conferencing platform Skype. A Sanyo Xacti Full High Definition camera was used to record the participants, with the camera placed directly facing the computer screen and zoomed in to obtain a close-up of the participants' face on the screen, which was set to a "full screen" display to maximize visibility. The researcher communicated in advance to ensure that the testing conditions were free of distractions and external noises for the duration of the online session. The session lasted approximately 90 minutes.

During the Skype session, the participant digitally received the English language proficiency task via cloze test (Taylor, 1953), which will be further described in section 2.2.2. Following the cloze test, the participant engaged in three speech tasks in both Polish and English: monologue, dialogue, and oral reading. For the monologue task, participants were asked to describe a series of pictures. The dialogue task consisted of a conversation with the researcher about familiar, personally relevant topics. During the oral reading portion, participants were given 200-word texts to read aloud. All tasks were randomized for each participant for language, order of administration, and set of monologue images and dialogue topics (see section 2.2.4) to minimize the possibility of an order effect. Further descriptions of the study components are detailed below in Figure 1.



* indicates tasks completed via Skype.

Figure 1: Overview of methodological procedure

2.2.1. Language history and stuttering experience questionnaire.

Before the start of the study, participants were e-mailed a detailed "Language History and Stuttering Experience" questionnaire to complete (Appendix C). The questionnaire was designed to gather information in the following four areas: demographics (e.g. gender and place of birth), native and non-native language history (e.g. how often each language is spoken), stuttering experiences (e.g. age of stuttering onset), and bilingualism and stuttering (e.g. in which languages the individual feels that he or she stutters more). The questionnaire provided a means to ensure that participants fulfilled the inclusionary criteria of being native Polish speakers with at least intermediate English language proficiency, had a diagnosis of developmental stuttering, and an absence of additional speech and/or language disorders.

The items in the questionnaire were chosen based on research on bilinguals who stutter by Lim et al. (2008), Hollebeke and Neyt (2013) and Coalson et al. (2013). According to

Coalson et al.'s systematic review (2013), most questionnaires given to BWS included questions related to language proficiency, history, and function—as such, these were included in this study's questionnaire as well. Areas that were not as widely questioned, according to Coalson et al., (2013), related to accent (e.g. a BWS' perception of their own accent), covert speech (e.g. which language BWS use when thinking), and affect (e.g. how comfortable does a BWS feel when speaking a foreign language). Subsequently, questions addressing these aspects were included in the questionnaire. On a scale of 0-5 (0 = no accent; 5 = heavy accent/almost unintelligible), 5 out of the 7 participants reported that they felt their English speech was mild-moderately accented (rated on the scale as 2 or 3). All participants indicated that they think and prefer to speak in Polish. Responses regarding affect are provided in Table 3.

Table 3
Self-Ratings of Level of Proficiency and Emotional Affect in English

How Well Do You…	Rating	*N*	How Comfortable Do You Feel in Your Ability To…	Rating	*N*
Understand English	3	2	Understand English	3	1
	4	3		4	3
	5	2		5	3
Speak English	2	1	Speak English	2	2
	3	3		3	1
	4	2		4	2
	5	1		5	2
Read English	4	5	Read English	3	1
	5	2		4	3
				5	3
Write English	2	1			
	3	3	Write English	2	3
	4	1		3	1
	5	2		5	3

Ratings were on a 0-5 scale. 0 = Not at all, and 5 = Near native proficiency/Very comfortable

In addition, seven questions in the "Language History" section (section II) were adopted and modified from the Speech Situation Checklist – Emotional Reaction (SSC-ER) (Vanryckeghem & Brutten, 2018). The SSC-ER is a Likert-style self-report subtest of the *Behavior Assessment Battery* (Vanryckeghem & Brutten, 2018) that examines a PWS's negative emotional reaction—such as anxiety and tension—during various speaking situations (e.g. when talking on the phone). The seven questions chosen from the SSC-ER came from an analysis of the factors that were found to impact PWS most (Vanryckeghem & Brutten, 2018; Vanryckeghem, Matthews & Xu, 2017) —one question was chosen from each of the identified

seven factors and modified to ask about a person's comfort level when performing certain tasks in English (e.g. "How comfortable do you feel when using English to speak on the telephone?"). These questions were modified to ask about emotional reaction related to English language abilities instead of stuttering. The purpose of modifying these questions was to gauge self-reported English language abilities in diverse situations and to inform whether proficiency (evidenced by the self-reported comfort level when using English in the specified situations) influenced stuttering behaviors. The responses to these seven questions are provided in Table 4.

Table 4
Self-Ratings of Negative Emotional Reaction when Speaking English During Speech Situations that Impact Persons who Stutter (Based on Vanryckeghem & Brutten, 2018)

How Comfortable Do You Feel When…	Rating	*N*
Using the Telephone	1	1
	2	1
	3	3
	4	1
	5	1
Giving Directions	1	2
	2	2
	3	1
	4	1
	5	1
Being Rushed	1	1
	2	2
	3	1
	4	2
	5	1
Interviewing for a Job	1	1
	3	3
	4	2
	5	1
Speaking with Friends	3	2
	4	2
	5	3
Speaking to a Group	0	1
	2	1
	3	2
	4	1
	5	1
Introducing Yourself	0	1
	3	1
	4	3
	5	2

Ratings were on a scale of 0-5, with 0 = Not at all, and 5 = Very comfortable
One participant did not provide a response for “speaking to a group”

2.2.2. Language proficiency.

As previously mentioned, all participants included in this study were native Polish speakers. However, it was important to assess participants' English proficiency to: a) ensure that they could complete the tasks in the study, and b) categorize participants by level of English proficiency in order to analyze whether L2 proficiency had any impact on stuttering. To do so, a cloze test procedure (Taylor, 1953) was implemented (Appendix D). Cloze tests are written passages with missing words or letters for the participant to complete with a syntactically and semantically appropriate response, where each blank is typically spaced out in specific intervals (e.g. every 8^{th} word is removed from the text and replaced with a "blank"). One point is given for each semantically and syntactically appropriate response; then, a percentage is calculated by dividing the number of correct answers by the total number of "blanks" and multiplying by 100 (Schafer & Robb, 2012).

According to Kobayashi (2002), the cloze test procedure allows for a valid measurement of a person's language abilities because the missing words represent the text's linguistic attributes, and a strong linguistic understanding is necessary to accurately complete the text. In addition, cloze tests have been used with second language learners to gauge L2 proficiency by comparing the scores of native English speakers to beginning, intermediate, and advanced English as a second language learners (Oller, 1972; Oller & Conrad, 1971). Cloze test scores are also highly correlated with standardized language proficiency scores (Trembly & Garrison, 2010). In previous studies (Evans, 2002; Jankelowitz & Bortz, 1996; Schafer & Robb, 2012) cloze tests have been implemented when examining language proficiency in bilingual participants who stutter in order to determine language dominance for BWS. In both

investigations by Jankelowitz and Bortz (1996) and Schafer and Robb (2012), cloze test scores were reported for all participants, with "higher percentages indicat[ing] better language proficiency" (Schafer & Robb, 2012, p. 602).

For this study, the text "Sensible Driving Can Save Fuel" (n.d.) was chosen for the cloze test. Every 8th word was removed, with some words being completely removed and some with just the first letter of the word remaining. Instructions were provided for the participant as well as two examples showing how to complete a sentence with the entire word removed and with only the first letter remaining.

It is important to note that there is no standard cloze test criterion for proficiency. Evans' (2002) study did not detail the exact level of English proficiency that was sought for inclusion. In Jankelowitz and Bortz's (1996) study, the participant scored 90% and 94% on Afrikaans and English cloze tests, respectively. The researchers stated that such scores indicate that the participant is "highly proficient" in his ability to utilize context to apply the appropriate linguistic rules. Considering the limited information from previous studies, for the present study a median score of 50% or higher on the cloze test was established to specify "intermediate level or higher" proficiency. Participants scored above the 50% minimum, with scores ranging from 60-100% (see Table 5). The average score on the cloze test was 81.4%.

A pilot test of the cloze task was undertaken by sharing the link to the cloze test on social media and asking Polish-English bilingual speakers to take the test and provide feedback. Based on the feedback and recommendations from volunteers who took the pilot test, a grammatical error in the text was corrected and the instructions revised for how to enter the answers. These changes were implemented to the final cloze test before utilizing it with study participants.

Table 5
Amount of Years that Participants Have Spoken English and their Cloze Test Scores of English Proficiency

Participant	Years speaking English	Cloze test score (%)
1	23	80
2	14	100
3	14	83.3
4	15	60
5	18	80
6	19	70
7	21	96.7

In order to be included in the study, participants must have scored 15/30 (50%) or higher.

2.2.3 Stuttering.

As mentioned in section 2.1, all participants must be individuals whose stuttering originated during childhood. To determine this, the questionnaire inquired as to who diagnosed participants with a stutter (e.g. a speech-language therapist), the age at which they first began to stutter and if there was a specific event that they believe caused the stutter. These questions were aimed at separating individuals with a developmental stutter from those whose dysfluency was of a psychogenic or neurogenic nature, which would exclude them from the study. Per self-report, one participant was diagnosed with a stutter by a psychologist and six were diagnosed by a speech-language pathologist. In addition, the average age of stuttering onset was 7 years; 7 months, not counting one participant who stated “primary school.” None of the participants indicated a particular event surrounding the onset of their stuttering. All participants indicated the use of a variety of coping behaviors when stuttering (e.g. word/sound avoidance, looking away, etc.). Therapy included a mixture of speech therapy and psychological counseling. Length

of time in therapy varied from one year, until secondary school, to intermittently with gaps in between. At the time of the study, two out of the seven participants were in speech therapy for stuttering. Three participants were currently attending a self-help group for individuals who stutter, three attended in the past, and one never had. Participants also reported various conditions, such as word length, that influence their stuttering. Table 6 depicts this information relative to participants' self-reported stuttering behaviors and contributing factors.

In addition, a 200-word conversational speech sample was collected in both Polish and English to determine if an individual did indeed exhibit stuttering behaviors. Stuttered speech was defined as sound and syllable repetitions (e.g. c-c-c-cat; co-co-co-coffee), monosyllabic word repetitions (e.g. the the the the), oral and silent sound prolongations (e.g. ___good; hhhhhouse), and broken words (mo___ther). The criterion for inclusion in the study was 2% or more words stuttered in both languages.

Table 6
Participants' Self-Reported Stuttering Behaviors and Locus of Dysfluency

Word Position	*N*	Word Length	*N*	Problematic Phoneme	*N*	Stutter	*N*
Beg.	6	Long words	4	Consonants	3	Sound/syll. rep.	0
Middle	1	Short words	3	Vowels	0	Mono syll. rep.	1
End	0			Both	4	Oral prolongations	1
						Silent prolongations	7
						Broken words	2

Participants could indicate more than one choice.

2.2.4. Study tasks.

(1) Monologue: To elicit a monologue, a series of images taken from the National Geographic website ("Best Photos of the Year," 2016) (Appendix E) were shown to the participants, who were asked to describe what was happening in the picture. These images were chosen because they portrayed real-life situations (rather than drawings), were taken all around the world and included vast topics such as nature, cities, events, and people. Given their variety, cultural bias could be minimized and diverse responses could be elicited from participants. Two sets of images containing 10 photographs each were chosen for this task. The purpose of having two sets was to randomize the delivery of sets to elicit speech, and as such to minimize the possibility of order effect and confounding factors.

(2) Dialogue: A dialogue was elicited by having the participant engage in a conversation with the researcher. Four topics were chosen with corresponding questions for the clinician to ask in order to achieve the goal of collecting a 200-word sample of the participant's speech (Appendix F). The topics ranged from hobbies, friends, family, work/school, to travel/holidays. These topics were chosen because of the broadness of their scope in hopes that they would be relevant to all participants. As in the monologue tasks, two sets were created (two topics per set) and were randomized for language and for each participant.

(3) Oral Reading: Participants were asked to read a 200-word passage aloud in English and Polish (Appendix G). The English language passage "Sunbathing" (Actual Press, n.d.) was chosen for the English portion of this task; it is a beginner level text for first

year English language learners in high school. The Polish language passage “Co było pierwsze? - imię czy nazwisko?” was chosen from an elementary-level Polish textbook (Pawlusiewicz, 2001).

2.3. Data Analysis

The monologue and dialogue tasks were analyzed by orthographically transcribing the first 200 words of the speech samples. Following this, the type and frequency of stuttering behaviors (e.g. sound and syllable repetitions, monosyllabic word repetitions, oral and silent prolongations, and broken words) were identified, as well as normal disfluencies (i.e. interjections, revisions, incomplete phrases and multisyllabic word and phrase repetitions). For analysis, stuttering behaviors were grouped into three categories: repetitions (including sound/syllable repetitions and monosyllabic word repetitions), prolongations (including oral and silent prolongations (blocks), and broken words. Similarly, typical disfluencies were organized into the following three categories: interjections, revisions (including revisions and incomplete phrases), and multi-unit repetitions (including multisyllabic word and phrase repetitions).

Table 7 depicts the coding key used for transcription. In addition, in one participant, a consistent dysfluency pattern was observed involving a sound/syllable repetition intercepted by multiple prolonged interjections (t-t-t-uhhh-t-t-uhhh-t-t-uhhh-table). A decision was made that, in such instances, the interjection “uh” was deemed an oral prolongation rather than an interjection (a decision based on the stutter superseding the typical dysfluency) and was only coded once if it occurred 3 or more times; the word (e.g. table) was coded as a sound/syllable repetition. An overall percentage of words stuttered was calculated by dividing the total number of stuttering behaviors by 200 for the English and Polish language sample. This procedure was

repeated in order to get a percentage of normal disfluencies. For the oral reading task, the same dysfluency analysis process was completed for both languages. In addition, words read or spoken per minute was calculated for each of the three tasks. For all participants, this involved beginning the timer 10 seconds into the task for consistency and counting all of the words that occurred in the speech sample within one minute. During dialogue tasks, the timer was paused each time the clinician spoke in order to only count the participant's speech rate.

Upon analysis, the data were entered into the Statistical Package for the Social Sciences (SPSS-24) and the following analyses were conducted:

(1) The **overall percentage** of words stuttered and typical disfluencies were entered for each participant for each task (monologue, dialogue, and reading aloud) for both Polish and English. A *between-language* and *within task* analysis was completed to find out whether more stuttering or typical disfluencies occurred depending on the language. A Wilcoxon signed-ranks test was employed for this analysis to investigate significance. Frequency of stuttering and typical disfluencies were also analyzed *within* each *language between tasks*. The Friedman test was used to determine whether the null hypothesis (no difference in the overall percentage of stuttering and typical disfluencies) could be rejected or retained; if significance was obtained, a Bonferroni correction was applied to confirm which variables differed significantly.

(2) The percentage per **type** of stuttering behavior and normal disfluencies was calculated for each participant for each task in both languages based on the coding scheme in Table 7. Types of stuttering and typical disfluencies were analyzed for *between-language* differences *within* each speech *task* by way of Wilcoxon-signed

ranks test. Following this, a *within-language between-types* analysis was completed within each speech task. The Friedman test was utilized for this analysis to identify whether a particular type of stutter or typical disfluency occurred significantly more within a language depending on the task. A Spearman correlation was also performed to analyze correlations between languages and stuttering types.

(3) The **speech rate** of each participant during all three tasks in both languages was analyzed *between languages within* each speech *task* and *between tasks within* each *language*. A Wilcoxon signed-ranks test was performed between languages and the Friedman test was utilized to analyze significant differences between tasks within languages.

(4) Participants' **cloze test scores** were compared to the percentage stuttering and typical disfluency frequencies in English, their second language, in order to determine whether a relationship was present between English proficiency, and stuttering/typical disfluency frequency in English. A Spearman correlation was utilized to test this relationship.

Table 7
Coding Conventions Utilized for Stuttering and Typical Disfluencies

Stutter Disfluencies	Example	Typical Disfluencies	Example
Sound/syllable repetitions	t-t-t-table	**Interjections**	**uh, um, OK**
Monosyllabic word repetitions	the the the	~~Revisions~~	~~The dog~~ the cat went
Oral prolongations	ssssssong	*Incomplete phrases*	I was talking and…
Silent prolongations (blocks)	__kind	Multisyllabic word repetitions	Less sugar sugar
Broken words	his__tory	**Phrase repetitions**	How about how about
Interjection as a prolongation - 3+ occurrences	t-t-t-uhhhh-t-t-t uhh-t-t-uhhh-table		

2.3.1. Reliability.

For intra-rater reliability, fifty percent (50%) of the samples were randomly chosen and re-analyzed by the researcher for the monologue, dialogue, and reading tasks in both English and Polish. The average intra-rater reliability agreement was 98.4%. Twenty percent (20%) of the samples were chosen at random for inter-rater reliability check. The Polish samples were re-analyzed by a board-certified Polish-speaking speech-language pathologist and Fluency Specialist. The English samples were re-analyzed by a board-certified English-speaking speech-language pathologist and Fluency Specialist. The average inter-rater reliability agreement across both languages was 79.4%.

CHAPTER THREE: RESULTS

Given the small sample size and the uneven distribution of the data, the results were analyzed using nonparametric statistics. A Wilcoxon matched-pairs signed-ranks test was performed when comparing two related variables and the Friedman test was used when analyzing more than two variables (Carter & Lubinsky, 2016). The significance level was pre-set at 0.05; however, a Bonferroni correction was applied via SPSS's default Dunn's Method to account for potential Type I errors when performing multiple statistical tests (Armstrong, 2014). The Polish (native) language is referred to as L1 and English as L2. The variables analyzed across all three speech tasks (dialogue, monologue, and oral reading) in both L1 and L2 included: the overall *frequency* of stuttering behaviors and typical disfluencies, the *types* of stuttering and typical disfluencies, and *speech rate*. In addition, *cloze test* scores and their correlation with stuttering frequency in English were analyzed. The results are detailed below in accordance with the research variable each analysis aimed to answer.

3.1. Differential Effect of Stuttering in L1 and L2 within Speech Task

In order to analyze whether the overall frequency of stuttering was greater in participants' L1 (Polish) or L2 (English), the frequency of stuttering was compared between Polish and English within each speech task (dialogue, monologue, and oral reading). The null hypothesis stated that there would be no difference in the frequency of words stuttered between L1 and L2 within either of the speech tasks.

3.1.1. Comparison of stuttering frequency between L1 and L2 during dialogue.

During the dialogue speech task in L1, the average percentage of stutters was 10.14% (*SD* = 11.25). For L2, it was 12.00% (*SD* = 10.65). Following a related-samples Wilcoxon

Signed Rank Test, the null hypotheses was retained, indicating that there was no statistically significant difference between the overall frequency of stuttering in Polish and English during dialogue ($p > .05$). See Table 8 for descriptive data.

3.1.2. Comparison of stuttering frequency between L1 and L2 during monologue.

When comparing the overall frequency of stuttering during monologue in Polish, the average percentage of stutters was 10.79% (*SD* = 13.86). In English, participants stuttered on 11.14% (*SD* = 11.23) of words, on average. The null hypothesis was retained, as evidenced by a non-significant related-samples Wilcoxon Signed Rank Test ($p > .05$), indicating that no statistically significant difference was present in the overall stuttering frequency comparing English and Polish during monologue speech tasks. Table 8 provides further descriptive data.

3.1.3. Comparison of stuttering frequency between L1 and L2 during oral reading.

As seen in Table 8, oral reading in L1 revealed an average percentage of stuttering of 5.50% (*SD* = 4.99), and 7.79% (*SD* = 11.65) in L2. Similar to the other speech tasks, a related-samples Wilcoxon Signed Rank Test indicated a non-significant difference in frequency of stuttering between L1 and L2 ($p > .05$). Thus, although during oral reading tasks, there was more overall stuttering in L2 than L1, this difference was not statistically significant.

Table 8
Overall Percentage of Words Stuttered in L1 and L2 during Dialogue, Monologue, and Oral Reading Tasks

Descriptive Statistics	Dialogue		Monologue		Oral Reading	
	L1	L2	L1	L2	L1	L2
Mean	10.14	12.00	10.79	11.14	5.50	7.79
SD	11.25	10.65	13.86	11.23	4.99	11.65
Minimum	1.50	3.00	.50	1.00	1.50	2.00
Maximum	31.50	29.50	37.50	30.50	14.50	34.00

3.2. Differential Effect of Speech Task on Stuttering Frequency within L1 and L2

Once the possible differential presence of stuttering behaviors between languages was investigated, the next step was to analyze whether the speaking condition (i.e. dialogue, monologue, oral reading tasks) differentially impacted overall stuttering frequency within L1 and L2. This was done by analyzing the overall stuttering frequencies within a single language across the three speech tasks. The null hypothesis stated that there would be no difference in the frequency of stuttering between speech tasks within L1 or L2.

3.2.1. Comparison of stuttering frequency between speech tasks in L1 and L2.

As can be seen in Table 9, in L1, participants stuttered slightly more during dialogue, followed by monologue and oral reading. To understand whether the speech tasks significantly impacted stuttering frequency in Polish, Friedman's test was used. It was found that no significant difference in stuttering frequency existed between any of the tasks completed in Polish ($p > .05$). Similarly, in L2 participants stuttered most during dialogue, followed by

monologue and oral reading. Friedman's test revealed that there was no significant difference in stuttering frequency between any of the tasks completed in English ($p > .05$).

3.3. Differential Effect of Typical Disfluencies in L1 and L2 within Speech Task

In the same way as described above in 3.1, the overall percentage of typical disfluencies was explored in order to determine whether more of these types of disfluencies occurred in L1 or L2, and if this difference was dependent on task. The null hypothesis stated that there was no difference in the typical disfluencies observed between L1 and L2 within a speech task.

3.3.1. Comparison of frequency of typical disfluencies between L1 and L2 during dialogue.

To better understand whether the frequency of typical disfluencies varied between L1 and L2, the percentage of typical disfluencies during dialogue in both Polish and English was compared. As shown in Table 9, participants evidenced fewer overall typical disfluencies during Polish dialogue ($M = 8.21$, $SD = 5.25$) compared to English ($M = 14.57$, $SD = 7.98$). A Wilcoxon Signed Rank Test showed that the difference failed to reach significance ($p > .05$), however.

Table 9
Overall Percentage of Typical Disfluencies in L1 and L2 during Dialogue, Monologue, and Oral Reading Tasks

Descriptive Statistics	Dialogue		Monologue		Oral Reading	
	L1	L2	L1	L2	L1	L2
Mean	8.21	14.57	11.29	16.57	1.43	5.07
SD	5.25	7.98	5.07	7.87	1.86	5.33
Minimum	1.00	5.00	4.50	5.50	0.00	1.00
Maximum	14.00	27.00	8.50	27.50	5.50	15.50

3.3.2. Comparison of frequency of typical disfluencies between L1 and L2 during monologue.

In L1, the average amount of typical disfluencies during monologue was 11.29% (*SD = 5.07)* (see Table 9), which was descriptively less than the percentage of typical disfluencies present in L2 during monologue (*M = 16.57, SD = 7.87).* A Wilcoxon Signed Rank Test just failed significance (*p > .051),* indicating that the difference between typical disfluencies during monologue between L1 and L2 was not statistically significant, but getting very close.

3.3.3. Comparison of frequency of typical disfluencies between L1 and L2 during oral reading.

Table 9 shows that, during the oral reading task in L1, the average percentage of typical disfluencies was 1.43% (*SD = 1.86*); it was higher (*M = 5.07, SD = 5.33)* in L2, a difference that was statistically significant (Wilcoxon Signed Rank Test: *p < .05*).

3.4. Differential Effect of Speech Task on the Frequency of Typical Disfluencies within L1 and L2

Once the determination of possible differences in the frequencies of typical disfluencies between L1 and L2 during all three tasks was completed, this begged the question of whether any of the speech tasks influenced the percentage of typical disfluencies present within L1 and L2. In order to answer this question, the percentages of typical disfluencies were analyzed across all three speech tasks within L1 and L2.

3.4.1. Comparison of frequency of typical disfluencies across all three speech tasks within L1 and L2.

For the Polish language, the overall percentage of typical disfluencies for the three speech tasks was compared for significance determination. As seen in Table 9, it was observed that participants had more typical disfluencies during monologue, followed by dialogue and oral reading, a difference that was statistically significant (Friedman's test: $p < .05$) only between reading and monologue. It can thus be concluded that, in L1, participants had a statistically significant higher percentage of typical disfluencies during monologue compared to oral reading. The difference between reading versus dialogue and dialogue versus monologue were not statistically significant ($p > .05$).

Similarly, in English, more typical disfluencies were observed during monologue, followed by dialogue and oral reading. The Friedman's Test concluded that the difference was statistically significant ($p < .05$), but only between reading and monologue tasks. Similar to L1, the results indicate that participants had statistically significantly more typical disfluencies during monologue compared to oral reading in L2. Given this finding, an analysis of the types of

typical disfluencies was undertaken to understand what specific types would predominantly influence this difference (see sections 3.7 and 3.8).

3.5. Differential Effect of *Types* of Stuttering Behavior in L1 and L2 within Speech Task

With a better understanding of the frequency of stutters and typical disfluencies that occur within and between languages and speech tasks, the next step was to scrutinize if stuttering behaviors differed for L1 and L2 and if this was dependent upon speech tasks. As mentioned previously, stuttering behaviors were grouped into three main categories: repetitions (sound/syllable repetitions and monosyllabic word repetitions), prolongations (oral and silent prolongations), and broken words. The types of stuttering behaviors observed in each speech sample were coded and analyzed for their percentage of occurrence. The null hypothesis stated that the distribution of the types of stutters was the same in L1 and L2.

3.5.1. Comparison of types of stuttering behaviors between L1 and L2 during dialogue.

The types of stuttering behaviors occurring in L1 and L2 during dialogue were analyzed and compared. Overall, more repetitions and prolongations were observed in L2 than L1, but more broken words occurred in L1. Average percentages of occurrence for each type in L1 and L2 are displayed in Table 10. Following a Wilcoxon signed-rank test, it was found that, during dialogue, there was no significant difference between L1 and L2 in the types of stuttering present ($p > .05$).

Table 10
Percentage of Stuttering Types during Dialogue in L1 and L2

Descriptive Statistics	Repetitions		Prolongations		Broken Words	
	L1	L2	L1	L2	L1	L2
Mean	4.86	5.21	4.79	6.71	0.50	0.07
SD	5.73	5.43	8.40	7.52	1.12	0.19
Minimum	1.50	.50	0.00	1.00	0.00	.00
Maximum	17.50	15.50	23.50	22.00	3.00	.50

3.5.2. Comparison of types of stuttering behaviors between L1 and L2 during monologue.

The same analysis of type of stuttering between L1 and L2 was undertaken for monologue tasks. More repetitions occurred in L2 versus L1 during monologue; more broken words occurred in L1; and essentially the same percentage of prolongations, on average, occurred in both languages, with a slightly higher percentage of prolongations occurring in L2. The average percentages for each type of stuttering behavior in L1 and L2 can be found in Table 11. A Wilcoxon signed-ranks test revealed that there were no significant differences between L1 and L2 in the types of stuttering behaviors during monologue.

Table 11
Percentage of Stuttering Types Distribution during Monologue in L1 and L2

Descriptive Statistics	Repetitions		Prolongations		Broken Words	
	L1	L2	L1	L2	L1	L2
Mean	3.93	5.14	5.78	5.79	0.93	0.21
SD	5.06	8.21	8.66	6.49	2.05	0.27
Minimum	0.00	0.50	0.50	0.00	0.00	0.00
Maximum	14.00	23.50	24.50	18.50	5.50	0.50

3.5.3. Comparison of types of stuttering behaviors between L1 and L2 during oral reading.

Stuttering behaviors during oral reading were also analyzed in L1 and L2. Slightly more stuttering of all types (including broken words) occurred in L2 compared to L1, as can be seen in Table 12. A Wilcoxon signed-ranks test revealed that the difference between L1 and L2 in stuttering types during oral reading was not significantly different.

Table 12
Percentage of Stuttering Types Distribution during Oral Reading in L1 and L2

Descriptive Statistics	Repetitions		Prolongations		Broken Words	
	L1	L2	L1	L2	L1	L2
Mean	2.00	2.57	3.29	4.86	0.21	0.36
SD	2.12	3.82	3.08	7.17	0.27	0.94
Minimum	0.00	0.00	1.00	0.00	0.00	0.00
Maximum	5.00	11.00	9.50	20.50	0.50	2.50

3.5.4. Analysis of relationship among types of stuttering behaviors between L1 and L2 within tasks.

The correlation between languages for each type of stuttering behavior within each of the tasks was considered. The purpose of this analysis was to understand whether a particular type of stuttering observed in one language correlated with the same behavior in the other language. The correlations can be found in Table 13. Following a Spearman analysis, two positive correlations existed within dialogue: the percentage of repetitions ($r_s = .963, p < .05$) as well as the percentage of prolongations ($r_s = .853, p < .05$) correlated between languages. The negative correlation between percentage of broken words between language was low and not significant ($r_s = -.255, p > .05$).

Within monologue, comparing L1 and L2, there was a high correlation between percentage of repetitions ($r_s = .793, p < .05$). As can be seen in Table 13, this was the only significant correlation. In oral reading, the only significant correlation was found for percentage of prolongations between L1 and L2 ($r_s = .800, p < .05$).

Table 13
Spearman Correlations Between Languages (r_s) for Types of Stuttering within Tasks

_Tasks	Repetitions	Prolongations	Broken Words
Dialogue	.963 ($p = .000$)*	.853 ($p = .015$)*	- .255 ($p = .582$)
Monologue	.793 ($p = .033$)*	.631 ($p = .121$)	.720 ($p = .068$)
Oral Reading	.561 ($p = .190$)	.800 ($p = .031$)*	- .354 ($p = .437$)

* denotes a significant relationship ($p < .05$)

3.6. Differential Effect of Speech Task on Types of Stuttering Behaviors within L1 and L2

In Tables 10 to 12 above, it is evidenced that, except for broken words during dialogue and monologue, all stutter types occur descriptively more in the second language. To better understand the influence of speech tasks on the types of stuttering behaviors, an analysis of stuttering types was undertaken within L1 and L2 in each of the three speech tasks. The results are detailed below.

3.6.1. Comparison of types of stuttering behaviors during dialogue.

Types of stuttering behaviors were compared within dialogue for each language. The Friedman test revealed that, in L1, there was a significant difference in the distribution of stuttering types *($p < .05$)*. Following a Bonferroni correction, it was found that there were significantly more repetitions than broken words in Polish dialogue (*$p < .05$)*. The difference between repetitions and prolongations and prolongations and broken words was not significant (*$p > .05$)*. In L2, the difference in the distribution of stuttering types was significant (*$p < .05$)*, with significantly more repetitions than broken words (*$p < .05$)* and significantly more prolongations than broken words during English dialogue (*$p < .05$)*. The difference between repetitions and prolongations was not significant (*$p > .05$)*.

3.6.2. Comparison of types of stuttering behaviors during monologue.

During this analysis, the types of stuttering behaviors presented within L1 and L2 were analyzed for monologue. The Friedman test indicated that there was a significant difference in the percentage of stuttering types in both languages (*$p < .05$)*. In L1 and L2, there were significantly more repetitions and prolongations than broken words (*$p < .05$)*. Although there

were more prolongations than repetitions in L1 and L2, these differences were not significant. However, these results indicate a similar trend of the types of dysfluencies present in both languages during monologue, with both repetitions and prolongations occurring significantly more than broken words in both L1 and L2.

3.6.3 Comparison of types of stuttering behaviors during oral reading.

Types of stutters during oral reading within L1 and L2 were analyzed. The Friedman test showed a significant difference between the types of stuttering within L1 and L2 during oral reading ($p < .05$). Following adjusted significance values via Bonferroni correction, significantly more prolongations than broken words within L1 and L2 ($p < .05$) were found. Within L1 and L2, the difference between repetitions and prolongations and repetitions and broken words was not statistically significant ($p > .05$). It can therefore be said that, during oral reading within L1 and L2, prolongations occurred significantly more frequently than broken words.

3.7. Differential effect of Types of Typical Disfluencies in L1 and L2 within speech task

In addition to studying stuttering behaviors present in L1 and L2 during the three speech tasks, typical disfluencies were analyzed as well. As previously stated, typical disfluencies were divided into three categories: Interjections, Revisions (revisions and incomplete phrases), and Multi-unit repetitions (multisyllabic word and phrase repetitions). This was done by coding the typical disfluencies that occurred in each speech sample in Polish and English and analyzing the percentage of occurrence.

Similar to stuttering behaviors, the types of typical disfluencies in all three tasks were compared between L1 and L2. This analysis allowed for a between-language comparison within each type of typical disfluency and speech task to understand whether the speech tasks evidenced

a significant difference in typical disfluency types in both languages. The null hypothesis stated that the distribution of typical disfluency types was the same in L1 and L2.

The average percentages of typical disfluency types were analyzed within a speech task and compared between L1 and L2. As can be seen in Tables 14-16, overall, more typical dysfluencies occurred in L2 than L1, except for more revisions during monologue and more multi-unit repetitions during oral reading in L1. A Wilcoxon signed-ranks test showed that, during monologue and oral reading, the distribution of interjections between L1 and L2 was significantly different *($p < .05$)*. More specifically, participants had a statistically significantly higher percentage of interjections in their second language compared to their first for these speech tasks. In dialogue, however, the difference between L1 and L2 was not statistically significant for interjections (*$p > .05$).* All other analyses via Wilcoxon signed-ranks test did not reveal a statistically significant difference between L1 and L2 in the types of typical disfluencies observed within the three speech tasks (*$p > .05$).* Thus, although there were more typical disfluencies in L2 compared to L1, participants only evidenced statistically significantly more interjections in English when compared to Polish during monologue and oral reading.

3.8. Differential Effect of Speech Task on Types of Typical Disfluencies Within L1 and L2 During Each Speech Task

3.8.1. Comparison of types of typical disfluency in L1 and L2 during dialogue.

Table 14 depicts the average percentages of each disfluency type during dialogue in L1 and L2. It can be seen that the majority of typical disfluencies were interjections, followed by revisions and multi-unit repetitions. The Friedman test indicated that there was a significant difference between the typical disfluencies observed in L1 and L2 (*$p < .05$)*, leading to a

rejection of the null hypothesis (that no difference would be present). Results indicated that, in L1, there were significantly more interjections than multi-unit repetitions ($p < .05$). The difference between revisions versus multi-unit repetitions, and interjections versus revisions was not significant ($p > .05$). In L2, there were also significantly more interjections than multi-unit repetitions ($p < .05$) and, in addition, significantly more interjections than revisions ($p < .05$). Although there were slightly more revisions than multi-unit repetitions in L2, this difference was not statistically significant ($p > .05$).

Table 14
Percentage of Typical Disfluencies in L1 and L2 During Dialogue

Descriptive Statistics	Interjections		Revisions		Multi-unit repetitions	
	L1	L2	L1	L2	L1	L2
Mean	6.26	11.64	1.57	1.71	0.36	1.21
SD	3.91	7.54	1.46	0.99	0.75	1.11
Minimum	1.00	3.00	0.00	0.50	0.00	0.00
Maximum	11.50	23.00	3.50	3.00	2.00	3.00

3.8.2. Comparison of types of typical disfluency observed in L1 and L2 during monologue.

During monologue, the majority of typical disfluencies that occurred were interjections, followed by revisions and multi-unit repetitions, as seen in Table 15. The Friedman test indicated that there was a significant difference in the types of typical disfluencies, so therefore the null hypothesis was rejected. For L1, significantly more interjections than multi-unit repetitions ($p < .05$) were present. Although there were more revisions than interjections, the

difference between revisions and interjections as well as revisions and multi-unit repetitions was not significant *(p > .05).* For L2, once more, significantly more interjections than multi-unit repetitions, but also significantly more interjections than revisions (*p < .05)* occurred. The difference between revisions and multi-unit repetitions was not significant (*p > .05).*

Table 15
Percentage of Typical Disfluencies in L1 and L2 during Monologue

Descriptive Statistics	Interjections		Revisions		Multi-unit repetitions	
	L1	L2	L1	L2	L1	L2
Mean	9.07	14.43	1.79	1.14	0.43	1.00
SD	3.96	8.00	1.55	0.90	0.79	0.82
Minimum	4.00	4.50	0.00	0.00	0.00	0.00
Maximum	14.50	26.50	4.50	2.50	2.00	2.50

3.8.3. Comparison of types of typical disfluency observed in L1 and L2 during oral reading.

The percentage of typical disfluency types during oral reading in L1 and L2 is displayed in Table 16, similar to dialogue and monologue, interjections were the most prevalent types of typical disfluency, followed by revisions and multi-unit repetitions. The Friedman test following a Bonferroni correction, lead to the null hypothesis for both L1 and L2 being retained (*p > .05),* evidencing that there is no significant difference between the types of typical disfluencies observed during oral reading in Polish as well as in English.

Table 16
Percentage of Typical Disfluencies during Oral Reading in L1 and L2

Descriptive Statistics	Interjections		Revisions		Multi-unit repetitions	
	L1	L2	L1	L2	L1	L2
Mean	0.79	3.50	0.57	1.21	0.71	0.36
SD	1.65	5.02	0.45	0.76	0.19	0.75
Minimum	0.00	0.00	0.00	0.00	0.00	0.00
Maximum	4.50	13.50	1.50	2.50	0.50	2.00

3.9. Differential Effect of speech rate in L1 and L2 within speech task

Speech rate was calculated for each sample by counting the number of words spoken or read in one minute in each language. The null hypothesis stated that there was no significant difference in speech rate between the L1 and L2 within a speech task.

3.9.1. Speech rate during dialogue.

As can be seen in Table 17, the average speech rate was slightly higher in L1 than L2 during dialogue. A Wilcoxon signed ranks test revealed that this difference was not statistically significant ($p > .05$), indicating that participants' speech rate was not statistically significantly elevated in their native language compared to their second language.

3.9.2. Speech rate during monologue.

The same phenomenon was observed as it relates to monologue where speech rate was, on average, higher in L1 than L2 (see Table 17). A Wilcoxon signed ranks test revealed that this difference was, once again, not statistically significant ($p > .05$) and that the higher speech rate during monologue was a chance event.

3.9.3. Speech rate during oral reading.

In contrast, during oral reading, participants read slightly faster, on average, in L2 compared to L1 (see Table 17). However, as revealed by Wilcoxon signed ranks test, this difference was not statistically significant ($p > .05$). Thus, participants' speech rate during oral reading was not statistically significantly increased in English compared to Polish.

Table 17
Speech Rate (Words per Minute) Across All Tasks in L2 and L2

Descriptive Statistics	Dialogue		Monologue		Oral Reading	
	L1	L2	L1	L2	L1	L2
Mean	110.86	103.71	92.71	90.86	100.00	108.86
SD	33.98	28.26	22.95	24.21	13.84	36.94
Minimum	52	51	46	46	79	36
Maximum	161	134	114	127	119	157

3.10 Differential effect of task on speech rate within L1 and L2

Speech rate was compared between the three speech tasks within each language. The null hypothesis stated that the distributions of speech rate between all three speech tasks within L1 and L2 did not differ to a statistically different extent. The lowest speech rate was observed during monologue in both L1 and L2. The Friedman test comparing the speech rate during all three tasks within L1 revealed that there was no significant difference ($p > .05$), indicating that participants' speech rate in their native language was independent of speech task. In L2,

however, the Friedman's test indicated that the difference in speech rate between tasks was significant ($p < .05$). Adjusting significance levels via Bonferroni correction revealed that the difference was statistically significant between monologue versus dialogue and monologue versus reading ($p < .05$). Therefore, within L2, participants uttered statistically significantly more words per minute during dialogue compared to monologue as well as during reading compared to monologue.

3.11. Differential effect of Language Proficiency in English on Stuttering within speech tasks

This question aimed to evaluate whether there was a relationship between level of English language proficiency and stuttering frequency in English within speech tasks. In order to test the hypothesis, participants' cloze test scores (reported as a percentage) were compared to their overall percentage of stuttering within dialogue, monologue, and oral reading tasks completed in English. See Table 18 for an overview of the findings.

3.11.1. Dialogue.

The percentage of stuttering during the English dialogue task was compared to the cloze test scores. A non-significant ($p > .05$) low positive Spearman correlation ($r_s = .13$) indicated that the percentage of stutters present in English during dialogue did not significantly correlate to the cloze test score.

3.11.2. Monologue.

The next analysis examined the correlation between stuttering frequency and English monologue. Spearman correlation revelead that there was a low negative correlation ($r_s = -.07$) between stuttering frequency in English during monologue and cloze test scores. This

relationship was not significant ($p > .05$), which can be interpreted as percentage of stuttering in the English monologue task did not significantly correlate with participants' cloze test scores.

3.11.3. Oral Reading.

For oral reading, Spearman correlation between the cloze test score and percentage stuttering resulted in a low negative correlation ($r_s = -.28$) that was not significant ($p > .05$). Thus, once again, the relationship between percentage of stutters during English oral reading and cloze test scores is not significant.

3.12. Differential effect of Language Proficiency in English on Overall Percentage of Typical Disfluencies within tasks

In addition to understanding the relationship between stuttering frequency during English speech tasks and cloze test scores of English proficiency, the typical disfluencies were analyzed in the same manner. The purpose of this analysis was to evaluate the relationship between typical disfluencies present within each task in English and cloze test scores. See Table 17 for an overview of the findings.

3.12.1. Dialogue.

The percentage of typical disfluencies present during the English dialogue task for each participant was analyzed compared to their cloze test percentage. A Spearman correlation showed a high negative ($r_s = -.96$) and significant ($p < .05$) correlation. These results can be understood as indicating that the more proficient a participant was in English, the fewer typical disfluencies could be found.

3.12.2. Monologue.

The same process was completed to analyze the relationship between percentage of typical disfluencies during English monologue and cloze test scores. Similar to dialogue, a high and significant ($p < .05$) negative Spearman correlation, ($r_s = -.96$) was obtained between typical disfluencies in English monologue and cloze test scores.

3.12.3. Oral Reading.

The typical disfluencies present during English oral reading were also compared to participants cloze test scores and revealed a non-significant moderate negative Spearman correlation a ($r_s = . -.63; p > .05$). Thus, percentage of typical disfluencies during oral reading in English do not correlate with participants' cloze test scores.

Table 18
Spearman Correlations (r_s) between Stuttering Frequencies and Typical Disfluencies within English tasks and Cloze Test Scores

Tasks	Stuttering	Typical Disfluencies
Dialogue	.13 ($p = .788$)	- .96 ($p = .001$)*
Monologue	-.07 ($p = .878$)	- .96 ($p = .001$) *
Oral Reading	- .28 ($p = .540$)	- .63 ($p = .129$)

* denotes a significant relationship ($p < .05$)

CHAPTER FOUR: DISCUSSION

4.1. Stuttering Frequency: Comparison between the Native and Second Language

One of the goals of this study was to research whether language impacts stuttering severity. When comparing the percentages of stuttering behaviors present in two languages spoken by an individual in three speech tasks, the percentage of words stuttered in English was slightly higher than in Polish across all three tasks; however, none of these differences were significant. Therefore, the current data can be interpreted as the language that participants used did not significantly impact stuttering frequency within any of the tasks.

These findings differ from previous studies that have noted significantly different stuttering frequencies between languages. Nevertheless, the data were equivocal and it needs to be pointed out that one-third of the studies were individual case-studies, which provides anecdotal information rather than generalizable data. Specifically, some studies found significantly more stuttering in participants' native language (L1) (Howell et al., 2004; Jayaram, 1983) while others observed more stuttering in the second language (L2) (Hollebeke & Neyt, 2013; Jankelowitz & Bortz, 1996; Lim et al., 2008; Maruthy et al., 2015; Nwokah, 1988; Roberts, 2002; Schäfer & Robb, 2012). These differences in frequency have been explained in various ways. Nwokah (1988), for example, noted that increased self-monitoring during L2 can lead to tension and anticipation rather than confidence, causing increased stuttering severity in L2. Other researchers have stated that language dominance leads to less stuttering in L1 (Ardila, Ramos, & Barrocas, 2010; Lim et al., 2008). Comparatively, Lim et al. (2008) included "balanced bilinguals" in their study who had an equal amount of proficiency in both languages, and reported the same amount of dysfluency in these participants, indicating the assumption that

"equal" proficiency in both languages would reflect a similar distribution of stuttering frequencies in both languages. However, limitations to such studies include single-subject case studies as well as discrepancies in how stuttering and bilingualism are defined (Coalson et al., 2013), and therefore results should be interpreted with caution.

4.2. Stuttering Types: Comparison between the Native and Second Language

There was no significant difference in the types of stuttering behaviors between L1 and L2. Overall, in dialogue, more stuttering types were seen in L2—except for broken words. In monologue, there were more prolongations than repetitions in L1 and L2, but more broken words in L1. However, as previously stated, none of these types differed between language to a statistically significant extent. Lim et al. (2008) also found that, between English and Mandarin, stuttering types were similar. Ardila et al., (2010) and Nwokah (1988), however, did indicate significant differences in stuttering types between languages, but the participants in these studies were proclaimed to be balanced bilinguals, which does not reflect the participants in the present study. In addition, previous studies have used different criteria to define and identify stuttering (Ardila et al., 2011; Lim et al., 2008; Roberts, 2002). As stated by Roberts (2002), there is no consensus as to how to identify dysfluencies in monolingual speakers, and even less consensus as it relates to the identification of stuttering versus typical disfluencies in bilingual adults—and to know how language proficiency impacts these measures. In turn, this can have an effect on intra-and certainly interrater reliability, as evident in some studies that have shown a range of interrater reliability results ranging from low (Jankelowitz & Bortz, 1996) to moderate (Nwokah, 1988), and high (Maruthy et al., 2015). In Bernstein and Benitez (1985) interrater reliability tests were not reported. To help minimize the inconsistencies, this study defined stuttering versus

typical disfluencies (see Table 6), and intra-rater and interrater reliability tests were performed, with results showing high intra-rater and moderately-high interrater reliability.

Taking these limitations into consideration, the participants in this study received therapy in Polish and "think" mostly in Polish, which may allude to Polish language dominance. Although there were no significant differences in stuttering severity between languages, it is still important to consider the experiences that the bilingual who stutters has had in either language—such as therapy, socio-psychological events, and language dominance—as they may impact individuals differently.

4.3. Stuttering Frequencies: Comparison Between Tasks

Speaking conditions can influence the severity of stuttering; some PWS, for example, stutter more depending on the speaking situation, whereas for others, their stuttering might be more dependent on particular sounds and words they have to utter (Bloodstein & Ratner, 2008). Current results revealed that more stuttering was seen during monologue in L1 and dialogue in L2. Both languages had the least amount of stuttering during oral reading, which parallels similar studies (Hollebeke & Neyt, 2013; Roberts, 2002). Given these results, it is possible that participants in this study were more situationally—rather than sound/word-specific—dysfluent. Within L1 and L2, however, there was no statistically significant difference in the frequency of stuttering between any of the speech tasks.

Even though this study did not show any significant differences, it was important to study between-task differences in order to better understand whether the task evidenced differential stuttering frequency within a particular language. For example, monologue speech in the non-dominant language has shown increased stuttering (Roberts, 2002). Roberts (2002) explains that

this difference may be due to the speakers' levels of bilingualism (i.e. language dominance). Similarly, dialogue speech in the non-dominant language has also evidenced significantly greater dysfluency (Ardila et al., 2010; Lim et al., 2008; Maruthy et al., 2015). Hollebeke and Neyt (2013) have also shown the least amount of stuttering during oral reading. They speculated that this may be due to an increased focus on reading rather than communicative meaning, as one does during dialogue and monologue, or less syntactic and phonetic flexibility given the constraints of a reading passage. In any event, another important variable to consider is whether participants were individuals whose stutter is more based on sounds/words or situations, as this could influence the frequency of stuttering between tasks.

4.4. Stuttering Types: Comparison Between Tasks

When analyzing the types of stuttering behaviors found within L1 and L2 and within the tasks, there were significant differences in each of the tasks. In dialogue and monologue, there were significantly more repetitions than broken words in both languages. In addition, significantly more prolongations compared to broken words occurred within dialogue and monologue for L2. During oral reading, there were significantly more prolongations than broken words in the native and second language. Clearly, similar patterns of stuttering types can be found within each language and task. In general, repetitions occur most frequently, followed by prolongations and broken words. Hollebeke and Neyt (2013) also found that broken words occurred the least frequently in any language and task. This finding of least occurrence of mid-word dysfluency is not surprising, as data have pointed to a predominance of initial sound fluency difficulty (Schafer & Robb, 2012).

In previous studies, the types and lengths of speech samples collected were not consistent. Most studies collected dialogue speech samples (Ardila et al., 2011; Bernstein & Benitez, 1985; Hollebeke & Neyt, 2013; Lim, et al., 2008; Maruthy et al., 2015; Nwokah, 1998; Schafer & Robb, 2012). Only some studies utilized oral reading (Ardila et al., 2011; Nwokah, 1998; Hollenbeke & Neyt, 2013; Roberts, 2002) and fewer utilized monologue (Roberts, 2002; Jankelowitz & Bortz, 1996). Additionally, different speech sample lengths were gathered. Maruthy et al. (2015), for example, transcribed and analyzed the first 300 syllables, while Bernstein and Benitez (1985) did not specify sample length. Ardila et al. (2011) collected various conversational speech samples in both English and Spanish, with a word count ranging from 59 to 1252. Other researchers (Howell, 2004; Jankelowitz & Bortz, 1996; Lim et al., 2008) do not specify the number of syllables or words analyzed. The current study analyzed the first 200 words in each speech sample for added consistency.

4.5. Typical Disfluency Frequencies: Comparison within and between Native and Second Language

The percentage of typical disfluencies was greater in L2 during all speech tasks, with the highest percentage occurring during monologue, followed by dialogue and oral reading in both languages. When comparing the frequency of typical disfluencies between both languages within each task, however, there were significantly more typical disfluencies in L2 versus L1 within oral reading. Therefore, language did differentially affect the amount of typical disfluencies present in the oral reading task.

In Hollebeke and Neyt's (2013) study, significantly more typical disfluencies occurred in L2 during monologue and reading, but not in dialogue. Thus, task had a differential effect. The

researchers explain that this increase in typical disfluencies in participants' second language could be due to phonetic and syntactic planning difficulties in the non-dominant language, or a lack of ability to avoid certain words due to decreased vocabulary (Hollebeke & Neyt, 2013). Roberts (2002) also alluded that more frequent typical disfluencies could be expected in the non-dominant language due to word finding difficulties. Though these findings differed from the current study's, more research regarding the relationship between language proficiency, stuttering behaviors, and typical disfluencies are necessary to augment our knowledge of these phenomenon and to aid clinicians during assessment and treatment (Roberts, 2002).

4.6. Typical Disfluency Types: Comparison within and between L1 and L2

Regarding the types of typical disfluencies between L1 and L2, there were significantly more interjections in L2 within monologue and oral reading tasks. Roberts (2002) also found that interjections occurred significantly more during monologue. In dialogue, the difference was not significant. Across all tasks, more interjections were observed, followed by revisions and multi-unit repetitions. In Hollebeke and Neyt's (2013) study, multiple-unit repetitions occurred significantly more in L2 than L1 during oral reading as well. This can be explained, potentially, by the constrained nature of reading, where participants must decode and thus more revisions or multi-unit repetitions may take place during this process. Roberts (2002) also found a similar pattern of increased typical disfluencies during oral reading, indicating that task can influence normal disfluency types.

When analyzing the percentage of typical disfluencies within each language, significantly more typical disfluencies occurred during monologue than oral reading. It can be hypothesized that, similar to stuttering, oral reading is less fluid and variable than dialogue and monologue;

therefore, less typical disfluencies may occur. Additionally, as stated above, the increased interjections during monologue occurring, possibly due to trying to come up with what to say and word-finding, may also explain why significantly more typical disfluencies were found in monologue compared to oral reading.

Regarding the typical dysfluencies within language and task, there were significantly more interjections than multi-unit repetitions in L1 and L2 within dialogue and monologue. In L2 for both dialogue and monologue, significantly more interjections than revisions were also noted. The difference within L1 and L2 for oral reading was not significant, once again reflecting previous findings that oral reading evidences different types of typical disfluencies.

4.7. Speech Rate

Similar to Hollebeke and Neyt (2013), Nwokah (1996), and Roberts (2002) speech rate was analyzed to better understand if stuttering might be differentially impacted by a potential difference in speech rate between languages. It is important to note that within-language variability exists and impacts the way words per minute are counted (Roberts, 2002). However, this study aimed to minimize this limitation by beginning the timer 10 seconds into the task for consistency sake and counting all the words that occurred in the speech sample within one minute.

Between L1 and L2, no significant differences in speech rate were found, evidencing that language did not significantly impact speech rate in this sample. Participants spoke slightly faster in L1 during dialogue and monologue, and slightly faster in L2 when reading aloud. In contrast, Roberts (2002) and Hollebeke and Neyt (2013) did find significant differences in speech rate when comparing French with English (Roberts, 2002) and Dutch and French or Dutch and

English (Hollebeke & Neyt, 2013), with speech rate being significantly faster in the native language compared to the second language. It is important to note that both Roberts (2002) and Hollebeke and Neyt (2013) found significantly more stuttering in L2, which may have contributed to decreased speech rate in L2. Decreased speech rate in L2 may also occur because greater phonetic, syntactic, and semantic planning may take more time in the non-native language (Hollebeke & Neyt, 2013). Therefore, it may not be enough to consider language proficiency alone as a factor in speech rate, but also the linguistic structure of the language (e.g. longer words, more complicated syntax).

When examining whether the task influenced speech rate, significant differences were noted. Specifically, in the second language, speech rate was significantly higher during dialogue compared to monologue and during reading compared to monologue. These differences can be explained by the fact that monologue requires more thought planning, as individuals must reflect on the content without the verbal exchange that occurs in dialogue and possibly "buys time." As previously mentioned, oral reading presents with differential speech rate, possibly given the fact that the focus is on decoding pre-determined words rather than coming up with novel responses, which could decrease speech rate.

4.8. Relationship between Stuttering and Typical Disfluency Frequency and Cloze Test Scores

Misinterpretations exist as it relates to bilingualism and how participants are deemed "bilingual." For example, some studies examining bilingualism and stuttering do not rely on a more objective way to identify bilingual proficiency, but instead depend on general descriptions such as "balanced bilingual" or self-report (e.g. Bernstein & Benitez, 1985; Nwokah, 1988;

Roberts, 2002). Other studies utilized vocabulary tests (Ardila et al., 2011; Lim et al., 2008). The current study aimed to minimize this limitation by using a cloze test (Taylor, 1953), which had been utilized to operationalize language proficiency in other studies with bilingual adults who stutter (Evans, 2002; Jankelowitz & Bortz, 1997; Maruthy et al., 2015; Schafer & Robb, 2012).

In the current study, no significant correlations were found between stuttering frequencies and cloze test scores in any of the speech tasks. Therefore, for this study, it may be said that English proficiency—as evidenced by a cloze test task—does not correlate with overall stuttering frequency. Jankelowitz and Bortz (1996) also utilized cloze tests to gauge whether participants were more proficient in English or Afrkiaans. It was found that the participant stuttered less in the language he was more proficient in (Jankelowitz & Bortz, 1996). Schafer and Robb (2012) found there to be significantly more stuttering in L2 for the group with higher cloze test scores, but the result was not significant for the group with the lower cloze test scores. These results should be interpreted with caution, as paired *t*-tests were performed on this small sample size of six participants per "high" and "low" groups.

When analyzing the differential effect of language proficiency in English on typical disfluencies, a high and significant negative correlation was obtained between typical disfluencies and cloze test scores for dialogue and monologue. These results indicate that language proficiency greatly influenced the presence or absence of typical disfluencies in dialogue and monologue, or, the more proficient a participant was in the second language, the less he or she uttered typical disfluencies. The relationship between typical disfluencies during monologue and dialogue and cloze test scores can possibly be due to language proficiency (Jankelowitz & Bortz, 1996), as dialogue and monologue require the speaker to exhaust their

linguistic capacities formulating novel thoughts in a less dominant language. Therefore, during assessment, diagnosis, and treatment, clinicians may consider the fact that a client may use more typical disfluencies when speaking in their non-native language.

4.9. Limitations

As previously stated, currently, there are no known studies comparing stuttering and typical disfluencies in Polish-English bilingual adults. Given this, the information gathered relative to existing literature on this topic focuses on languages other than Polish, with varying participant sizes and operational definitions for stuttering and bilingualism. This variability in available information poses a limitation because it does not allow for a seamless connection between previous methodologies and findings and the current ones.

Although the current study utilized all three speech mediums of dialogue, monologue, and oral reading, the lack of standardization in how to best elicit conversational, monologue, and oral reading tasks is acknowledged as a possible limitation. For example, he current study analyzed the first 200 words in each speech sample for added consistency. It is recognized, however, that the beginning of any speech task can evidence various levels of stuttering and may not be representative of the individual's typical speech.

To better operationalize language proficiency, the cloze test was implemented. However, it is important to note that there is no standardized procedure in the selection and scoring of cloze tests, and previous studies used varied criteria, if at all. In addition, the selected text had not been used in previous studies and selection of correct responses was based on the contextually acceptable word scoring method (Kobayashi, 2002). Lastly, some participants were multilingual rather than bilingual; it may be of value to see whether there was a difference between Polish-

English bilinguals and participants who spoke other languages in addition to Polish and English. Given the variability mentioned, the cloze test results should be interpreted with caution.

Lastly, the current study is the only known study to have taken place with participant and researcher being in remote locations utilizing Skype as the medium of communication. Given that similar studies took place in person, factors such as level of comfort with communicating online versus (face-to-face) in-person and constraints such as wireless connection, audio/video quality, and external noise need to be considered as potential limitations to the current study.

4.10. Future Implications

Taken together, these results provide speech-language pathologists with information that might be useful in terms of diagnostic and treatment determinations when dealing with bilingual individuals who stutter. Specifically, within this study, language did not necessarily lead to significant variability of stuttering or typical disfluency frequencies, and speech tasks evidenced similar stuttering and typical disfluency types within languages. Therefore, the results indicate that the linguistic features of a language do not significantly contribute to stuttering and typical disfluency frequencies and types, but rather the conditions in which the individual must communicate. Such information supports the notion that clinicians should be sensitive to the fact that stuttering will typically manifest in both languages (Van Borsel, et al., 2001) and that it is important to differentiate between stuttering and language difficulties (e.g. typical disfluencies can occur more frequently in L2, as this study has shown) associated with foreign language acquisition and retention, in order not to misdiagnose (Schafer & Robb, 2012). In addition, studies have shown that clinicians are able to identify stuttering in an unfamiliar language (Einarsdóttir & Ingram, 2009; Lee, Robb, Ormond, & Blomgren, 2014; Van Borsel & Britto

Pereira, 2005). Given this, stuttering assessment and therapy should not only occur in English, but also in the client's other language(s) to maximize treatment success across languages and, perhaps most of all, consider the personal and cultural importance of generalizing treatment targets to all spoken languages.

CHAPTER FIVE: CONCLUSION

The purpose of this study was to research the frequency and types of stuttering and typical disfluencies in Polish-English bilingual adults who stutter and to understand what influence language and speech task had on these factors. Speech rate and level of English proficiency were also determined. Analyses were completed within and between languages as well as within and between tasks. Seven participants completed the speech tasks—dialogue, monologue, and oral reading—in both languages.

Findings resulting from the analyses revealed that, between languages, no significant differences in the frequency of stuttering were present. These results indicate that language did not differentially impact the percentage of stuttering to a significant extent depending on language. When assessing within-language differences between tasks, there was no significant difference in stuttering behaviors. However, within the native language and second language, similar patterns of stuttering types were found: significantly more repetitions than broken words (dialogue), significantly more repetitions and prolongations than broken words (monologue), and significantly more prolongations than broken words (oral reading). Taking this information together, it can be said that the speech tasks evidenced similar stuttering types, regardless of the language the speech task was completed in.

Analysis of typical disfluencies between languages only showed significant differences during monologue and oral reading, with significantly more typical disfluencies occurring in the second language. Within languages and between tasks, significantly more interjections were present in both the native language and second language during dialogue and monologue. A correlational analysis was also completed between languages to see whether particular types of

stuttering behaviors correlated between languages within speech tasks. Within dialogue, there was a significantly high positive correlation between dialogue and repetitions as well as between dialogue and prolongations. Within monologue, repetitions positively correlated to a significant extent between languages. In oral reading, both languages showed a significant positive correlation with prolongations. While language proficiency—by way of cloze tests—did not evidence significant correlations between stuttering behaviors, significant results were found for typical disfluencies. Specifically, percentage of typical disfluencies correlated negatively with dialogue and monologue.

Future directions for this study include analyses based on phonetic and syntactic structure to determine the impact of these features on stuttering and typical disfluency frequency and types. Other speaking conditions (such as telephone) could be investigated to see how these tasks impact fluency. Finally, standardized self-report assessments could be included to further indicate between-language differences in participants' self-perceived speech-related beliefs.

APPENDIX A: CALL FOR BILINGUAL POLISH AND ENGLISH SPEAKERS WHO STUTTER

A research study comparing the fluency levels of people who stutter when speaking English and Polish will be conducted by Aleksandra Krawczyk (B.A., University of Central Florida) as a Master's thesis under the supervision of Martine Vanryckeghem, Ph.D., CCC-SLP.

Participants being sought must:

1. Be at least 18 years of age
2. Be native Polish speakers
3. Have an intermediate level of English proficiency with the ability to converse as well as read simple, short text in English

The study will be completed via Skype at a mutually agreed upon time at the participant's convenience.

Contact:

If you have any questions or are willing to participate in this study, please e-mail Aleksandra Krawczyk at akrawczy@knights.ucf.edu.

Zachęcamy do wzięcia udziału w badaniach bilingualne osoby jąkające się.

Badania będą prowadzone przez Aleksandrę Krawczyk (studentkę Uniwersytetu Centralnej Florydy-UCF) w ramach pracy magisterskiej pod kierownictwem dr Vanryckeghem, Ph.D., CCC-SLP.

Badania te będą porównywać płynność mowy wśród osób jąkających się, którzy posługują sie językiem polskim i angielskim.

Kandydaci muszą:
1. Mieć ukończone 18 lat
2. rodzimy jezyk polski
3. średni poziom angielskiego w czytaniu i mowie

Badania bedą przeprowadzone methodą "online" w uzgodnionym wczesniej czasie.

Wszyscy zainteresowani proszeni są o kontakt z Aleksandrą Krawczyk pod adresem mailowym: akrawczy@knights.ucf.edu

APPENDIX B: INTERNATIONAL REVIEW BOARD DOCUMENTATION

Stuttering Behaviors and Typical Disfluencies in Polish-English Bilinguals: Cross-Linguistic Correlates

Informed Consent

Principal Investigator: Aleksandra Krawczyk, B.A.

Professor and research supervisor: Martine Vanryckeghem, Ph.D., CCC-SLP

Investigational Site(s): Online

Introduction: Researchers at the University of Central Florida (UCF) study many topics. To do this we need the help of individuals who agree to take part in a research study. You are being invited to take part in a research study which will include about 15 people who speak Polish and English and live in Poland. You have been asked to take part in this research study because you are a native Polish speaker, speak English as a second language at an intermediate level, and have stuttered since childhood. You must be 18 years of age or older to be included in the research study.

The person conducting this research is Aleksandra Krawczyk, B.A. of the Communication Sciences & Disorders department at the University of Central Florida. Because the researcher is a Master's student, she is being guided by Dr. Martine Vanryckeghem, Ph.D., CCC-SLP, a UCF professor in the Communication Sciences & Disorders department.

What you should know about a research study:

- Someone will explain this research study to you.
- A research study is something you volunteer for.
- Whether or not you take part is your decision.
- You should take part in this study only because you want to.
- You can choose not to take part in the research study.
- You can agree to take part now and later change your mind.
- Whatever you decide, there will be no negative consequences for you.

- Feel free to ask all the questions you want before you decide.

Purpose of the research study: The purpose of this study is to compare the type and frequency of stuttering in Polish-English bilinguals who stutter during monologue, dialogue, and reading aloud tasks in both languages. Words per minute spoken in both languages during the tasks will be examined as well. By studying the types of dysfluencies (stuttering and typical) as well as their frequency in both languages, the researcher hopes to find patterns that may be found across languages and contribute to stuttering. The researcher also hopes to study whether language proficiency impacts stuttering. This research will add to the small but growing body of literature on stuttering in bilingual populations in order to support speech-language pathologists and researchers working with increasingly diverse populations who stutter.

What you will be asked to do in the study:

If you agree to participate in this study, you will complete the following steps:

(1) Fill out a language history and stuttering experience questionnaire that will be sent via e-mail and return to the researcher once completed within one (1) week. This questionnaire will be used to determine if you will be able to continue participating in the study; you will be notified of your eligibility shortly after submitting the questionnaire.

(2) If you are eligible to continue with the study following the completion of the questionnaire, you will be contacted by the researcher to establish a mutually agreed-upon time to complete the study via Skype. Aleksandra Krawczyk, B.A. will be the individual whom you will Skype with.

(3) During the Skype session, you will complete a brief English language test to determine your English proficiency level. This test will be used to qualify whether you can continue participating in the study. If you are eligible to continue, then, you will complete the following tasks (in randomized order) in both Polish and English:

a. A monologue sample that involves describing images shown to you
b. A conversational sample with the researcher, discussing everyday topics
c. Reading a 200-word passage aloud

Although this is not required, you have the opportunity to grant permission to include your language samples in FluencyBank, an online database for the study of fluency development. You may choose to include the video and audio recording, just the audio recording, or not give permission, if you do not want any of the speech samples from this study to be submitted to FluencyBank. Your decision will not affect your participation in this study whatsoever.

FluencyBank Consent

☐ Please write your initials in box to the left if you **DO** grant permission for the researcher to add video and/or audio recordings from this study to the FluencyBank database. ☐ Please write your initials in the box to the left if you **DO NOT** grant permission for the researcher to add video and/or audio recordings from this study to the FluencyBank database.

Location: Online platform - Skype

Time Required: It is estimated that the completion of the questionnaire will take approximately 20 minutes and the Skype session will last approximately 45 minutes.

Audio or video taping:

You will be video taped during this study. If you do not want to be video taped, you will NOT be able to be in the study. Discuss this with the researcher. The video will be kept in a locked, safe place and will not be used for any purpose other than this research study or FluencyBank, if you grant this permission. The file will be erased or destroyed at the end of the research study. The only way the files will NOT be erased or destroyed at the end of the research study is if you grant permission for the files to be added to the FluencyBank data base.

Risks:

There are no foreseeable risks or discomforts involved in taking part in this study. All participants' names will be kept confidential with an assigned deidentified code. You do not have to answer every question or complete every task. You will not lose any benefits if you skip questions or tasks.

Benefits:

By participating in this study, you will contribute to research that will help increase our current understanding of stuttering in bilingual individuals. The researcher encourages you, the participant, to add this research opportunity to your professional development and/or personal experiences. Eventually, the hope is that these data will shed light on how to best treat bilingual people who stutter.

Study contact for questions about the study or to report a problem: If you have questions, concerns, or complaints, or think the research has hurt you, please contact Aleksandra Krawczyk, Graduate Student, Department of Communication Sciences & Disorders, College of Health and Public Affairs, akrawczy@knights.ucf.edu or Dr. Martine Vanryckeghem, Professor, Deparment of Communication Sciences & Disorders at (407) 823 – 4808, martinev@ucf.edu

IRB contact about your rights in the study or to report a complaint: Research at the University of Central Florida involving human participants is carried out under the oversight of the Institutional Review Board (UCF IRB). This research has been reviewed and approved by the IRB. For information about the rights of people who take part in research, please contact: Institutional Review Board, University of Central Florida, Office of Research & Commercialization, 12201 Research Parkway, Suite 501, Orlando, FL 32826-3246 or by telephone at (407) 823-2901. You may also talk to them for any of the following:

- Your questions, concerns, or complaints are not being answered by the research team.
- You cannot reach the research team.
- You want to talk to someone besides the research team.
- You want to get information or provide input about this research.

Your signature below indicates your permission to take part in this research.

DO NOT SIGN THIS FORM AFTER THE IRB EXPIRATION DATE BELOW

Name of participant	
Signature of participant	Date
Signature of person obtaining consent	Date

University of Central Florida Institutional Review Board
Office of Research & Commercialization
12201 Research Parkway, Suite 501
Orlando, Florida 32826-3246
Telephone: 407-823-2901 or 407-882-2276
www.research.ucf.edu/compliance/irb.html

Approval of Human Research

From: **UCF Institutional Review Board #1**
FWA00000351, IRB00001138

To: **Aleksandra Krawczyk**

Date: **December 06, 2017**

Dear Researcher:

On 12/06/2017 the IRB approved the following human participant research until 12/05/2018 inclusive:

Type of Review:	UCF Initial Review Submission Form Expedited Review Category # 6 & 7
Project Title:	Stuttering Behaviors and Typical Disfluencies in Polish-English Bilinguals: Cross-Linguistic Correlates
Investigator:	Aleksandra Krawczyk
IRB Number:	SBE-17-13558
Funding Agency:	
Grant Title:	
Research ID:	N/A

The scientific merit of the research was considered during the IRB review. The Continuing Review Application must be submitted 30days prior to the expiration date for studies that were previously expedited, and 60 days prior to the expiration date for research that was previously reviewed at a convened meeting. Do not make changes to the study (i.e., protocol, methodology, consent form, personnel, site, etc.) before obtaining IRB approval. A Modification Form **cannot** be used to extend the approval period of a study. All forms may be completed and submitted online at https://iris.research.ucf.edu .

If continuing review approval is not granted before the expiration date of 12/05/2018, approval of this research expires on that date. When you have completed your research, please submit a Study Closure request in iRIS so that IRB records will be accurate.

Use of the approved, stamped consent document(s) is required. The new form supersedes all previous versions, which are now invalid for further use. Only approved investigators (or other approved key study personnel) may solicit consent for research participation. Participants or their representatives must receive a signed and dated copy of the consent form(s).

All data, including signed consent forms if applicable, must be retained and secured per protocol for a minimum of five years (six if HIPAA applies) past the completion of this research. Any links to the identification of participants should be maintained and secured per protocol. Additional requirements may be imposed by your funding agency, your department, or other entities. Access to data is limited to authorized individuals listed as key study personnel.

In the conduct of this research, you are responsible to follow the requirements of the Investigator Manual.

This letter is signed by:

Signature applied by Renea C Carver on 12/06/2017 08:39:52 AM EST

Designated Reviewer

APPENDIX C: QUESTIONNAIRE

Language History and Stuttering Experience Questionnaire

The following questions will give you the opportunity to provide information about your knowledge of English, Polish, and any other languages you may speak. In addition, it will provide information about your experience with stuttering.
Please answer the questions to the best of your ability, as the most accurate answers will assist in ensuring that the research data represent you as best as possible. *Thank you in advance for your time and effort!*
If you have any questions, please contact Aleksandra Krawczyk (akrawczy@knights.ucf.edu) or Prof. Dr. Martine Vanryckeghem (martinev@ucf.edu).

I. Personal Information

Participant ID: _____

Gender: _____ Date of Birth: _____

Place of Birth – City: _____ Country: _____

Current Place of Residence – City: _____

Voivodship (if applicable) :_____ Country: _____

Nationality: _____

Highest Level of Education (e.g. high school, licenjat, magister, doktorat)

Handedness (circle one): Right-handed Left-handed Ambidextrous

Current occupation: _____

II. Language History

What is your native language? _____

In the order of proficiency (most to least proficient), please list other languages that you speak	At what age did you begin speaking each language?	Are you still able to communicate in this language? If NO, indicate at what age you stopped being proficient	How did you learn each language? (e.g. self-taught, parents, school, television, etc.)	In what situations do you use each language? (e.g. work, school, with friends)	How often do you ***hear*** each language? (circle one)	How often do you ***speak*** each language? (circle one)	How often do you ***read*** in each language? (circle one)	How often do you ***write*** in each language? (circle one)
Language 2:					Daily Weekly Monthly Yearly Rarely Never	Daily Weekly Monthly Yearly Rarely Never	Daily Weekly Monthly Yearly Rarely Never	Daily Weekly Monthly Yearly Rarely Never
Language 3:					Daily Weekly Monthly Yearly Rarely Never	Daily Weekly Monthly Yearly Rarely Never	Daily Weekly Monthly Yearly Rarely Never	Daily Weekly Monthly Yearly Rarely Never
Language 4:					Daily Weekly Monthly Yearly Rarely Never	Daily Weekly Monthly Yearly Rarely Never	Daily Weekly Monthly Yearly Rarely Never	Daily Weekly Monthly Yearly Rarely Never

What language do you most often ***think*** in? _____ _____

Which language do you prefer to use when expressing yourself emotionally (e.g. when upset)? Why?

_____

_____

Which language do you prefer to use in general? Why? _____

_____

Circle your response based on your *English language abilities* (not considering stuttering). It may be helpful to compare English to your native language when answering these questions:

How **well** do you ***understand*** English? (0 = not at all; 5= near native proficiency)

0 1 2 3 4 5

How **well** do you ***speak*** English? (0 = not at all; 5 = near native proficiency)

0 1 2 3 4 5

How **well** do you ***read*** in English? (0 = not at all; 5 = near native proficiency)

0 1 2 3 4 5

How **well** do you ***write*** in English? (0 = not at all; 5 = near native proficiency)

0 1 2 3 4 5

How **comfortable** do you feel in your ability to ***understand*** English? (0 = not comfortable at all; 5 = very comfortable)

0 1 2 3 4 5

How **comfortable** do you feel when ***speaking*** in English? (0 = not comfortable at all; 5 = very comfortable)

0 1 2 3 4 5

How **comfortable** do you feel about your English ***reading*** proficiency? (0 = not comfortable at all; 5 = very comfortable)

0 1 2 3 4 5

How **comfortable** do you feel when ***writing*** in English? (0 = not comfortable at all; 5 = very comfortable)

0 1 2 3 4 5

How **comfortable** do you feel when using English to speak on the **telephone**?
(0 = not comfortable at all; 5 = very comfortable)

0 1 2 3 4 5

How **comfortable** do you feel in your ability to give someone **directions** in English? (0 = not comfortable at all; 5 = very comfortable)

0 1 2 3 4 5

How **comfortable** do you feel in your ability to communicate in English when you are being **rushed**? (0 = not comfortable at all; 5 = very comfortable)

0 1 2 3 4 5

How **comfortable** do you feel in your ability to be **interviewed for a job** in English? (0 = not comfortable at all; 5 = very comfortable)

0 1 2 3 4 5

How **comfortable** do you feel when **speaking to friends** in English? (0 = not comfortable at all; 5 = very comfortable)

0 1 2 3 4 5

How **comfortable** do you feel when speaking English in front of a **group of people**? (0 = not comfortable at all; 5 = very comfortable)

0 1 2 3 4 5

How **comfortable** do you feel in your ability to **introduce yourself** in English? (0 = not comfortable at all; 5 = very comfortable)

0 1 2 3 4 5

How **strong** do you feel your **accent** is when speaking English? (0 = no accent; 5 = heavy accent, almost unintelligible)

0 1 2 3 4 5

III. **Stuttering Experience**

Have you been diagnosed with stuttering? YES NO
If NO, do you have a different type of fluency disorder? _____

If YES, when were you diagnosed? _____

Who diagnosed you? (e.g. speech-language therapist, teacher..)_____

Do you have any speech and/or language disorder *other than stuttering?* (e.g. dyslexia, articulation disorder, etc.). If yes, please explain_____
_____

At what age did you begin to stutter? _____

Do you remember an event that led you to stutter? If so, please explain: _____

How did the stuttering progress? For example, did it start suddenly or begin gradually and become worse over time?
_____

_____

_____

What parts of a sentence do you stutter most frequently on? (e.g. beginning, middle, end). Please explain:
_____

_____

How would you describe your stutter? _____

_____

Circle the answer that best describes you:

- Do you stutter more on long or short words? long short
- Which type of word gives you the most trouble? Starting with…….

  consonants (e.g. **m**all) vowels (e.g. **a**pple) both give me equal trouble
- Which type of stutter occurs most in your speech?

  sound/syllable repetitions (e.g. **c-c-c-**cat; **ba-ba-**baby)

  monosyllable word repetitions (e.g. the the the)

sound prolongations (e.g. **mmmmm**aybe)

blocks (e.g. ____**h**appy)

broken words (e.g. his____tory)

Do you use avoidance or escape (coping) behaviors when you stutter? For example: replace words when you feel you will stutter upon them, blink your eyes, cover your mouth, etc.). If yes, please mention them and explain:

_____

_____

_____

_____

_____

In what situations do you feel that you the stutter most? (e.g. when talking to strangers, when talking on the phone, etc.)

_____

_____

_____

_____

_____

Have you sought help for your stutter? (e.g. speech therapy from a speech-language therapist or psychological counseling). If so, please explain what type of help you have sought and from whom:

_____

_____

_____

_____

_____

Who searched for the help you describe above? (e.g. yourself, a parent, etc.)
_____

How long did you receive this help? Are you still receiving it? _____

_____

What techniques or aspects were addressed? e.g. a type of stuttering therapy, Cognitive Behavioral Therapy, counseling, etc.)
_____

_____

_____

_____

Do you use these techniques/aspects outside of treatment (e.g. at work)? If yes, please explain where and how you use them. If no, please explain why not.
_____

_____

_____

_____

Do you currently attend a self-help group for people who stutter? Yes No
If no, have you in the past?
_____

IV. **Bilingualism and Stuttering**

Of the languages you speak, in which language(s) do you stutter?
_____

What language do you feel that you stutter the most in? _____

Circle your response:

How severely do you stutter in your *native language*?
(0 = I do not stutter at all; 5 = I stutter on almost every word)

0 1 2 3 4 5

How severely do you stutter in your *2nd language*?
(0 = I do not stutter at all; 5 = I stutter on almost every word)

0 1 2 3 4 5

If you speak a 3rd language, how severely do you stutter in your *3rd language*?
(0 = I do not stutter at all; 5 = I stutter on almost every word)

0 1 2 3 4 5

If you speak a 4th language, how severely do you stutter in your *4th language*?
(0 = I do not stutter at all; 5 = I stutter on almost every word)

0 1 2 3 4 5

Indicate the degree of stuttering severity you experience in each language that you speak when doing the following two tasks—speaking and reading aloud:
(0 = I do not stutter at all; 5 = I stutter on almost every word)

Language	**Speaking**	**Reading Aloud**
Native language	0 1 2 3 4 5	0 1 2 3 4 5
1st language	0 1 2 3 4 5	0 1 2 3 4 5
2nd language	0 1 2 3 4 5	0 1 2 3 4 5
3rd language	0 1 2 3 4 5	0 1 2 3 4 5
4th language	0 1 2 3 4 5	0 1 2 3 4 5

In your opinion, what differences do you notice in your stuttering between your native language and any other languages you speak?
(e.g. I stutter more when I talk to people I don't know in English; I stutter less when I read aloud in Polish; I stutter more on words that begin with vowels in English, etc.)

_____

_____

_____

Thank you for taking the time to complete this questionnaire!

APPENDIX D: CLOZE TEST

Below is a passage titled "Sensible Driving Can Save Fuel." Every 8th word is removed. In some cases, the entire word will be in removed; in other cases, the first letter will be kept but the rest of the word will be removed. Read the passage and fill in the blanks with the word that you think fits best. The first line has been completed for you as an example.

The price of gas has been going up. We do not know when it will stop. Many people want to know how they _____ conserve fuel. The best way to conserve _____ is to change driving habits.

The accelerator, _____ gas pedal, has a lot to do w_____ how much gas you use. The faster _____ drive, the more gas you use. Drivers s_____ slow down a bit to conserve fuel. _____ at a steady speed helps to save _____ much gas you use. Accelerating slowly to _____ to the speed you want to go h_____ conserve gas too.

The more you drive _____ car, the more gas you use. Think a_____ the places you need to go before _____ your home. You should run as many _____ that you need to do in one t_____. Always try to pick the shortest route _____ going somewhere.

Cars that are in good _____ condition use less fuel. Take care of _____ vehicle. Make sure the engine is running _____ and is tuned-up often. Have a mechanic c_____ it if something seems wrong.

Tires are _____ too. Keep the tires inflated properly on _____ car. It will help the vehicle roll b_____and will get you better mileage. If _____ car's tires are worn then they should _____ replaced.

Finally, think about using your car _____. Walk or ride a bike if you _____ not have far to go. Carpool or t_____ public transportation when you can. Leaving your _____ at home really saves gas. There are m_____ ways a person can conserve fuel.

APPENDIX E: MONOLOGUE TASK

For this task, I will ask you to describe what you see in a picture (who is in the picture, what are the people doing, etc.). Try to give as much information as possible—you may discuss any aspect of the picture, such as how the picture reminds you of something in your own life. There is no right or wrong answer—if you can't think of a word, try to use a different word in the same language. You will be shown 10 pictures and asked to describe all 10 pictures in Polish. You will also be shown 10 different pictures and asked to describe them in English.

Here is an example of a description that can be made for the picture below:

"I see two men standing on top of a building in the middle of a city. One man is standing on the edge of the building while the other is taking a photograph of him. They do not look afraid, but I know that I would be because I am afraid of heights. It is a nice day, with blue skies and just a few clouds. I see a lot of trees, so maybe there is a park in the middle of this city. The buildings in the picture are a mix of new and old, which makes me think that this is an old city with a rich history."

Do you have any questions?
Please describe this next picture in X (X = designated language of English or Polish)

Ludwig, G. (2016). "Best Photos of 2016." *National Geographic.* Retrieved from http://www.nationalgeographic.com/photography/best-photos-2016/

APPENDIX F: DIALOGUE TASK

For this task, we will have a conversation. Before we start speaking, I will tell you the language that we will be having the conversation in. I will ask you a question in that language, and then you are to respond in that language. You may tell me whatever you want about the subject—try to say as much as possible. There is no right or wrong answer—if you can't think of a word, try to use a different word in the same language. The information you provide will not be used for any other reason other than the aforementioned goal of collecting a language sample. Do you have any questions?

1) **Topic 1 – Hobbies**
    a. Do you have any hobbies?
    b. When did you start participating in this activity?
    c. How did you first become interested in this activity?
    d. Where do you practice this activity?
    e. What advice would you give someone who wants to take up that hobby?

2) **Topic 2 – Family and Friends**
    a. Can you tell me about your family and/or friends?
    b. What do you like most about your family and/or friends?
    c. How did you meet your best friend?
    d. What is a favorite memory that you have with your family and/or friends?
    e. How often do you see your family?

3) **Topic 3 – Work/School**
    a. Can you tell me about your current job/what you are studying in school?
    b. How long have you been working/studying there?
    c. If you could have *any* job, what job would you choose?
    d. What does your daily work/school schedule look like?
    e. How do you get to your job/school?

4) **Topic 4 – Travel/Holidays**
    a. Where is your favorite place to travel?
    b. What place would you like to visit, but haven't had the chance to yet?
    c. Can you tell me about the last place you visited?
    d. How do you typically spend your holidays from work/school?
    e. What holiday do you enjoy the most? Why?

APPENDIX G: ORAL READING TASK

Please read the following passage aloud in your normal reading manner. When reading, include the all titles and subtitles ("Sunbathing, "the good," and "the bad").

Sunbathing

The good

No matter how hard you try to convince yourself to the contrary, a suntan looks good and feels good. Not only is it associated with health, beauty and fitness but it acts as a great morale booster. If people are tired and down in the winter months it is often because the nights are long and the days short. Most of us are not too affected by this lack of light, but some people become seriously depressed. Doctors have now discovered that 'Seasonal Affective Disorder' can be treated with the use of fluorescent lamps which imitate natural light. And there's more good news. Not only is the sun a healer of psychological disorders but it also helps in the soothing of some skin disorders such as psoriasis. Of course there is always one final argument; the sun major source of Vitamin D- never mind there is sufficient in our daily diet.

The bad

Specialists are seeing more and more cases of skin cancer and their patients are often people who spend a lot of time outdoors or people who have a fair skin type. Luckily most forms of skin cancer, if caught early, respond well to treatment.

Z historii imion i nazwisk.

Co było pierwsze? – imię, czy nazwisko?

Nazwisko wydaje nam się dzisiaj ważniejsze niż imię. O wiele więcej jest jednakowych imion niż nazwisk. Porównajcie w klasie. Zdarzają się przecież trzy Agnieszki, dwie Angeliki, czasem czterech Michałów. Rzadko pojawiają się natomiast te same nazwiska. Imiona nadawane były pierwotnie przy pierwszych postrzyżynach, potem przy chrzcie, wreszcie od razu po urodzeniu.

Tak więc ludzie najpierw nosili imiona. Przezwisko, a potem nazwizko pojawiło się wtedy, kiedy niezbędnym było odróżnienie kilku osób noszących to samo imię. Dlatego nadawano ludziom różnie przewiska, które stawały się z czasem ich nazwiskami. Wywodziły się te nazwiska z wyglądu, wad, zalet np. niektórzy nasi królowie wzięli nazwiska ze swoich przezwisk: Henryk Brodaty, Zygmunt Stary, Bolesław Wstydliwy, Władysław Łokietek (bardzo mały wzrost).

Inne nazwiska z tej kategorii to: Mądry, Wesoły, Jasny, Krzykacz, Broda, Kulawik, Silny, itd. Jeśli np. w tej samej wsi było trzech Kazimierzów, czy Bartłomiejów, dawano im jakieś przezwisko, które z czasem zostało dziedziczone i stawało się nazwiskiem.
Tak np. jeżeli Kazimierz przybył do wsi z Gdańska nazwano go Gdańskim, Kazimierza, który nosił czapkę z barana, nazwano Baranem, a trzeciego którego ojciec nosił imie Paweł, nazwano Pawlakiem. Bartłomieja, który lubił polować na lisy, nazwano Lisem.

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