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The Impact of Fluency on Word Choices and Functional Vocabulary in Children Who Stutter

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THE IMPACT OF FLUENCY ON WORD CHOICES AND FUNCTIONAL

VOCABULARY IN CHILDREN WHO STUTTER

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Abstract

The purpose of this study is to determine if stuttering affects word selection and/or narrative word usage in school-age children. Ten school-aged children who are either active stutters or who have a history of stuttering will be sought as participants. A brief questionnaire will separate the participants into two groups, i.e. active vs. history of stuttering. Two vocabulary tests, one receptive and the other expressive, and a written and oral narrative will be used to gather data on word selection and usage. Each child will be seen individually for data collection. Audio recordings will be used throughout this collection and analyzed qualitatively to supplement results from the standardized vocabulary tests.

IRB Approval
January 10, 2014

MEMORANDUM

TO: Callie Clark
                       Joseph Agan

FROM: Ro Windwalker
                       IRB Coordinator

RE: PROJECT MODIFICATION

IRB Protocol #:   13-11-240

Protocol Title: *The Impact of Fluency on Word Choices and Functional*
                       Vocabulary in Children who Stutter

Review Type: ☐ EXEMPT ☒ EXPEDITED ☐ FULL IRB

Approved Project Period: Start Date: 01/08/2014 Expiration Date:

Your request to modify the referenced protocol has been approved by the IRB. **This protocol is currently approved for 30 total participants.** If you wish to make any further modifications in the approved protocol, including enrolling more than this number, you must seek approval *prior to* implementing those changes.   All modifications should be requested in writing (email is acceptable) and must provide sufficient detail to assess the impact of the change.

Please note that this approval does not extend the Approved Project Period. Should you wish to extend your project beyond the current expiration date, you must submit a request for continuation using the UAF IRB form "Continuing Review for IRB Approved Projects." The request should be sent to the IRB Coordinator, 210 Administration.

For protocols requiring FULL IRB review, please submit your request at least one month prior to the current expiration date. (High-risk protocols may require even more time for approval.) For protocols requiring an EXPEDITED or EXEMPT review, submit your request at least two weeks prior to the current expiration date. Failure to obtain approval for a continuation *on or prior to* the currently approved expiration date will result in termination of the protocol and you will be required to submit a new protocol to the IRB before continuing the project. Data collected past the protocol expiration date may need to be eliminated from the dataset should you wish to publish. Only data collected under a currently approved protocol can be certified by the IRB for any purpose.

If you have questions or need any assistance from the IRB, please contact me at 210 Administration Building, 5-2208, or irb@uark.edu.

Introduction

Imagine knowing the word or words you want to say, but you just don't have the ability to get them out on your first attempt.

Most stutterers know when they are about to stutter. Some can even tell you the specific words they stumble on when stuttering. Even though stuttering may inhibit the individual from saying certain words or phrases, it doesn't actually have an effect on the individual's language ability.

The general public most often views stutterers as individuals with slight learning disabilities, or as individuals who think slower and aren't capable of being as smart as the typical non-stuttering individual. However, research has disproven those views and shows that there is no significant difference in the language ability of stuttering and non-stuttering children.

Although there is no known cure for stuttering, much information has been gained over the years about this speech disorder. It's important to continue researching about this disorder in hopes that speech language pathologists can help stutterers better communicate and overcome their stuttering in order to be viewed as intelligible in conversations with others. A deeper question containing the topic of whether stuttering is caused by a motor programming problem or in the process of learning language is still being investigated. This study will take a deeper look into this topic by focusing on stuttering and its effects on word selection and word usage in children who have persistent stuttering versus those who have recovered.

Review of the Literature

This literature review is initiated by discussing a possible link between language ability and stuttering in children, followed by information on the recovery or persistence of stuttering in children. The latter part of this review focuses on a possible reason to believe that written narratives could be a good form of analysis for determining whether a child's stuttering interferes with his/her language ability.

Stuttering and Language Development

According to Nippold (2012), stuttering begins in children anywhere from 2 to 4 years of age, or as stated by Ntourou, Conture, and Lipsey (2011) from 2 to 7 years of age. It is widely known that if stuttering begins in early childhood and a child does not recover from it by or around a certain age, it can be chronic. Not too long after birth, children begin to develop and grow rapidly in several areas, especially language. Nippold (2012) says this is known as "a time of rapid syntactic, morphologic, and lexical development." Language is the key component of communication, and it develops swiftly in children in ways such as increasing vocabulary and learning correct syntax and pragmatic skills (Ntourou et al., 2011). Most parents are the first to notice if their child is experiencing language difficulties. Nippold and Packman (2012) claim, "It is often first noticed when children begin producing 2- and 3-word utterances" (p. 338).

Much research has shown that children will stutter more on longer, more complex utterances (Nippold, 2012; Bajaj, 2007; Ntourou et al., 2011). Ntourou et al. (2011) states, "Likewise, young children are more likely to stutter on (a) low-frequency words (b) function rather than content words (c) utterance-initial rather than non-utterance-initial position words (d) utterances above their mean length of utterance" (p. 163).

Now comes the question of whether stuttering causes problems with children's language abilities, or if it is caused by a neurological complication involving motor-speech movement. Nippold and Packman (2012) seem to think that the assumption that stuttering causes problems in language development is assumed, because of the simultaneous occurrence of syntax development and stuttering. Instead of labeling stuttering as a phonemic disorder, involving problems with syntax and pragmatics, many researchers believe it should be labeled as a phonetic disorder, or complications in physically producing utterances.

Nippold and Packman (2012) agree with the above statement in saying, "According to syllable initiation (SI) theory, a child who is stuttering is having difficulty moving forward in speech because of a compromised speech motor control system" (p. 338). However, Bajaj (2007) disagrees in saying, "The position that the speech motor system may be rendered unstable due to language deficiency is bolstered by research evidence demonstrating that premotor processes, such as language formulation, have systematic effects on the speech motor control system" (p. 227).

Bajaj (2007) states that while there seems to be a connection between speech fluency and syntactic complexity, there still isn't proof that all children who stutter have poorer language abilities than their typically developing peers. Ross and Cress (2006) discussed how in their study they found that children with severe expressive abilities had greater receptive language abilities, or 1 standard deviation higher than what they had originally expected. Many studies range in their results where CWS either fell behind their typically fluent peers, averaged the same abilities, or exceeded previous expectations (Bajaj, 2007).

Recovery vs. Persistence of Stuttering

Along with prevalence of stuttering in children is the incidence of the child recovering from stuttering or stuttering persistence. Additionally, Howell, Bailey, and Kothari (2010) took this information and broke it down into statistics stating the following:

> Lifetime prevalence for stuttering is ~5% and ~1% of the population continues to stutter throughout their life, suggesting 80% of cases recover. Recovery rate was between 65-80% 3-5 years after stuttering onset. A high proportion will have recovered by the 6th-8th year of life. (p. 556)

Most researchers say the age that most children should recover from stuttering is between 4 and 5-years of age (Howell et al., 2010; Nippold &Packman, 2012). If a child proceeds to stutter beyond this age, he/she is likely to exhibit chronic stuttering. As a child increases in age, the chance of recovery decreases according to Howell et al. (2010). "If stuttering has continued over a year, if the child is older than 6 years of age, or if the child has other problems in speech/language development the recovery will be less likely" (Laiho & Klippi, 2007, p. 368). Laiho and Klippi (2007) also reported, "It is known that girls recover better than boys" (p.368). According to Nippold and Packman (2012) most children who stutter spontaneously recover without formal therapy.

Not all individuals who stutter are treated. Nippold and Packman (2012) discuss that this can be caused by many factors with some being, "overly large caseloads in public schools and the fact that many SLPs lack confidence, experience and clinical training in stuttering" (p. 338). Other reasons may be that parents or children are unaware that they have a speech/language problem or don't know about SLPs and their field of study. Nippold (2012) further discusses this point below.

It cannot be assumed that children who are on SLP's caseloads are necessarily

representative of the larger population. It is conceivable that if parents are not

concerned about their child's speech or are unaware of services or unable to pay for

them, or if their pediatrician has advised them to "wait and see," that particular child

will not be included in studies of SLP caseloads or clinic samples. It is conceivable

also that CWS who have additional issues that draw greater parental concern

(restricted expressive vocab, numerous speech sound errors) could come to the SLPs

attention sooner than those whose only problem is fluency. (p. 185-186)

The many individuals who do not receive therapy or help are likely to continue

struggling with communication, which for children in school can lead to bullying, low self-

esteem, and performing poorly in academics (Nippold & Packman, 2012). In the following

quote Nippold and Packman (2012) discussed what activities CWS are likely to struggle with

in school.

In schools today there are many situations where stuttering can seriously interfere

with students' academic success, as when they are expected to give oral reports or

formal speeches, answer questions in class, read aloud, contribute to group

discussions, or participate on debate teams. (p. 339)

In addition, Nippold and Packman (2012) recommend that individuals who stutter seek a

Speech-Language Pathologist for help and therapy.

There is a strategy used by SLPs in the diagnosing of a communication disorder. It

starts off with reviewing a client's case history information and formally meeting him/her.

Then an SLP will conduct an oral mechanism evaluation and another evaluation using a

norm-referenced test on the client that involves examining his/her syntactic, morphological,

and lexical development. If the client falls 1 standard deviation or more below the norm or average, he/she will likely need therapy. SLPs may also analyze a client's speech and record Mean Length Utterance (MLU) to help in diagnosing whether or not the client has a communication disorder (Nippold, 2012). Ross and Cress (2006) stated, " A typical assessment might include a developmental age based on motor, social, adaptive, communicative, and cognitive skills, such as those obtained via the Battelle Developmental Inventories" (p. 100).

Howell et al. (2010) agrees with Nippold (2012) when he explains that there are two major factors that persistence and recovery heavily depend on. One being proper diagnosis of childhood stuttering, and the second factor being "recovery being correctly assessed." Of course the first factor is pretty self-explanatory, but making sure to continuously assess a client when doing therapy is important, because it lets an SLP know whether or not the client is progressing, regressing, or remaining the same. "Inappropriate methods of assessing stuttering would also inflate recovery rates, as cases misclassified as stuttering would appear to have regained fluent control when, in fact, they did not stutter in the first instance" (Howell et al., 2010, p.557).

As far as why these "fluency breakdowns" occur, it is still unknown with several different researchers depicting what they believe could be true with models. Ntourou et al. (2011) suggests that most models agree that these breakdowns are "associated with failure in encoding/retrieving syntactic, lexical, phonological, phonetic, and/or suprasegmental targets of speech production" (p. 163). On the other hand Howell et al. (2010) has a more defined model in which he states, "The EXPLAN (EXecution and PLANing) model assumes an overlap between (linguistic) planning of upcoming utterance constituents and motor

execution of preceding elements of the utterance" (p. 164). Ntourou et al. (2011) goes on to explain that other researchers also draw conclusions along a psycholinguistic line and believe that, "fluency breakdowns are more associated with difficulties in phonological/phonetic rather than syntactic/lexical encoding processes" (p.164).

It is a common factor in all models that language processes can be altered by the presence of stuttering (Ntourou et al., 2011). When conducting research on CWS, researchers tend to disagree on what and how something should be tested. Howell et al. (2010) stated that most researchers feel that studies should separate out children with persistent stuttering and those who recovered from stuttering. Also, Howell et al. (2010) reports, "Johnson et al. suggested that eight main characteristics were associated with stuttering. These were: Interjections, word repetitions, phrase repetitions, part-word repetitions, prolongations, broken words, incomplete phrases and revisions" (p. 557). Not all researchers test or look for every single one of the above characteristics, and instead, choose which they feel occurs more or less often with stuttering (Howell et al., 2010).

In addition to the above information, Laiho and Klippi (2007) continue to discuss a few different types of stuttering therapy and their efficiency.

The effectiveness of fluency shaping methods (e.g. smooth speech, prolonged speech, gradual increase in length and complexity of utterance (GILCU)) has been studied much more than the effectiveness of stuttering modification methods. Prolonged speech and the Lidcombe programme have also shown to be effective. Typically the children participating in the Lidcombe programme speak fluently after 11 therapy sessions. (p. 369)

Pause therapy is another type of speech therapy that has been shown to help an individual with his/her stuttering by making the individual read and stop when he/she starts to stutter and a light comes on. The light coming on helps train the individual to control or stop their stuttering. Some SLPs like to incorporate the client's parents or other family members in the therapy session or give them things to work and practice on with the client outside of therapy (Laiho & Klippi, 2007).

"A challenge in therapy is not so much to get the client to speak more fluently, but to make the client maintain his or her more fluent way of speaking" (Laiho & Klippi, 2007, p. 369). A couple of other important points that were made by Laiho and Klippi (2007) stated how more research needs to be done on the effectiveness of intensive speech therapy, how much therapy is needed for an individual to improve, and how a type of therapy cannot be said to be effective if the client experiences a relapse soon after discontinuing therapy.

The Impact of Stuttering on Word Usage

Vocabulary and Word Choices.

As can be seen from the earlier sections of this literature review, most broadly, stuttering does not necessarily impact language development. However, other studies have found subsets of language, such as word usage, problematic. Anderson and Conture (2000) specifically look at the expressive/receptive language skills and receptive vocabulary of children who stutter and children who do not stutter. They analyzed data collected from standardized test scores of each participant's expressive and receptive language and receptive vocabulary. Their findings showed that unlike CWNS, CWS exhibited considerable differences between the measures of each language skill. However, for CWS rate of stuttering was found to have no significant effect on their receptive/expressive language and

receptive vocabulary skills. This caused Anderson and Conture (2000) to believe that may be a delay in semantic development would lead to a delay in the child's syntactic development, which would then cause "an imbalance among components of the speech-language system" that would lead to the occurrence of speech dysfluency. This readily suggests that there may well be subtle vocabulary differences between children who stutter and those who do not. Their study does not address possible differences between children who actively stutter and those who have recovered.

Narrative Language.

 Rather than focus on vocabulary, Bajaj (2007) has researched the narrative skills of children who stutter versus those who do not. He describes several different aspects used in oral narrative examination such as: non-word repetition, metalinguistic talks (phoneme reversal and grammatical judgments), and experiments utilizing priming methodologies to examine language-encoding abilities. He reports that using this type of assessment for CWS has given good feedback on how well CWS do compared to CWNS, and how an individual's working memory may be linked to stuttering (Bajaj, 2007). According to Ross and Cress (2006), "Children with severe expressive impairments may have a discrepancy between expressive and receptive communication skills, due to greater motor, modality or accessibility constraints on producing rather than understanding one's own intended messages" (p. 101).

Oral narrative analysis can also give clinicians vital information. Bajaj (2007) says, "Narratives serve as indices of their abilities in multiple developmental domains, such as comprehension of ideas, expressive language abilities, literacy skills, and overall intellectual

and emotional states" (p. 228). He believes oral narrative assessment is a very useful in data collection for 3 main reasons.

> First, narratives provide a rich mix of data on grammatical complexity and content organization that is not readily obtained from structured language tasks in standardized tests or other connected speech samples. The second reason is that narrative analyses have been found to be clinically useful for several populations. For example, narrative skills evidenced through story retelling tasks are considered robust predictors of persistent language disorders among children. Third, various kinds of narratives appear naturally in most children's communicative environments; they are likely to hear them when interacting with other people or produce them spontaneously. Therefore they are unlike standardized language tasks that tend to be more contrived in nature. (p. 228-229)

This allows both researchers and clinicians to observe how an individual's mind is working when it comes to formulating thoughts and then communicating those thoughts. Narratives also cover the five language domains: phonology, morphology, syntax, semantics, and pragmatics. Only few researchers have conducted their study on oral narrative examination (Bajaj, 2007).

Bajaj (2007) goes on to discuss a few past studies that have used oral narratives in data collection and the different things researchers picked out and focused on during their study. First off, Nippold et al (1991) used both CWS and CWNS in her study using oral narrative assessment where she had the children participate in story retelling. She collected data on each child's story comprehension, complexity ability, grammar used, and level of syntax. Weiss and Zerowski (1994) focused on story retelling, but to familiar and naïve

listeners using fewer participants than Nippold's study. They reported that CWS produced "shorter and less detailed" sentences than CWNS when telling to naïve listeners, or individuals they did not know.

Scott, Healey, and Norris (1995) also conducted the same test and found that the CWS stuttered more frequently than their typically fluent peers (Bajaj, 2007). Ross and Cress (2006) believed that tests such as the Peabody Picture Vocabulary Test-III would not report valuable information for children who had severe expressive abilities, because they were "less likely to demonstrate their language skills in such labeling or showing tasks than in requesting or social tasks" (p. 101). Given the information on the past studies listed above, oral narrative examination may provide different types of valuable feedback on the complex language skills of children who stutter.

Written Narrative Testing.

Since more researchers believe oral narrative analysis seems to supply valuable data, then it might also be said that written narrative analysis can produce just as good results. Sun and Nippold (2012) stated in their article concerning the narrative writing abilities of children and adolescents that a "significant growth occurs in the domains of cognitive, social, and linguistic development; a growth that parallels the neurological refinements that are taking place in the front-temporal regions of the brain" (p. 2). They described these advances as "the ability to think abstractly and flexibly, to organize and integrate information, to view a complex issue from multiple perspectives, and to understand the beliefs and feelings of others" (Sun & Nippold, 2012, p. 2). Such gains in language development include word complexity and sentence structuring both in written and oral communication (Sun & Nippold, 2012).

In the following study, Sun and Nippold (2012) focused on narrative writing of older children and adolescents, since there isn't much literature on the later language development of older children and adolescents. They chose to record data on abstract nouns (ABNs and metacognitive verbs (MCV). "ABNs refer to intangible entities, inner states, and emotions, while MCVs refer to mental events or activities of the mind" (Sun & Nippold, 2012, p. 2-3). Their reasoning for collecting data on only these two types of words was because "they are considered to be part of the literate lexicon, because they are later developing words that occur in school-related contexts that involve reading, writing, listening, and speaking about complex topics" (p. 3).

Their participants in the study ranged from 5 to 7 years-of-age and were tested in their normal classrooms. Each participant was instructed to write a story on the given topic, "What Happened One Day." They were told it could either be on a true event that occurred or something fictional (Sun & Nippold, 2012). Results from the procedure showed that as the age of the children increased, so did their understanding and use of ABNs, and MCVs. "Additionally the use of abstract nouns and metacognitive verbs was associated with the production of complex syntax, reflecting the lexicon-syntax interface" (Sun & Nippold, 2012, p. 2). Maybe there are other ways of utilizing this type of data collection for children who stutter.

Summary and Questions of the Study

Even though data collected by several studies suggests that children who stutter have normal language abilities, there are other studies with opposing data that suggest there may be subtle language subset differences that only few researchers have detected. Most of the previous studies compared children who stutter with children who do not stutter. This study

will examine the possible subtle language differences and compare the findings in children who actively stutter with children who have a history of stuttering.

1. Do children who stutter have different vocabulary skills than expected for their age?

2. Do these skills differ from children who have stuttered but are now fluent?

3. Do children who actively stutter make different expressive word choices than children who have stuttered but are now fluent?

Methodology

Participants

Participants of this study include 10 children between the ages of 8 and 10-years old. There will be two groups of children: those who are currently dysfluent and those who are now fluent but have a history of dysfluency. There will be no control for gender; however, all of the children must have a history of normal (language) development and be English speakers. Participants will be sought through nomination and through an SLP list serve for North West Arkansas. In this way, the diagnosis of stuttering will be documented prior to this study.

Materials

A brief developmental questionnaire will be given to the participant's parents pertaining to when the participant was diagnosed with stuttering, the severity of the participant's stuttering, if he/she has received any therapy, and if his/her stuttering has affected them academically in school. The Peabody Picture Vocabulary Test will be used to analyze how well the participants understand words. The Expressive Language Test will be used to see what word choice they make compared to school-like words. In addition to

vocabulary, semantics of a written and oral narrative will be obtained to look at word choices in a qualitative task.

Procedures

Participants will be seen for a single 60-minute session to gather data. The parent and participant will complete a brief questionnaire about the participant's language development and stuttering. The participant will then be given the two vocabulary tests (PPVT-A and ELT). Following this, a written and an oral (spoken) narrative using a wordless picture book will be elicited and the words the participant uses in each narrative will be recorded.

Analysis

The questionnaire will be used to separate the participants into two groups: children who actively stutter versus children who no longer stutter. The results in the receptive and expressive vocabulary test will be compared to age norms of a typically developing child and to the results of the other group, i.e. active vs. history of stuttering, of the study. An additional analysis on the standardized vocabulary tests will examine differences in word categories. This information will then be compared between the two groups. The written and oral narrative, which will have been transcribed, will be analyzed for word selection.

Results

Demographics

The participants of the study consisted of one male and one female child. Both of the participants' mothers reported in the questionnaires that their children primarily speak

English, began talking around one year of age, were later diagnosed as stutterers, and presently continue to stutter.

Participant one is a 10-year-old female. Her mother reported on the questionnaire that her daughter had "dysfluencies when speaking – pauses that were significant." Participant one received therapy within her school once a week. The speech therapist referred to her small therapy group as a "lunch bunch with other children." It was also reported in the questionnaire that participant one's stuttering isn't as much of a problem now as it was the previous year. Her stuttering has not affected her academically, and the severity of her speech problem was reported as "minimal."

Participant two is an eight-year-old male. His mother reported in the questionnaire that he was "repeating words and hesitating before speaking." He received speech therapy around six or seven years of age from a speech-language pathologist. His mother said that he has been receiving minimal speech therapy in his school since he discontinued therapy services. When asked if stuttering was still a problem, participant two's mother stated, "He still stutters, but a lot less, almost unnoticeable." His stuttering has not affected him academically, and his mother rated the severity of his speech problem as "moderate."

Does age have an affect on the vocabulary skills of children who stutter?

Results of the Peabody Picture Vocabulary Test (PPVT) and the Expressive Vocabulary Test (EVT) indicated that both participant one and participant two scored within the normal range on both protocols for their age. For further analysis, the PPVT answers were organized into one of three categories: nouns, verbs, and adjectives. The EVT answers were organized in two categories: naming tasks and synonyms. No significant findings were discovered in the categorized answers of the PPVT or the EVT for both participants. Below

(see Table 1) is a display of each participant's standard score and confidence interval at a 90% level of confidence for the PPVT and the EVT.

Table 1

Reported Standardized Test Scores

| Participant 1 | PPVT SS 108 | Confidence Interval 102 - 114 |
| Participant 2 | PPVT SS 117 | Confidence Interval 111 - 122 |

| Participant 1 | EVT SS 112 | Confidence Interval 105 - 118 |
| Participant 2 | EVT SS 104 | Confidence Interval 97 - 110 |

Do the vocabulary skills of children who actively stutter differ from children who are now fluent?

Because the two participants in this study were both active stutterers, no conclusion could be made about the vocabulary skills of active stutterers versus children who are now fluent.

Are the expressive word choices of children who currently stutter different from children with a history of stuttering?

Again, because the two participants of this study were both active stutterers, no comparisons or contrasts could be made about the expressive word choices of children who currently stutter versus children who have a history of stuttering. However, further attempts at analyzing expressive vocabulary in the oral and written narratives were conducted in an effort to discern any differences not evident through standardized test results.

Discussion

The purpose of this study was to determine whether fluency has an effect on the word choices and/or functional vocabulary in children who stutter. The questions of the study were created to determine if there were any noticeable similarities or differences of word choices between children who actively stutter and children with a history of stuttering. Due to the lack of participants with a history of stuttering, no similarities or differences could be detected between children who currently stutter and children who are now fluent. Results did show that the two participants of the study scored within the normal range for their age on both the PPVT and the EVT. However, there were noticeable similarities and differences between the utterances made on the oral and written narratives of the two actively stuttering participants.

The utterances made by the participants in each narrative (i.e. oral and written) were organized into three main categories: 1) the subject's perception of a Character's Mental State (CMS); 2) the subject's insight of a character's perception of Another Character's Mental State (ACMS); and 3) Reported Speech. The CMS and ACMS categories were further divided into three subcategories: Emotional (Primary and Secondary); Cognitive; and Attitudinal. Utterances listed under CMS Emotional Primary were basic words used to describe emotion of one character within the oral and written narratives. The CMS Emotional Secondary category contains words that are more complex than the Primary category. For instance, the word "pride" is more complex, in that, it involves more complex cultural understandings and is self-referring (Taylor, 1985). The ACMS Emotional Primary and Secondary are defined in the same way with the only difference being that the word/utterance had to involve the subject's insight of one character's perception of another character's

mental state. The Cognitive subcategory involves words/utterances that display the subject's understanding of a character's cognitive state, such as the word, "decided." The subcategory Attitudinal involves words/utterances that demonstrate the character's stance toward some person, object or event, such as the word "determined."

Reported Speech is the third main category for both narratives and is divided into three subcategories: Direct; Indirect; and Pictorial description (Voloshinov & Matejka, 1973). Utterances within the Direct subcategory would involve the subject acting out or quoting something a character within the narrative would say. For example, a subject might have said/written, "So, he called, 'Frog.'" Indirect utterances involve the subject making a statement about what one character says that another has said. For instance, a subject might say/write, "The dog said he doesn't like the boy." Pictorial descriptive utterances are about what the subject says about another character's actions including that character's spoken actions. An example of this would be describing the event in an objective, "God's eye view" perspective. This sort of phrasing creates the maximum distancing between the speaker and the character reported on. These three main categories and their subcategories showed similarities and differences between the oral and written narratives of both participants.

When looking at the CMS category and its subcategories, some similarities between subject one and two were concluded. Both subjects produced Emotional Primary words/utterances in their oral and written narratives, and both subjects produced cognitive words/utterances in their oral narratives. The differences between the two subjects within the subcategories were as follows: Subject one made more Emotional Primary utterances (specifically derivational inflections) in her oral narrative than did subject two. The majority of subject one's utterances were made in her written narrative. Subject one was the only one

to produce an Emotional Secondary and Attitudinal utterance, specifically in her written narrative. Subject two had one more Emotional Primary utterance in his written narrative than his oral narrative. (See Table 2)

Table 2

CMS Analysis of Oral and Written Narratives of Actively Stuttering Participants

Subject's Perception of Character's Mental State (CMS)	Oral Narrative	
Emotional	Subject #1	Subject #2
Primary	Happily; Disappointed; Frantic; Happily; Happy; Disappointed; He told his dog to be quiet (total = 7)	He was kinda mad; He shushed his dog (total = 2)
Secondary		
Cognitive	Then they looked like they were starting a new family (total = 1)	Decided (total = 1)
Attitudinal		
Subject's Perception of Character's Mental State (CMS)	Written Narrative	
Emotional	Subject #1	Subject #2
Primary	Happily; Happy; Happy; Unhappy; Happily; Happiness; Frantic; He motioned his dog to be quiet (total = 8)	An angry deer He was so happy (total = 2)
Secondary	Then he waved good-bye feeling feelings of pride (total = 1)	
Cognitive		
Attitudinal	Determined (total = 1)	

In the ACMS category and its subcategories, the similarities concluded were as follows: Both subjects produced Emotional Primary utterances in their oral and written narratives. And, no Emotional Secondary or Attitudinal utterances were made by the subjects

in their oral or written narratives. Differences in the ACMS subcategories were as follows:

Subject one made one more Emotional Primary utterance in her oral narrative than subject

two; Subject two made the only Cognitive utterance, specifically in his written narrative.

(See Table 3)

Table 3

ACMS Analysis of Oral and Written Narratives of Actively Stuttering Participants

Subject's Beliefs About a Character's Perception of Another Character's Mental State (ACMS)	Oral Narrative	
Emotions	Subject #1	Subject #2
Primary	He got down from the window not very happy with him, but the dog licked him anyway; Then they looked like they were starting a new family (total = 2)	His dog didn't even know why he was mad (total = 1)
Secondary		
Cognitive		
Attitudinal		
Subject's Beliefs About a Character's Perception of Another Character's Mental State (ACMS)	Written Narrative	
Emotions	Subject #1	Subject #2
Primary	Though the unhappy face confirmed his mood the dog still licked him (total = 1)	His dog licked him because he didn't even know why he was mad (total = 1)
Secondary		
Cognitive		"Hey why did you do that," he said; Noticed; Decided; Decided (total = 4)
Attitudinal		

In Reported Speech and its subcategories, the similarities concluded were as follows: Both subjects made Pictorial description utterances in their oral narratives. Neither of the participants produced Indirect reported speech in their oral or written narratives. Differences between the subject's Reported Speech categories were as follows: Subject one was the only one to produce Pictorial description utterances in her written narrative; Subject two was the only one to use Direct reported speech, specifically in his written narrative. (See Table 4)

Table 4

Reported Speech Analysis of Oral and Written Narratives of Actively Stuttering Participants

Oral Narrative		
Reported Speech	Subject #1	Subject #2
Direct		
Indirect		
Pictorial Description	He even called out the window; He called even more; Then he called off to his new frog friends (total = 3)	He called out from his window; He called for his frog again; He called his frog again (total = 3)
Written Narrative		
Reported Speech	Subject #1	Subject #2
Direct		He called "Frog"; So he called "Frog"; "Definitely not there," he said; His dog called, "Woof"; "Not there," he said; He stood on a rock and called, "Frog"; He shouted, "Frog" (total = 7)
Indirect		
Pictorial Description	He even called out the window; He called through the happy land of wildlife (total = 2)	

Overall, Participant one used more derivational inflections in her written and oral narrative than participant two. Participant one only used neutral reported speech in both types of narratives. Participant two had more cognitive-based use of words in his oral and written narrative and also used a lot of Direct reported speech in his written narrative. Even though there were differences in both types of narratives between the two participants, it should be noted that both participants were different ages and the opposite sex.

Based on conclusions from the PPVT and the EVT, the results of this study supported Bajaj's (2007) notion that children who stutter do not have significantly poorer language abilities than their typically developing peers. The results from the oral and written narratives also correlated with Bajaj's (2007) statement, "Narratives serve as indices of children's' abilities in multiple developmental domains, such as comprehension of ideas, expressive language abilities, literacy skills, and overall intellectual and emotional states" (p. 228).

Limitations of the Study

The main limitation of this study was lack of participants, especially children who are now fluent. After nearly 300+ speech-language pathologists in the Northwest Arkansas area were contacted, only two participants who were active stutterers were recruited. Compensation for participating in the study could have boosted participation. Possibly lowering the current age range (eight-14) down to four-14 years of age would have increased the possibility of obtaining participants.

Future Directions

One possible follow-up study to this study could be to determine how many children in the Northwest Arkansas area have a stuttering disorder. A survey could be created and

distributed to parents, teachers, doctors, speech-language pathologists, etc., to investigate where there is a large number of children who stutter, or whether professionals are simply underreporting stuttering cases in children.

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