EXAMINING THE PRESENTATION OF SPEECH DISFLUENCIES IN STORY GENERATION NARRATIVE SAMPLES OF BIDIALECTAL CHILDREN

by
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Dedication

This thesis is dedicated to my parents, who have consistently inspired and encouraged me to give my all. I also dedicate this thesis to my grandmother who has been a constant light in my life.

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Abstract

Bilingualism affects fluency resulting in increased disfluencies when compared to monolingual speakers (Coalson, Pena, & Byrd, 2013). However, little is known about the impact of speech fluency when speaking two dialects, also referred to as bidialectalism (Lanehart, 2015; Lee-James & Washington, 2018). Johnson and Mills (2019) examined the speech disfluencies of bidialectal children during a story retell paradigm. Findings suggested that unlike bilingual Spanish-English speaking children, bidialectal children who do not stutter (CWNS) did not exceed or meet the criteria used to diagnosis developmental stuttering in children. However, story retell tasks do not necessarily mimic conversational speech which means that this could still be an issue for bidialectal children based on other forms of communication. The purpose of this study was to investigate the characteristics of speech disfluencies exhibited during story generation narrative samples of bidialectal children who are classified as having (1) no variation from Mainstream American English (MAE), (2) some variation from MAE, and (3) strong variation from MAE as determined by the DELV. The subset of 42 African American (AA) participants (male=20, female=22; ages= 88-144 months) from Johnson & Mills (2019) were split into three groups: no variation from MAE (n=15), some variation (n=6), and strong variation (n=21). Findings indicate that all three of the talker groups exceeded 3% of stuttering-like disfluencies (SLDs). Additionally, all groups presented with blocks and prolongations similar to children who stutter (CWS). This suggests that the communication style of AA culture, not dialect may be related to fluency.

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Introduction

In the United States, over 20% of the population is considered bilingual (Shin et al., 2010). Bilingualism is the use of two different languages across contexts and levels (Brice, 1997; Antoniou, Grohmann, Kambanros, & Katsos, 2016; Lee-James & Washington, 2018). Of the languages spoken in the US, English is the most commonly spoken language with approximately 300 million speakers five years of age or older (U.S. Census Bureau, 2016). Additionally, over 65 million individuals in the US speak another language other than English (U.S. Census Bureau, 2016; Zeigler & Camarota, 2018).

The United States is often considered a harmonious melting pot of individuals from different cultures, ethnicities, races, histories, originations, backgrounds, and cultures, which significantly influences linguistic variations of the English language. English originates from England and is used as the official language and primarily spoken language of multiple countries around the world (McLeod, 2007). Surprisingly, while English is the most commonly spoken language in the US, it is not designated as the official language of the United States at the federal level (USA Gov, n.d.). However, some countries have chosen to adopt English as their official language (e.g., Canada, Ireland, Scotland, Australia, New Zealand, United Kingdom, South Africa, India, Hong Kong, Jamaica, and the Philippines; see Appendix for complete list; McLeod, 2007).

Language Variation

Within any language, an individual can speak with a variation of that language which is termed dialect. Dialect is defined as a similar language variation spoken and shared by a group of individuals in a society. Dialects and can be classified as either (1) standard/mainstream or (2) nonstandard/non-mainstream (Wolfram & Schilling-Estes, 1998). Common English dialects that are seen in the US but originate outside of the US include: Irish English, Scottish English, Australian English, New Zealand English, Welsh English, South African English, Hong Kong English, and Philippine English (McLeod, 2007). Additionally, there are acquired second language learning influenced English dialects like Cantonese- and Spanish-influenced English (McLeod, 2007).

With immigrants to the US from a variety of geographical, sociohistorical origins, cultural, and linguistic backgrounds, number of English dialects will continue to grow, mix, and modify. However, in the US there are several mainstream and nonmainstream American English dialects that vary from English. These regional dialects originate from the cultural and sociohistorical aspects of a specific groups in America and include examples like Appalachian English, Cajun English, or Southern White English (SWE) as well as Mainstream American English (MAE) and African American English (AAE; McLeod, 2007).

Bidialectalism

Given the influence on dialects, an individual may use more than one dialect depending on the conversational partner or setting. Using two dialects or variations of a language is referred to as bidialectalism (Mills & Washington, 2015). Bidialectal speakers use two different cultural or regional varieties of a language across contexts and levels. For example, a large majority of African Americans (AAs) communicate using rule governed language variations between both MAE and AAE. They codeswitch between the two with a tendency towards using MAE in educational and professional settings and use nonmainstream AAE in more causal settings (Rickford, 2015). It is an accepted fact that bidialectalism exists in the US. However, it is unknown how many individuals speak two (or more) dialects or are bidialectal.

Bidialectalism has been compared to bilingualism (Lanehart, 2015; Lee-James & Washington, 2018). The perceptual difference between bilingualism and bidialectalism is mutual intelligibility. Bilingual speakers can communicate and be understood by individuals who speak one of either language that the speaker is fluent in. However, given that the two languages are distinct in their syntax, morphological, phonological, and semantic rules, communication across monolingual individuals who speak either of the two languages is difficult and unlikely to occur. On the other hand, bidialectal speakers can be understood among individuals who use a different dialect within the similar parent language due to the similarities in the structure making communication easier (Lee-James & Washington, 2018; Trudgill, 1999).

Impact of Bilingualism on Speech Fluency

Bilingualism, particularly in Spanish-English speakers, has been found to impact speech fluency resulting in an increased frequency of speech disfluencies (e.g. between-word and within-word) when compared to individuals who only speak one language (Coalson, Pena, & Byrd, 2013). This higher frequency of speech disfluencies in bilingual speakers is reported to include a considerable amount of stuttering-like disfluencies (SLDs: sound/syllable repetitions, monosyllabic whole-word repetitions, audible sound prolongations, and inaudible sound prolongations [blocks]) than non-stuttering-like disfluencies (nSLDs: interjections, revisions, and phrase repetitions (Pena, & Byrd, 2013) which places bilingual individuals at an increased risk for an erroneous diagnosis of stuttering. It is suspected that as bilingual individuals access speech and language to communicate, having internal access to two languages – syntax, morphology, phonology, and semantics – while communicating may result in disfluencies during the process of planning and producing speech and language. However, it is unknown whether this is also the case with bidialectal speakers who, while only accessing one language, must operate within the grammatical, semantic and pragmatic rules of each dialect while also planning and producing speech and language.

Similarly, to bilingual children who alternate between different language systems in different contexts, bidialectal children code switch between two linguistic varieties and codes, as a means to match the written and spoken school environments (Washington and Mills, 2011). This switch between variations could influence the child's cognitive load and impact memory (Terry et al., 2010). On the other hand, according to theory the cognitive advantages of bilingual users applies to bidialectal students, whose ability to code-switch presents with cognitive advantages and broadened linguistic repertoire in oral narrative discourse and flexibility to switch between linguistic codes in comparison to monolingual peers (Lee-James and Washington, 2018). With the similarities of between bilingualism and bidialectalism, coupled with research findings of bilingualism impacting speech fluency, it is likely that there could also be an impact on the speech fluency of bidialectal speakers.

Mainstream American English (MAE) and African-American English (AAE)

Within the United States, mainstream American English (MAE) is the primary mainstream dialect. African American English (AAE) is considered the most commonly spoken and studied nonstandard rule-based dialect or linguistic variation of MAE among

13.3% of the African American population (U.S. Census Bureau, 2016; Wolfram and Thomas, 2002; Green, 2002).

Both MAE and AAE have distinct sutural and social rules governing the use of features (see Appendix A for variations between AAE and MAE; Craig & Washington, 2006). MAE is also referred to as Mainstream Classroom English (Washington and Mills, 2011) or as School English (Charity, 2008). Since MAE is generally is used by teachers, professionals, for class context, and learning material that is presented, it is expected for children to use this dialect in academic and professional settings (Mills & Washington, 2015). In academic settings, code switching is an essential skill in the schools that both bilingual and bidialectal children are encouraged to acquire for educational purposes and occupational aspirations.

Given the complexity of AAE, Seymour and colleagues developed *The Diagnostic Evaluation of Language Variation Screening Test* (DELV-5; Seymour, Roeper, de Villiers, & de Villiers, 2003) which is a norm-referenced standardized assessment with the aim to distinguish children with language difference who use a strong variation from MAE, some variation from MAE, or no variation of MAE from those children who have a language disorder or delay. For the purposes of this study, bidialectal will refer to children who have some variation from MAE (AAE and MAE). The monodialectal groups will refer to either 1.) no variation from MAE (MAE only) and 2.) strong variation from MAE (AAE only).

Diagnosing Developmental Stuttering

Developmental stuttering, also known as childhood stuttering is a fluency disorder, because it is diagnosed in children when disfluencies are recognized at a young age. Within the United States approximately 1% of the school-age population stutter and 5% of the population have stuttered within their life time. Age of onset is most often seen around 2 and 3.5 years old. About 75% children naturally recover without fluency treatment during the first 12 to 24 months of onset of stuttering. Those who do not recover will continue to stutter throughout their lifetime. Developmental stuttering is diagnosed through the frequency and type of speech disfluencies in comparison to normative data of monolingual English-speaking children who do and do not stutter. However, recent research suggests that the same criteria does not apply for bilingual children. On top of that, the current normative data does not take into consideration of dialect. Given that there are variations of English, it is unknown whether the diagnosis of stuttering should consider dialect as a factor impacting the accuracy of a stuttering diagnosis or it applies to all speakers of English regardless of linguistic variation (Byrd, et al., 2015; Byrd, et al., 2015).

Review of Bilingual Stuttering Research

The current normative data for monolingual English speaking children who do not stutter (CWNS) is below 3 stuttering-like disfluencies (SLDs) per 100 words. However, Coalson et. al (2013) found that speaking with two languages has a direct impact on a child's speech fluency which increases the number of speech disfluencies (i.e., between-word or within-word disruptions in speech) in comparison to monolingual peers.

In agreement, Byrd et al. (2015) analyzed the frequency and type of SLDs during tell and retell of narratives in both Spanish and English. They found that bilingual Spanish-English speaking CWNS and are typically developing children (TDC) exhibit a frequency of speech disfluencies ranging from 3% to 22%, which significantly exceeds the norm of monolingual CWNS (Byrd, Bedore, & Ramos, 2015; Ambrose & Yairi, 1999; Byrd et al., 2015; Rincon, Johnson, & Byrd, in press; Byrd, 2015).

Rincon et al. (in press) investigated the types of SLDs presented by bilingual Spanish-English CWS and CWNS. The researcher found that there was a significant amount of all types of nonSLDs; however, more notably the author found an increased number of SLDs in both the CWS and CWNS (i.e. sound syllable and word repetitions) The authors, however, noted a distinction between CWS and CWNS in the production of audible sound-prolongations and blocks which were only exhibited by the bilingual CWS. If a clinician is not considerate of the complexities of linguistic differences, then there is a risk that Bilingual Spanish-English speakers may be overidentified as children who stutter (CWS; Byrd, Watson, Bedore, & Mullis, 2015).

Byrd et. al (2015) investigated the accuracy SLPs identifying stuttering in speech samples of SE speaking children. Fourteen bilingual SLPs were asked to code and assess the frequency and types of SLDs of narrative retells in English and Spanish, elicited by one CWS and one CWNS. They were given the monolingual diagnostic criteria as a reference to diagnose. As a result, they found that 12 out of 14 SLPs falsely or incorrectly identified a bilingual CWNS as a CWS. On the other hand, ten of the SLPs correctly identified the bilingual CWS as a CWS. This suggests that based on the current diagnostic criteria for monolingual CWS, bilingual CWS risk for false-positive identification of stuttering. This notably raises the onus to improve differential diagnosis of linguistically diverse populations (Byrd, Bedore, & Ramos, 2015; Carias & Ingram, 2006; Fiestas et al., 2005).

Bidialectalism and Stuttering

As more CLD populations increase, it is the onus of researchers and speech-language pathologists to provide and improve culturally appropriate and accurate representational normative data and assessment tools for bilingual speakers and bidialectal users (Lee-James & Washington, 2018). Proctor et al. (2008) sought to investigate if the frequency of occurrence of stuttering in African American children is greater than in European American children. The researchers aimed to determine the prevalence of African American students who stutter among peers who stutters in order to identify if there was an overidentification of African American children being diagnosed with childhood stuttering. The participants included a total of 2,223 African American children and 941 European Americans. These participants used a variety of American English dialects spoken in Illinois including Chicago dialects, southern accented American English used in southern Illinois, and AAE.As a result, they found no statistical significance between African American and European American children. Thus there was not an overrepresentation of African Americans. This study did not take into account dialect and the affect it had on their fluency, on the other hand it compared the prevalence of the participants in regards to race.

Mackey (1997) compared the perceptual judgement of clinicians of speech naturalness of speak of user of 1.) MAE who do not stutter 2.) MAE who do stutter 3.) Users of a different dialects other than MAE (e.g. Australian, Canadian, New Zealand). The findings revealed that the clinicians did perceptually rate the speech naturalness of speakers with a dialect as different than an IWS and IWNS who are users of MAE. These strong correlations between speech naturalness ratings and speech rate, speech fluency and dialect imply that there could be a perceptual difference from clinicians when diagnosing IWS and IWNS who are users of AAE. With these facts in mind, it presents the question of whether bidialectal children are also at risk for being misdiagnosed for stuttering.

Mills et. al (2019), conducted an exploratory examination of the impact of bidialectalism on speech disfluencies. The researchers investigated story retell samples of bidialectal children and grouped them into three groups: no variation of MAE (monolingual MAE), some variation of MAE (bidialectal of MAE and AAE), and strong variation from MAE (monolingual AAE) based on the criteria of the DELV-S. They analyzed and coded the frequency and types of speech disfluencies. However, their findings suggested that unlike bilingual Spanish-English speaking children, bidialectal CWNS did not exceed or meet the criteria used to diagnosis developmental stuttering in children. In fact, they were consistent with the current monolingual criteria. This suggests that, based on narrative tell-retell tasks, nonmainstream English-speaking children are not at an increased risk of being misdiagnosed for stuttering (Mills et. al, 2019). However, narrative tell-retell tasks do not necessarily mimic conversational speech which means that this could still be an issue for bidialectal children based on other forms of communication.

Purpose of the Study

Given the findings from Mills et al. (2019), the current study continued this investigation with the same participants through use of a different type of sample. The purpose of this study was to investigate the characteristics of speech disfluencies exhibited during story generation narrative samples of bidialectal children who are classified as having (1) no variation from MAE, (2) some variation from MAE, and (3) strong variation from MAE as determined by the DELV. Specifically, the frequency and type of speech disfluencies were tabulated from the story generation narrative samples and were compared to the data from Mills et al. (2019).

The current study answered the following questions:

1. Is there a difference in the *frequency* of speech disfluencies presented by CWNS with no, some, or strong variation from MAE during a personal narrative sample/ story generation narratives?

- Hypothesis: The bidialectal group, with some variation of MAE and AAE, will produce more speech disfluencies than the two monodialectal groups (no variation or strong variation from MAE).

2. Is there a difference in the *type* of speech disfluencies presented by CWNS with no, some, or strong variation from MAE during a personal narrative sample/ story generation narratives?

- Hypothesis: The bidialectal group, with some variation of MAE and AAE, will produce a larger variety (more variability) of speech disfluencies (SLDs) than the two monodialectal groups (no variation or strong variation from MAE).

Methods

Participants

The current study is based on data from a subset of participants from a larger study (see Mills and Fox, 2016 for more details of the larger initial data set). The subset of participants for the current study is based on the same subset of participants selected for Johnson & Mills (2019). To create that subset, from the initial group of participants from Mills and Fox (2016), 21 African American children were excluded whose speech sample sizes were -1 standard deviation from the mean sample size for participants in their respective dialect groups in order to retain as much data as possible.

Of those 42 remaining participants, $n=15$ were designated as having no variation from MAE, $n=6$ were designated as having some variation, and $n=21$ as having strong variation from MAE. Participants were between the ages of 88 months and 144 months (No Variation: $M=108.07$, $SD = 13.237$; Some Variation: $M = 110.50$, $SD = 13.248$; Strong Variation: $M =119.86$, $SD =15.768$) with no statistically significant between-group differences in the number of spoken words per speech sample, $F\ (2,39)=.444$, $p>.05$ or age $F(2,39)=.057$, $p>.05$.

Diagnostic Testing

For the initial data set (Mills & Fox, 2016), data was collected by two graduate clinicians and the first author of Mills and Fox (2016). They administered tests to characterize the overall cognitive and vocabulary abilities of each child. The testing took place in two semi-private rooms in a local elementary school. The Peabody Picture Vocabulary Test, Fourth Edition (PPVT-4; Dunn & Dunn, 2007) assessed single-word receptive vocabulary. The Test of Narrative Language (TNL; Gillam & Pearson, 2004) assessed narrative comprehension and production. Part I of the Diagnostic Evaluation of Language Variation-Screening Test (DELV-S; Seymour, Roeper, de Villiers, & de Villiers, 2003) assessed language variation. Part I of the DELV-S categorized the participants into one of three language variation categories: *no*, *some*, or *strong* variation from MAE. Additionally, the children in Mills and Fox (2016) participated in a pure tone air conduction hearing screening, as a result, 96.1%. Three children failed the hearing screening, however, they performed within normal limits on the norm-referenced tests. Thus, they remained in the initial sample.

Story Generation Task

Elicitation. The participants produced spoken narratives elicited from a personal prompt. The second author provided a sample personal story in order to elicit a personal narrative. Additionally, the examiner played the personal story from a laptop. Next, the examiner stated to the child, "Now it's your turn to tell me a personal story. You can tell a story about a time when you or someone you know got in trouble, had an accident, had a fun birthday party, was embarrassed or scared, or any topic you choose." Once the child was ready to begin, the examiner then asked, "what topic are you going to tell a story about? Ok, CHILD'S NAME, tell me the best story you can about TOPIC." The examiner would back-channel (e.g., "mm-hm, yeah") to maintain sustained interest, as well as ask, "Is that all?" or "Was that the end?" once the child has completed.

Dependent Measures and Data Preparation

Speech disfluencies. The following dependent measures were used for data analyses: (1) total speech disfluencies (stuttering-like + nonstuttering-like disfluencies) per total number of words spoken (%TD) and (2) total stuttering-like disfluencies per total number of words spoken (%SLD).

Data coding. Speech sample was coded by a graduate student clinician and a speech-language pathologist for stuttering-like and nonstuttering-like speech disfluencies through use of audio recordings of each sample. Both were formally trained in tabulating speech disfluencies.

Reliability. Intra- and interjudge reliability percentages for the two speech disfluency measures were assessed through use of the following reliability index (Johnson et al., 2010): (A+B/[A+B]+[C+D])× 100, where A = number of words judged stuttered on both occasions, B = number of words judged nonstuttered on both occasions, C = number of words judged stuttered on one occasion, and D = number of words judged nonstuttered on one occasion. Intra- and interjudge measurement reliability was tabulated for total disfluencies from 23% (n=1) of the samples. The interrater reliability for disfluency coding was and the intra-rater reliability was 88%. The author who was a second year graduate student with previous formal education and training on fluency disorders served as one coder and a certified speech-language pathologist with training on speech disfluency served as the second coder.

Statistical analysis. An alpha level of 0.05 was set to determine statistical significance. Effect sizes were measures by using partial eta squared. Partial eta squared characterizes effect sizes as small (0.01); medium (0.06); or large (0.14) (Field, 2005). For the second hypothesis - that bidialectal CWNS would exhibit more types of speech disfluencies when compared to children in the two monodialectal groups – a Kruskal-Wallis test was performed due to non-normal distribution of the data. Again, an alpha level of 0.05 was set to determine statistical significance.

Results

Review of Research Questions

1. Is there a difference in the *frequency* of speech disfluencies presented by CWNS with no, some, or strong variation from MAE during a personal narrative sample/ story generation narratives?

2. Is there a difference in the *type* of speech disfluencies presented by CWNS with no, some, or strong variation from MAE during a personal narrative sample/ story generation narratives?

This study hypothesized that the bidialectal group, with some variation of MAE and AAE, will produce more speech disfluencies than the two monodialectal groups (no variation or strong variation from MAE). It addition, it was hypothesized that, the bidialectal group, with some variation of MAE and AAE, will produce a larger variety (more variability) of speech disfluencies (SLDs) than the two monodialectal groups (no variation or strong variation from MAE).

Between-Group Differences In Frequency of Speech Disfluencies

A multivariate analysis of variance (MANOVA) was conducted to test the first hypothesis with the talker group as the independent variable and the following dependent variables: 1. Total speech disfluencies per total number of words spoken (%TD), and 2. Total stuttering-like speech disfluencies per total number of words spoken (%SLD). The MANOVA revealed no significant between-group differences in the %TD, $F(2,39) = .634$, $p > .05$ (see Fig. 1). The participants presented with percentages of total disfluencies per total words that were below the criteria typically used to determine a diagnosis of developmental stuttering (10%) (children with no variation from MAE: *M =.0761*; *SD* =.03443; children with some variation from MAE: *M* =.0610; *SD* = .02404; children with strong variation from MAE: *M* =.0716; *SD* =.03287; see Fig. 1).

The MANOVA also indicated no significant between-group differences in the %SLD, $F(2,39) = .816$, $p > .05$. The participants presented with percentages of stuttering-like disfluencies per total words that were slightly above the criteria as well as typically used to determine a diagnosis of developmental stuttering (3%) (children with no variation from MAE: *M = .0378*; *SD* =.01466; children with some variation from MAE: *M* =.0347; *SD* = .01335 children with strong variation from MAE: *M* = .0339; *SD* =.02169, see Fig. 2).

Between-Group Differences In the Type of Speech Disfluencies

Nonparametric testing was used to address the second hypothesis due to the non-normal distribution of data points for speech disfluencies by type. An independent-samples Kruskal-Wallis Test was used. Disfluencies by type visual inspection of disfluencies by type were examined to mimic what is seen in bilingual children. There was the same distribution of SSRs, WWRs, ASPs, and ISPs across the three talker groups thus the null hypothesis will be retained. Of the stuttering-like disfluencies, there were no significant between-group differences in the types of disfluencies exhibited (monosyllabic whole-word repetitions, $H(2) = .991$, $p > .05$; sound/syllable repetitions, $H(2) = .839$, $p > .05$; audible sound prolongations, $H(2) = .128$, $p > .05$; inaudible sound prolongations, $H(2) = .576$, $p > .05$).

There is a greater presence stuttering-like disfluencies by type with more audible sound prolongations (for no variation: M=5.00; SD=4.551; for some variation: M=4.50; SD=2.429; and for no variation: M=2.866; SD=3.665) and inaudible sound prolongations (for no variation: M=3.00; SD=2.752; for some variation: M=4.67; SD=3.445; and for no variation: M=3.43; SD=2.521) when compared to SSRs (for no variation: M=1.27; SD=1.438; for some variation: M=1.33; SD=.816; for strong variation: M=2.33; SD=4.115) and WWRs (for no variation: M=2.07; SD=1.710; SD=2.752; for some variation: M=2.00; SD=1.095; and for no variation: M=2.62; SD=2.837). Unlike the story retell tasks in (Johnson & Mills, 2019), all talker groups presented with a higher number of inaudible and audible sound prolongations than the story retell tasks.

Discussion

Findings demonstrated that the bidialectal group, with some variation of MAE and AAE, did not produce more speech disfluencies than the two monodialectal groups (no variation or strong variation from MAE). The results also revealed that the bidialectal group, with some variation of MAE and AAE, did not produce a larger variety (more variability) of speech disfluencies (SLDs) than the two monodialectal groups (no variation or strong variation from MAE). Both findings will be discussed below.

Difference in Frequency of Speech Disfluencies

The first main finding indicates that the bidialectal group, with some variation of MAE and AAE, did not produce more speech disfluencies than the two monodialectal groups (no variation or strong variation from MAE). In fact, there were no differences amongst the three talker groups. Regardless of the dialectal variation between the three groups, the participants presented with percentages below the criteria for monolingual English-speaking children in total disfluencies per total words (10%). This suggests that unlike bilingual children, bidialectal children are not at risk for exceeding the criteria for total disfluenceis. Even though there are similarities between bilingualism and bidialectalism, including codeswitching, coupled with research findings of bilingualism impacting speech fluency, this does not necessary imply an increased frequency of speech disfluencies of bidialectal speakers. This may be due to the fact that bidialectal users have a variation of one language versus bilingual speakers have two language systems to process, thus the relation does not correlate.

However, all three talker groups exhibited averages of stuttering-like disfluencies per total words above the criteria typically used to determine a diagnosis of developmental stuttering (3%). These results are within the range of bilingual CWNS from 3% to 22% SLDs. Since this is true for all variation groups, this suggests that dialect does not necessarily influence fluency in a clinically significant way, instead the communication style of African Americans may be related to fluency. The higher frequency of %SLDs could be explained by the increased number of prolongations and blocks.

Difference in Types of Speech Disfluencies

The second main finding indicates that the bidialectal group, with some variation of MAE and AAE, did not produce a larger variety (more variability) of speech disfluencies (SLDs) than the two monodialectal groups (no variation or strong variation from MAE). Again, there were no differences amongst the three talker groups within types of stuttering-like disfluencies. However, notably there was an increased number of audible and inaudible sound prolongations within all of the talker groups. Bilingual CWNS do not tend to have ISPs and ASPs, instead they are shown to exhibit repetitions. Similarly to children who stutter, both monolingual and bilingual, prolongations and blocks are evident. Bidialectal CWNS presented with a greater variation of types of SLDs than expected. Dialect is not related to fluency in a clinically significant way. However, an acquired African American (AA) communication style of culture may be related to fluency in which all groups had a greater presence of ISPs and ASPs. Thus, this may be explained by ways of speaking that are typically characterized in AA communication. Since it was exhibited in all three groups, the focus was not on a particular group as much as the AA children belonging to variations from MAE. The worthy presence of prolongations and blocks may be explained as a feature of prosody or emphasis that acts in the culture.

It is possible that sound prolongations were used by AA children as a stylistic devise to add “sparkle” to their narratives. Adults in African American communities also employ sound prolongations and pauses to make narratives more entertaining. The findings of this ongoing study should be interpreted in light of prior findings indicating that children in the three dialect groups did not exceed the stuttering threshold in a story retell task. In order to capture the elements of the African American communicative style that are relative to fluency further research would examine the prosody, speech rate, tense, duration of SLDs, length of duration in between repetitions, and duration of prolongations. Future research would be of benefit to investigate the spectrographic data of AA CWS and CWNS. The children in this study were operationalized on elements of grammar morphosyntax instead of prosody. Additionally, further research could investigate fluency in relation to familiar conversational partners. Thus, the characteristics of their SLDs would be compared to this study.

Results are suspected to suggest that, like bilingual Spanish-English children, African American CWNS do present with a frequency and type of speech disfluencies that exceeds the diagnostic criteria for used to assess developmental stuttering in children. Thus, the clinical implications of this study would suggest that African American children are at an increased risk of being misdiagnosed for stuttering.

Caveats

The current sample size is based on an inclusion/exclusion criteria based on a previous study (Johnson & Mills, in preparation) which included those sample sizes that were -1 standard deviation from the mean sample size for participants in their respective dialect groups. In retrospect, adopting this inclusion/exclusion criteria may have eliminated some participants and included others that did not meet this criterion based on their personal story generation samples. If the same inclusion criterion was applied to the original data set, then the sample size and findings of this study may be different. An additional caveat is that these were audio recordings instead of visual, thus the coders were not able to identify any secondary behaviors or physical tension when producing the blocks and prolongations.

Conclusion

Findings indicate that there is no significant difference between the frequency and type of stuttering like disfluencies between children with no variation, some variation, and strong variation from MAE. However, an AA CWNS may be at risk for being misdiagnosed with stuttering based on the %SLD and variation of SLDs. This may be explained by the difference in communication style of AA children. Due to the variant number of participants in each group, as well as the high number of prolongations give motivation to continue researching with larger samples.

Figures

Figure 1. Total Disfluencies per Spoken Words

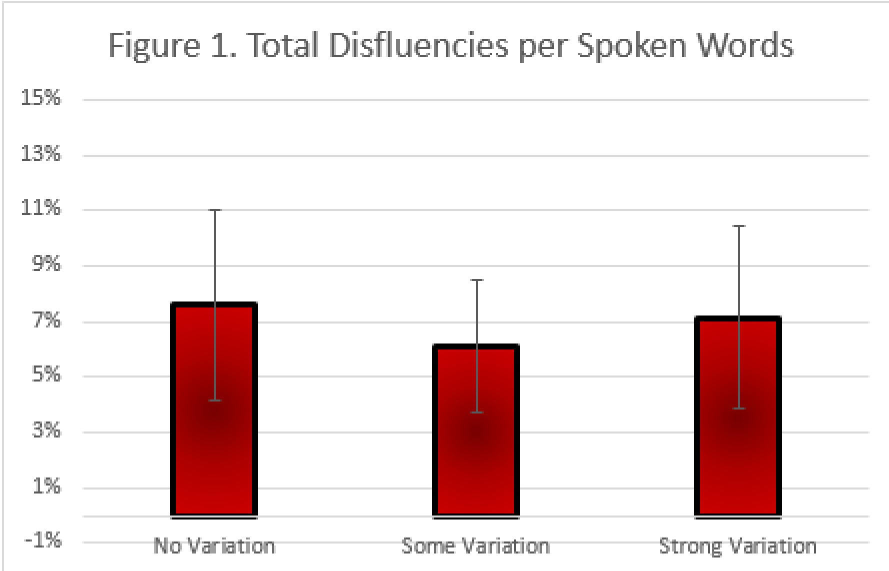

Figure 2. SLDs per Spoken Words

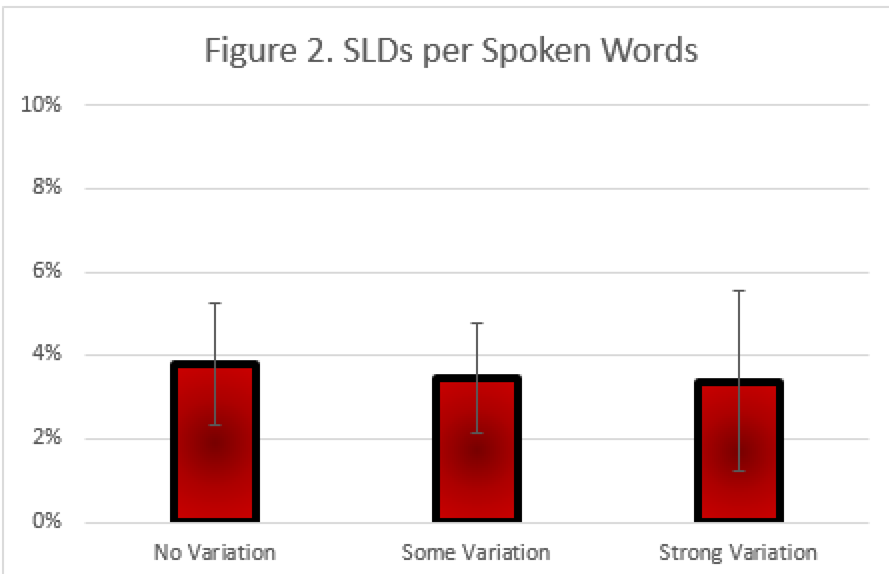

Figure 3. Speech Disfluencies by Type

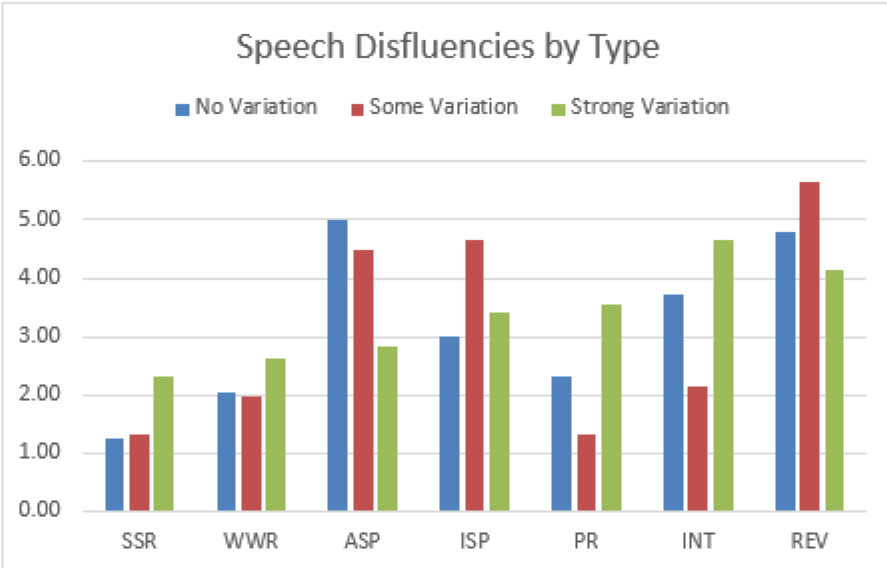

Figure 4. Descriptive Statistics of No Variation Talker Group

	N	Minimum	Maximum	Mean	Std. Deviation
SSR	15	0	5	1.27	1.438
WWR	15	0	5	2.07	1.710
ASP	15	0	17	5.00	4.551
ISP	15	0	10	3.00	2.752
PR	15	0	10	2.33	2.664
INT	15	0	12	3.73	4.200
REV	15	0	16	4.80	4.280
Valid N (listwise)	15				

Figure 5. Descriptive Statistics of Some Variation Talker Group

	N	Minimum	Maximum	Mean	Std. Deviation
SSR	6	0	2	1.33	0.816
WWR	6	1	4	2.00	1.095
ASP	6	1	8	4.50	2.429
ISP	6	2	10	4.67	3.445
PR	6	0	3	1.33	1.033
INT	6	0	6	2.17	2.639
REV	6	4	8	5.67	1.366
Valid N (listwise)	6				

Figure 6. Descriptive Statistics of Strong Variation Talker Group

	N	Minimum	Maximum	Mean	Std. Deviation
SSR	21	0	18	2.33	4.115
WWR	21	0	11	2.62	2.837
ASP	21	0	12	2.86	3.665
ISP	21	0	8	3.43	2.521
PR	21	0	15	3.57	4.226
INT	21	0	15	4.67	4.586
REV	21	0	10	4.14	3.119

Figure 7. Conversational Map Procedure

Appendix

Child-Friendly Story Prompts

Prompt #1: Parents/trouble
When I was your age, my mother gave me permission to go to a friend's house and play, but I had to come home at five o'clock. I lost track of time and came home two hours later. I got in a lot of trouble when I got home. Did anything like that ever happen to you or someone you know? Tell me about it.

Prompt #2: Accident/hospital
When I was your age, my father gave me a bicycle. The first time I rode it down a hill, I crashed into a mailbox. I was hurt very badly. I had to go to the hospital and get stitches on my head. Did anything like that ever happen to you or someone you know? Tell me about it.

Prompt #3: Bugs/scared
When I was your age, I saw a big flying bug crawl into my brother's bathrobe. The bathrobe was lying on his bed. I tried to play a trick on him by telling him to hang up his robe. When he picked up the robe, the bug flew out. It chased us both and we were really scared. Did anything like that ever happen to you or someone you know? Tell me about it.

Prompt #4: Mom/embarrassed
When I was your age, I was making fun of my mom. I was pretending to act like her. My brothers were laughing. When I turned around, she was standing behind me. Did anything like that ever happen to you or someone you know? Tell me about it.

Prompt #5: Friend/secret
When I was your age, I had a best friend. I told my best friend a secret and she told everybody. I got very upset because all of my friends at school heard about it. I didn't tell her any more secrets. Did anything like that every happen to you or someone you know? Tell me about it.

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