2017

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University of Massachusetts Amherst

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VERBAL –S PRODUCTIONS IN THE STRUCTURED WRITING SAMPLES OF VARIABLE AAE-SPEAKING FOURTH-GRADE STUDENTS WITH AND WITHOUT LANGUAGE IMPAIRMENT

A Dissertation Presented

by

JACKLYN J. HIGH FELTON

Submitted to the Graduate School of the University of Massachusetts Amherst in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

May 2017

Communication Disorders
VERBAL –S PRODUCTIONS IN THE STRUCTURED WRITING SAMPLES OF VARIABLE AAE-SPEAKING FOURTH-GRADE STUDENTS WITH AND WITHOUT LANGUAGE IMPAIRMENT

A Dissertation Presented

By

JACKLYN J. HIGH FELTON

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DEDICATION

To my beloved dad, Lester High Jr. You always encouraged me to continue learning, and to take advantage of the opportunities we now have in the academic world.

I know you would have been so very proud. I miss you every day.
ACKNOWLEDGMENTS

First and foremost, I give honor and praise to my Lord and Savior, Jesus Christ, for continually making a way for me when there seemed to be no way. To my mother and my best friend, Marie High, for listening to me and being there for me no matter what, even when she was going through her own trials. I love you with all my heart and thank you for all of your prayers and support. To my incredible children, Adrina, Elise and Kevin Mason Jr. for hanging in there with me, and for supporting me in the fun times and in the tough times. When we thought our world was falling apart, we picked up the pieces and moved onward and upward together. I am so proud of each of you. To my heart, my granddaughter, Jaylese. You keep me laughing and you keep me on my toes! I look forward to watching you grow and take your place in the world. To my husband, Donald. You came into my life more than halfway through this endeavor. You opened my eyes to opportunities and ideas I had never envisioned before. You did whatever was needed to help me in my journey, using your many resources and contacts to help me be successful, and for that I am grateful. To my brother and sister-in-law, Lester and Alicia High. Lester, you are a man of few words, but I know you always have my back. Alicia, you are the sister I never had. You have encouraged me, pushed me, listened to me whine and moan (a lot) and cheered me up when I was struggling! Thank you and I love you both.

Personally and professionally, I cannot begin to express my gratitude to my mentor and advisor, Dr. Shelley Velleman, Department of Communication Sciences and Disorders Chair at the University of Vermont. While at UMass, you were the one who
planted the Ph.D. seed, first in my mind, and then in my heart. You watered and provided endless sunshine for that dream until it became the fully bloomed flower you see on these pages. You were there for me every step of the way, encouraging me and guiding me, even when I thought it was all over. Thank you Shelley! To Dr. Mary Andrianopoulos, my committee chair and voice of reason. Your constant reassurance of “I cannot wait to see you graduate” rang loudly in my head and moved me forward. To Dr. Lisa Green, Linguistics Department at UMASS-Amherst, although you didn’t really know me, you unflinchingly agreed to be a member of my committee, and for that I thank you. You personally provided me with knowledge and insight from your renowned expertise in the study of child African American English dialect and asked me the hard questions to keep me thinking. I also owe a great big “Thank You” to Dr. Craig Wells from the Educational Research Department at UMASS-Amherst. Your guidance and understanding were invaluable. You answered all of my stats questions—what seemed like every other day toward the end of the dissertation process. You were so patient, even when my questions probably made no sense. To my statistics buddy and friend, Debra Glennon, I would not have made through those classes without you. We may have gotten distracted with family obligations, but we’ve kept our eyes on the prize. Keep pressing onward! To my new friend and fellow doctoral student Minghui Tai, thank you for your IT help and encouragement. I met you toward the end of doctoral work at UMASS when you helped me with my dissertation formatting mess! Even though it was part of your job, you treated me like a friend. You quickly became a supportive colleague for me and I hope that I am the same for you. I wish we had met sooner, but better late than never. Deb and Minghui, keep striving; you can do it too!
To my friends, colleagues and co-workers in the Springfield Public School District who supported me throughout this endeavor – the speech and language disorders department staff, the school principals and district administrators. Each of you lent a hand throughout the arduous recruiting process. Thank you to my team members who spoke words of encouragement and faith to me. Special thanks go out to my friends and co-workers, and my cheering squad - Pam Ford, Dr. Cinnamon Azeez, Ashley Hyder, Donna Chaires-Smith – my SPS supervisor, Luciano Valles for your insight and help; Dr. John Cardwell for your words of wisdom and support; all of my friends in Florida who prayed for me every week in Bible study. And I want to especially thank my good friends who stuck by me through thick and thin and helped hold me together when things got tough – my spiritual partner, library buddy, shoulder to cry on and voice of reason, Dayna Hyman; my “girls” who I could call day or night, Natalie McKnight and Marie Brodie; and my long-time friend who is like a sister to me, Alison Luckey-Percy. Also I want to thank my pastor and church family at Mount Calvary Baptist Church – Rev. Dr. Mark Flowers & Mrs. Flowers, Sister Patricia Davis, Dr. Stephanie Murchison-Brown (my other library buddy) and the church congregation – for all of their encouragement and support.

I would also like to thank the leaders and administrators of the Springfield community agencies, community programs and schools who assisted with recruiting families for this study, including those from Martin Luther King Jr. Community Center, Springfield Boys’ and Girls’ Club, Springfield Public Libraries, Mason Square Health Center, Dunbar Community Center, SABIS International Charter School, and the Springfield Public School district.
Most importantly, my unyielding gratitude to the families who participated in this study. Without all of you, none of this would not have been possible!

The contents of this research were developed under the auspices of a grant from the US Department of Education (OSEP PREPARATION OF LEADERSHIP PERSONNEL, CFDA 84.325D, #H325D0800042), entitled *Training Grant of Speech Language Pathologists as Leaders in the Public Schools* (Andrianopoulos, Boscardin, Velleman, Zaretzky, & Mercaitis, 2008-2012) at the University of Massachusetts. However, the contents do not necessarily represent the policy of the US Department of Education, and you should not assume endorsement by the Federal Government.

This research was also made possible, in large part, by the support of Springfield (MA) Public Schools.
ABSTRACT

VERBAL –S PRODUCTIONS IN THE STRUCTURED WRITING SAMPLES OF VARIABLE AAE-SPEAKING FOURTH-GRADE STUDENTS WITH AND WITHOUT LANGUAGE IMPAIRMENT

MAY 2017

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For forty plus years, researchers in speech-language pathology and ethnolinguistics have worked to gain knowledge about typical and atypical language patterns of African American children who are identified as African American English (AAE) dialect speakers. Much progress has been made, but limitations in this field of knowledge have persisted, especially for AA children who demonstrate variable use of AAE, presumably through the process of assimilation in the school setting. Therefore, more information is needed to provide diagnostic markers for deviations in typical language development for variable AAE-MAE speakers. Johnson and her colleagues (de Villiers & Johnson, 2007; Johnson, 2005; Johnson, de Villiers, & Seymour, 2005) have suggested that unlike MAE, third person singular verbal -s is not obligatorily marked in AAE, particularly in preschool and early elementary aged children. Other studies have indicated that third and fourth grade AAE-speaking children with typical language development overtly mark third person verbal -s, especially in written language (explicit expectation), even though
they may not demonstrate overt marking of verbal -s in their spoken language (implicit expectation). The current study was conducted to identify possible distinctions in verbal -s marking between typically developing third- to fourth-grade bidialectal speakers and those with language impairment. It included 13 African American third- to fourth-grade students; seven classified as typically developing bidialectal speakers of MAE and AAE (TD; n = 7), and six bidialectal (MAE-AAE) speakers with language impairment (LI; n = 6). This study used three experimental tasks – one spoken task (i.e., Spoken Responses) that elicited responses to a verbal prompt based on a narrative text, and two written language tasks (i.e., Written Responses, Cloze Sentences). The Written Responses task elicited responses to the same prompt as the Spoken Responses task, and the Cloze Sentences task included 15 fill-in-the-blank sentence. The three tasks were used to investigate any differences and variability between clinical groups in performance, both quantitatively and qualitatively, when examining the participants’ use of overtly marked verbal -s. Additionally, post hoc analyses were completed to examine any relationship between frequency of overt verbal -s marking in written language and performance on state achievement testing.
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CHAPTER 1

INTRODUCTION

The populations currently educated in the U.S. are comprised of numerous students whose home language or dialect differs from MAE. A 2010 Brief from the National Center for Children in Poverty (Skinner, Wight, Aratani, Cooper, & Thampi, 2010) reported that from 1980 to 2007 there was a 140% increase in the number of individuals in the United States who spoke a language other than English at home, including twenty-one percent of children aged 5 to 17 years. As a result, many public school systems have the responsibility and challenge of educating this growing number of students who have linguistic and social identities that vary from those of students who are Mainstream American English (MAE)\(^1\) speakers. This is the situation for a multitude of African American children who demonstrate the use of the African American English (AAE) variety of American English as their first and/or dominant dialect.

Tragically, African American students as a group have shown a continual lag behind White students nationwide in performance on high-stakes reading and writing tests. What has come to be known as the Black-White achievement gap has been documented by the National Association of Educational Progress (NAEP) for over thirty years in grades four, eight and twelve. Even though this gap has been gradually closing at the fourth grade level, it remains greatest for 8\(^{\text{th}}\) and 12\(^{\text{th}}\) grade students, and could be considered a significant factor contributing to the drop-out rate for African American high school students. According to the U.S. Education Department, although reported to

\(^1\) The terms Mainstream American English (MAE), Standard American English (SAE), and General American English (GAE) are used interchangeably in this document.
demonstrate the highest graduation rate in years, in 2010 the average graduation rate within four years of entering high school was weakest for African Americans at 66.1% nationally, while the average rate for White students was 83.0% nationally (U. S. Department of Education, 2010).

Although the reason, or reasons, for this gap is not yet clear, socio-linguistic, educational and speech-language pathology researchers have been investigating the possible role that AAE use has in contributing to this academic achievement discrepancy. In their study on the relationship between AAE use and reading, Craig, Zhang, Hensel and Quinn (2009) examined reading achievement scores for 165 typically developing African American students in first through fifth grade who were speakers of AAE. One third of the students in this study were from low income homes and two-thirds were from middle income homes. Craig and her colleagues found an inverse relationship between reading achievement scores and AAE production rates. In other words, they found that students who demonstrated greater use of AAE, and hence less adoption of standard American English (SAE), also demonstrated lower performance on their reading scores.

If AAE use is determined to be a contributory factor, African American students who enter school with AAE as their first dialect may need additional instruction to assist them not only with learning surface MAE grammar, but also with learning the underlying rules of MAE phonology, morphology and syntax, similar to students learning MAE as a second language. Although AAE, like MAE, is a variety of the American English language, it is not only comprised primarily of phonological, morphological, syntactic, and pragmatic rules and/or patterns that overlap those of MAE. AAE also includes linguistic rules that range from being minimally to vastly different from the rules and
resulting patterns of the MAE variety. Because MAE is the preferred, if not required, variety for the majority of school-related tasks, it is also necessary to ensure that students who are AAE speakers successfully learn which rules and patterns overlap with MAE and which do not. In addition, they must learn to recognize when they are expected to transition from using the more familiar AAE patterns that contrast with MAE to using the MAE patterns that are targeted in the school setting. These skills are particularly important for written language because compliance with MAE conventions in written language is one of the primary foci in classroom testing, as well as in high-stakes educational testing.

Many AAE-speaking children, as young as preschool age, demonstrate different degrees of what has been called “dialect-shifting” or “variety-shifting” within their spoken language. With this shift, young children have been noted to reduce their use of AAE patterns that do not correspond with MAE and to increase their use of the expected MAE patterns for school-based tasks. As a result, African American children who had been described as AAE speakers early in their lives may present as bi-dialectal speakers and possibly MAE-dominant speakers during stages of their academic lives (Jackson & Pearson, 2010; Renn & Terry, 2009; Terry, Hendrick, Evangelou, & Smith, 2010; Van Hofwegen & Wolfram, 2010). As a deliberate form of dialect-shifting, bi-dialectism involves the ability to shift between language dialects/varieties based on the context, audience, and/or listener needs and expectations, and having varied levels of skills in shifting at will (Craig & Washington, 2006; Green L. J., 2002, 2011; Terry, Hendrick, Evangelou, & Smith, 2010).
The predominant theory of how the skill of dialect shifting evolves is through increased exposure to MAE, resulting from immersion in MAE-dominated school environments (Connor & Craig, 2006; Craig & Washington, 2004; Green, 2011; Jackson & Pearson, 2010; Van Hofwegen & Wolfram, 2010). For example, Craig and Washington (2004) examined the frequency of AAE usage in typically developing preschool through fifth grade AAE-speaking children living in low and middle-income homes. In their results, Craig and Washington discovered a significant decrease in the use of AAE-patterns at the first grade level, which remained evident through the fourth grade for their typically developing students. They attributed the dramatic decrease in the frequency of AAE patterns used to the children’s increased exposure to MAE-based literacy instruction at the preschool and kindergarten levels. In their cohort investigation of how AAE speaking 4- through 12-year-olds demonstrate change from zero to overt morphological marking with increasing age, Jackson and Pearson (2010) observed that “the overall levels of overt marking” (p. 140) for features that are not often marked in AAE was higher for the older children in their groups (i.e., 11-12 year olds) than for those at the younger ages (i.e., 4-6 year olds). Jackson and Pearson’s results also indicated a steady decline in AAE-use for school related tasks as AAE-speaking children progressed through the grades studied.

Van Hofwegen and Wolfram (2010) were able to examine a greater range of ages in a longitudinal study that spanned from 48 months of age through Grade 10. The results of their investigation revealed five different patterns of AAE use for the 32 speakers they followed (two primary patterns and three less observed patterns). The first major or primary pattern was a curvilinear pattern similar to the pattern of AAE use
observed by the children studied by Craig and Washington (2004) and by Jackson and Pearson (2010). Namely, from the time the children were 48 months of age to Grade 1 there was a substantial decrease in their use of the AAE dialect that persisted through Grade 4, and then a rise in AAE use in Grade 6, 8, and 10. However, Van Hofwegen and Wolfram also observed another significant trajectory with their subjects while in the later grades, which they termed the “rollercoaster trajectory” (p. 437) and later verified it as the dominant trajectory. In essence, all of their group participants showed a “significant downgrade from 48 months to Grade 1 and…a significant increase in AAE use from Grade 6 to Grade 8 for the entire group, followed by a significant downturn again in AAE use from Grade 8 to Grade 10” (pp. 439-440). One pattern that all of these studies have in common is the recession of AAE use at Grades 1 through 4.

This shifting phenomenon is also reported to be evident when researchers compare and contrast the frequency and variety of AAE patterns used in written versus spoken language by older AAE-speaking students, particularly beyond elementary school age (see discussion of Ivy & Masterson [2011] below). A number of investigations report findings that support an increasing divergence from AAE use in written contexts as compared to its use in speaking contexts, with greater use of MAE (or MAE-compatible) patterns in their writing as children progress through the grades in school (e.g., Craig & Washington, 2004; Ivy & Masterson, 2011; Terry, 2012).

Clark (2006), amongst others, discusses shifts in AAE dialect use following MAE immersion in school. However, she adds that this seemingly natural shift is not seen in all speakers of AAE. For example, there is evidence of written language challenges in adolescents who are speakers of AAE, but have no prior diagnosis of speech-language
disorders. Not all AAE-speaking children effectively learn when and how to shift between the two linguistic varieties of American English, either in spoken language or written language (Connor & Craig, 2006; Craig & Washington, 2004; Green, 2011; Horton-Ikard & Pittman, 2010).

Horton-Ikard and Pittman (2010) reviewed and analyzed grammar, spelling and punctuation errors (based on “standard written English” expectations) and AAE patterns in the writing of 22 African American 10th grade students. The students were identified as AAE speakers and classified as typically developing, but “struggling writers” based on their low performance on the writing subtest of the Florida statewide assessment. One of the findings from this investigation was continued AAE pattern use for third person singular subject-verb agreement in the students’ writing products. The students’ use of the AAE pattern for this grammatical form, in this type of high-stakes testing, may indicate a lack of awareness of the need to variety-shift in this explicit context or possibly an overall lack of awareness of the targeted MAE correlate for third person singular subject-verb agreement. In fact, the above finding is consistent with that of Johnson (2005) in her examination of the comprehension of third person singular -s as a subject-number agreement marker in 30 AAE-speaking 4- to 6-year old children. Her results indicated that the AAE-speaking children in her study did not understand third person singular -s as a “number agreement marker,” and in addition, they were “not sensitive to this marker as a clue to subject number” (p. 116).

Clearly there are persisting discrepancies between African American and Caucasian students in reading and writing performance, based on high-stakes testing results. As a result, an expanding base of research has been conducted on the spoken
narrative skills of AAE speaking children; and how child AAE-use relates to reading and writing outcomes (e.g., Burns, de Villiers, Pearson, & Champion, 2012; Charity, Scarborough, & Griffin, 2004; Connor & Craig, 2006; Craig & Washington, 2006; Horton-Ikard & Miller, 2004; Labov, 1995; Terry N. P., Connor, Petscher, & Conlin, 2012). However, there has been relatively little research published on narrative writing and even less on the expository writing skills of typically developing AAE-speaking students.

In conjunction with the quest to eliminate the academic gap, another critical need within educational settings that has received increased research interest in recent years is finding ways to distinguish between typical AAE patterns versus patterns of language impairment in speakers of AAE (Bland-Stewart, 2005; Bland-Stewart, Elie, & Towsend, 2013; Clark, 2006; Garrity & Oetting, 2010; Green, 2002, 2011; Oetting & McDonald, 2001). Often language impairment goes undetected in schools until after children are referred for reading and writing difficulties, if at all. At the same time, some typically developing speakers of AAE are labeled as language impaired based solely on their dialect use. In fact, Seymour and his colleagues (1998) report that “AAE linguistic features can appear identical to symptoms that are found in children with language disorders” and “what may seem to be deficits can be legitimate language differences” (p. 96). Examples of acceptable AAE patterns that may be considered impaired by teachers and/or therapists with limited understanding of AAE are “zero copula” preceded by a “pronominal phrase” (e.g., “He __ a boy” versus “He is a boy”) and zero third person singular -s (e.g., “He run __ to school” versus “He runs to school”) (p. 97).
This state of confusion is exacerbated by the fact that one of the hallmarks of specific language impairment (SLI) for both MAE and AAE speakers is difficulty with implicit learning of the rules for appropriate use of morpho-syntactic structures, such as number agreement and tense markers and copula/auxiliary forms (Garrity & Oetting, 2010; Jones Moyle et al., 2011; Rice & Oetting, 1993; Rice, Wexler, & Cleave, 1995; Seymour, Bland-Stewart, & Green, 1998). At this time, there is minimal, if any, research that examines the differences between typically developing and language impaired AAE-speaking children with regard to their morpho-syntactic writing patterns within narrative contexts. Further investigation is needed in this area and could result in the discovery of linguistic markers or patterns that assist in making a distinction between what is typical and what is impaired for AAE-speaking, elementary aged children.
CHAPTER 2
LITERATURE REVIEW

The Black-White Achievement Gap

A large body of research has been developed over the past 40 years investigating the use of African American English dialect by many African American school children and the impact of its use on the academic performance of those children who use varying degrees of AAE in their everyday lives (c.f. Charity, Scarborough & Griffin, 2004; Craig & Washington, 2006; Green, 2002, 2011; Fasold & Wolfram, 1975; Horton-Ikard & Weismar, 2005; Labov, 1972; Oetting & McDonald, 2001; Seymour, Bland-Stewart & Green, 1998; Terry et al., 2012; Washington & Craig, 1994). Since they began reporting on the academic performance of students nationwide in 1969 and disaggregating these results by racial and ethnic group in the late 1970’s, the National Assessment of Educational Progress (NAEP; also known as the National Report Card) has continued to document what has become known as the “Black-White Achievement gap” in reading and writing performance in our country. Since this tracking began, a significant discrepancy or “gap” between how well African American students perform relative to White American students has been evident, with AA students performing consistently lower in all areas measured.

There have been a number of hypothesized contributors to the discrepancy in academic achievement between Black and White children in this country. Some include factors related to socioeconomic status (SES), such as lower family income level (Pearson, Conner, & Jackson, 2012), lower level of parent education (Chall & Jacobs,
2003; Connor & Craig, 2006), and decreased vocabulary and exposure to literature (Hart & Risley, 2003; Ouellette, 2006; Pearson, Conner, & Jackson, 2012; Stockman, 2010). For example, researchers have found that students, including African American students, from lower SES/poverty, are more likely to come into the school environment with more limited expressive and receptive vocabularies (Hart & Risley, 2003; Terry N., Connor, Thomas-Tate, & Love, 2010). In their research with AA students, Craig et al. (2009) found that students with greater understanding of spoken vocabulary, as determined by standardized vocabulary measures, performed better in reading achievement than African American students with poorer receptive vocabularies.

Another contributing factor that has come into question is negative teacher perceptions, including biases against and lower expectations for AAE-speaking students (Adger, 2005; Connor & Craig, 2006; Pearson, Conner, & Jackson, 2012; Terry, 2012; Wheeler, 2006). According to Adger (2005), the teaching profession is dominated by white, middle-class females who often view AAE as an inferior, broken version of English. As a result, there is evidence of prescriptive (or correctionist) teaching, as well as pejorative attitudes and treatment of students who use AAE dialect. Wheeler (2006) commented on her experiences with teachers who had already had previous training on the legitimacy of AAE as a rule-governed dialect, and how they continued to demonstrate intolerance of their AAE-speaking students based on use of their first dialect. It is proposed that this negative take on AAE and its speakers may lead to decreased motivation levels and poorer academic outcomes for AAE-speaking students.

Another avenue of exploration related to the academic gap between African American and White students has focused on the use AAE dialect, the mismatch between
AAE and MAE, and limited transition from AAE use to MAE as factors that influence success in reading and writing achievement (Charity, Scarborough & Griffin, 2004; Connor & Craig, 2006; Craig & Washington, 2004, 2006; Craig et al., 2009; Terry, 2012; Terry et al., 2010, 2012). Research has documented that as AAE-speaking students advance through the grades, they demonstrate an increased use of MAE morpho-syntactic structures in their school-based tasks and a decrease in use of AAE structures. This transition happens to coincide with the improved high-stakes testing performance seen by African American students in the higher grades versus the elementary grades, as demonstrated by the NAEP reports. However, not all children who are speakers of AAE as their first dialect demonstrate the same rate or degree of transition from AAE-specific patterns to MAE-compatible patterns in their school-related tasks (Charity, Scarborough, & Griffin, 2004; Clark, 2006; Connor & Craig, 2006; Craig & Washington, 2006; Craig, Zhang, Hensel, & Quinn, 2009; Fogel & Ehri, 2000; Horton-Ikard & Pittman, 2010; Jackson & Pearson, 2010; Terry N. P., Connor, Petscher, & Conlin, 2012; Van Hofwegen & Wolfram, 2010).

One of the ideas behind the differences among students who readily develop MAE as a second dialect and those who show less transition from AAE to MAE in the school setting is the possibility that there is a correlation between degree of metalinguistic skills, specifically what has been labeled “linguistic flexibility,” and the degree of transition between the dialects, also known as dialect shifting (Connor & Craig, 2006; Terry, 2012).
African American English

AAE is a nonmainstream variety of American English used by many African American children and adults. The estimates of the percentage of AA children who use AAE vary somewhat, but “teachers and clinicians can expect the majority of AA children to exhibit some patterns of the AAE variety in their speech throughout elementary school” (Pearson, Conner, & Jackson, 2012, p. 2). Some AAE-speaking children are raised in households that are categorized as being of low socio-economic status (SES) or working class. Children from low SES households may have limited interactions with speakers of other varieties of American English (Terry et al., 2010). Other AAE-speaking children are raised in middle or higher SES households and use AAE dialect with varying frequency, along a spectrum of dialect density (Horton-Ikard & Miller, 2004). However, the groups are not necessarily mutually exclusive. In most cases, AAE dialect is an integral part of African American culture that is embraced by members of the African American community in which it is used (see Labov, 1995; Craig & Washington, 2006; Jackson & Pearson, 2010; Pearson, Conner, & Jackson, 2012; Wolfram, 2007).

Much of the early work in the study of AAE focused on listing its components, 30 or more identified features, particularly phonological and morpho-syntactic elements used by late adolescent-aged and adult AAE speakers (e.g., Fasold & Wolfram, 1975; Labov, 1972). Many of the features were characterized by the “absence” or “omission” (denoted as “Ø”) of a wide range of phonological and morphological attributes that were described as “deviations” from the SAE system: Ø final consonant, unstressed syllable deletion, Ø copula/auxiliary, Ø possessive –s, Ø plural –s, Ø past tense verb –ed, Ø third person singular subject-verb agreement, and uninflected be forms, to name a few.
Over time, with increased observations and investigations, it has been clearly demonstrated that AAE is not just a set or list of morpho-syntactic and phonological features that deviate from those of MAE. Rather, “AAE is a variety [of American English] that has set phonological (system of sounds), morphological (system of structure of words and relationship among words), syntactic (system of sentence structure), semantic (system of meaning) and lexical (structural organization of vocabulary items and other information) patterns” (Green, 2002, p. 1). Furthermore, as a language variety, AAE is no more or no less legitimate than any other variety of American English (e.g., MAE, Southern White English, Appalachian English). In other words, AAE is rule-governed, with a combination of rules that are consistent with MAE, specific to AAE, or both, depending on the context.

In discussing the rules and patterns inherent in AAE, it is important to understand that AAE has lexicon, phonology, morphology, syntax and pragmatics that may be either non-contrastive or contrastive (Seymour & Seymour, 1977; see also Jackson & Pearson, 2010; Seymour, Bland-Stewart & Green, 1998). Jackson and Pearson (2010) describe non-contrastive morpho-syntactic structures as structures that “do not differ between AAE and GAE in rules of use.” They give an example of the past tense copula “was,” as in “he was a teacher.” In this case, “‘was’ is obligatory and cannot be omitted.” On the other hand, they describe contrastive structures as those “that must be marked overtly in GAE, but [are] variable in AAE” (p. 135). An example of this is auxiliary “be.” In mainstream English, it is mandatory that the auxiliary forms of “be” are marked in present progressive phrases (e.g., “I am/I’m eating,” “You/We/They are/[‘re] eating,” and

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2 GAE (General American English) is used here as it was in the original text.
“She/he is/‘s eating”), either in uncontracted or contracted form. However, in AAE, auxiliary “be” may be used in its bare form (invariant), and it is optional (or non-obligatory) in this linguistic context for first person plural (e.g., *we eat*), as well as in second and third person singular and plural (e.g., *you eat, he eat, she eat, they eat*). In addition, contrastive features or patterns may be those that are specific to, or found in, AAE but not in MAE (e.g., habitual *be* [as in “She *be* tellin’ everybody what to do”], and remote past stressed BIN [as in “I BIN had this sandwich”]).

Using this type of feature analysis research, we also know that phonotactic patterns such as final position consonant cluster reduction (particularly before words that begin with a vowel or nasal) and variable absence of word final consonants are acceptable AAE patterns. Other AAE phonological patterns, including variable production of “f” where MAE obligatorily uses voiceless “th” (in medial and final positions of words), and variable “d” rather than voiced “th” in the initial position of words are common to child and adult speakers of AAE and should be considered to be acceptable possibilities. These are contrastive features that distinguish the two dialects. However, simplification patterns such as “stopping of fricatives, fronting of velars, gliding of liquids, voicing assimilation” and others “resemble those used by [3 to 4 year old] SAE speakers” (Stockman, 2010, p. 27; see also Pearson & Velleman, 2009); they are non-contrastive patterns that occur as part of phonological development in both dialects.
Variability within AAE and overlaps with MAE

Variability in AAE can be discussed from many different but related perspectives, among them being rule-governed variability, developmental variability, regional variability and social-communicative variability. In exploring what is considered to be typical in the development of phonological, morphological and syntactic patterns by child speakers, as well as in the patterns observed in mature speakers, a major factor to consider in the AAE system is the inherent variability within, as well as between, typical AAE speakers (Craig & Washington, 2004, 2006; Garrity, 2007; Garrity & Oetting, 2010; Green, 2002, 2011; Jackson & Pearson, 2010; Renn & Terry, 2009; Seymour, Bland-Stewart, & Green, 1998; Van Hofwegen & Wolfram, 2010; Wolfram, 2007; Wyatt, 1995). This variability can be due to a number of factors such as community attachment, gender, SES, communication partner’s role (e.g., peer vs. authority figure), developmental level and/or the purpose of the message.

Linguistic Perspective

In examining AAE from a linguistic perspective, Green (2011) discusses variability in AAE use by developing AAE speakers (e.g., 3-, 4- and 5-year olds). She gives the example of variable auxiliary “be” use in two sentences; “Sue’s playing ball today” and “Sue Ø playing ball today” [Ø denotes zero form where “is” is not explicitly stated] (p. 7). According to Green, both of the sentences above can be used by an AAE speaker and the choice of one or the other depends on both linguistic and social factors. Unlike MAE, this variability of form is acceptable in AAE. Jackson and Pearson (2010) explain one component of variability in that there are various acceptable forms, or linguistic options, in producing AAE morpho-syntactic structures. These authors state
that “AAE speakers may sometimes use overt marking of certain morpho-syntactic elements, and at other times, use a zero-marked (denoted Ø) form of the same element” (p. 135).

As with MAE, some structure patterns are obligatory, or required, in AAE. For example, although uninflected “be” is an acceptable aspectual marker (used to express habitual actions or states), in tag questions it is unacceptable to combine “be” with negation (e.g., * “Your phone bill be high, ben’t it” [Green, 2002, p. 68]). In addition, “aspectual marker be must occur in sentences in which such aspectual interpretation is intended [e.g., where it is interpreted as always or usually]” (p. 47) or the intent of the sentence could be considered ambiguous without it. For example, the sentence, “She going to the store” could be interpreted as “She is going to the store,” “She will be going to the store” or “She is usually going to the store” if the aspectual be marker is not present. In contrast, with the inclusion of be (e.g., “She be going to the store”), it is clear that this is a habitual action rather than a current or future act. However, unlike the obligatory use rule for MAE, in AAE auxiliary/copula forms of “be” may be either included or excluded in non-past, non-habitual structures (e.g., “She Ø going to the store” or “She’s going to the store”; “He Ø in the house” or “He’s in the house”) and still be deemed acceptable; hence they are non-obligatory or optional in many contexts.

According to Green, auxiliaries “can appear in a contracted, reduced or zero form such as ‘s, ‘m, ‘ll (‘a), ‘d and Ø” (p. 40).

**Developmental Perspective**

Variability also can be ascribed to age differences, as in developing AAE patterns or changes in patterns over time. Even very young children, such as toddlers or
preschoolers, demonstrate variability as they are learning to talk and learn the rules of their speech and language variety (Green, 2011; Horton-Ikard & Weismar, 2005; Jackson & Pearson, 2010; Pearson, Velleman, Bryant & Charko, 2009; Stockman, 2010; Wyatt, 1995; Velleman & Pearson, 2010).

Just as specific phonological and morpho-syntactic features can be non-contrastive (not useful for differentiating AAE from MAE) or contrastive (different in the two dialects), so can developmental trajectories. For example, Pearson, Velleman, Bryant and Charko (2009) identified a trajectory of phonetic and phonotactic developmental milestones for AAE- speakers between the ages of 4 and 12 years who were learning MAE. They compared the patterns of AAE-first speakers to the patterns used by the primary MAE speakers in the study. The authors used information from the phonological segment of the standardization sample of participants given the unpublished Dialect Sensitive Language Test (DSLT; Seymour, Roeper, & de Villiers, 2000), which was the pre-cursor used to pilot the Diagnostic Evaluation of Language Variation (DELV; Seymour, Roeper, & de Villiers, 2003).

In their results, Pearson and her colleagues determined that child AAE-speakers learning MAE showed evidence of early mastery in producing what are considered to be later developing phonemes by MAE speakers (e.g., 90% mastery of /r/ and /s/ at age 4 years for AAE speakers, 90% mastery of /r/ and /s/ at age 6 years for the MAE speakers). These results indicated a significantly different order of consonant sound acquisition for AAE-first speakers than has been previously outlined for MAE speakers. However, in reviewing the phonotactics (syllable shapes) of young AAE speakers, these researchers found that AAE speakers were more likely to omit final consonants and/or reduce final
consonant clusters, where their MAE speaking counterparts were more likely to produce them, and produce them at earlier ages. Not surprisingly, this finding is consistent with the patterns observed in adult AAE speakers. The results from this study suggest that AAE speakers seem to exchange greater phonotactic complexity (e.g., production of final consonants and final consonant clusters) for earlier development of more complex phonemes (e.g., /t/ and /s/) whereas young MAE-speaking children demonstrate production of more complex phonotactics (e.g., earlier mastery in producing final consonant clusters), but sacrifice mastery of more complex phonemic development. Therefore, the difference in order of consonant acquisition between MAE- and AAE-speaking children results from the different phonotactic demands of the two dialects.

It is also interesting to note that in the AAE-first group, even at 12 years of age, the children did not approximate the 90% mastery cutoff for production of voiced “th” (i.e., /ð/) in either the initial or final position of words, or voiceless “th” (i.e., θ) in the final position of words. This finding was not surprising, as it is generally consistent with the frequent production of [d] or [f] in place of /ð/ and /θ/, respectively, in adult AAE-speakers. This finding led the researchers to propose that /ð/ may not be a phoneme that is part of the AAE phonemic repertoire, but rather a phoneme that develops when the speaker is learning MAE (i.e., evidence of phonological dialect shifting). In a follow up study by Velleman and Pearson (2010), even AAE-speaking children who were identified as having speech deficits demonstrated similar developmental trajectories as typically developing children who were AAE-speaking, even though they showed relative delays in their acquisition of sounds.
Horton-Ikard and Weismer (2005) studied developmental trajectories by comparing the different rates of “non-standard” speech and language use between AAE and SAE toddlers with groups of 2.5- and 3.5-year-old children within each dialect category (i.e., total of four groups that included two AAE toddler groups and two SAE toddler groups of 2.5- and 3.5-year olds each). They found that toddlers determined to be developing AAE displayed “greater production of nonstandard speech” at the 3.5 year old level than in the 2.5 year old group (p. 611). Therefore, these results suggest that young, AAE speaking toddlers demonstrate a steady increase in morpho-syntactic patterns that correspond with AAE, while also showing patterns that are distinguishable from those of MAE speaking toddlers.

Green (2011) reported additional examples of variability between overt and non-overt marking for morpho-syntactic forms due to developmental stages. For example, in her observations of preschool to early elementary age AAE-speakers and their use of “preverbal” had + verb constructions used to mark past tense, Green noted that the developing AAE-speakers in her study did not always overtly mark the verb for past tense (e.g., “had bring$_{past}$” vs. “had brought” or “had brung”; “had pick$_{ed}$ me up” vs. “had picked me up”) (p. 81). However, she contrasts this developmental variability with observations by Rickford and Théberge-Rafal (1999) who, describing the construction as “preterite had” + verb, have observed that with adolescent AAE-speakers, had is used predominantly with verbs that are overtly marked for past tense (e.g., had brought, had saw).

Along with the developmental trajectory evidence, the other factor that influences the frequency or type of variability used by an AAE-speaking child is increasing MAE
exposure within the school setting. As discussed earlier, many researchers have documented a trend showing that the greater a child’s exposure to school-based language and literature that is comprised of MAE, the more likely they are to produce patterns that conform to MAE standards (Connor & Craig, 2006; Craig & Washington, 2004; Craig & Washington, 2006; Van Hofwegen & Wolfram, 2010).

**Regional Perspective**

As with regional variations of MAE, such as those observed in various southern states, the Appalachian mountains, New England and the mid-western states to name a few, in addition to the variability demonstrated in different types of communities (e.g., rural, urban, suburban), there are also variations in the use of AAE. This is dependent on the community or type of community in which it is used (Green L.J., 2002; Wolfram, 2007). In his article entitled, “Sociolinguistic Folklore in the Study of African American English”, one of the myths that Wolfram (2007) seeks to expose is the assumptions that AAE has a standard set of features and patterns that are consistent in all regions of the United States. Wolfram states that he “strongly dispute[s] the contention that regionality in AAE is insignificant and can be ignored” (p. 296). In fact, he demonstrates extreme variability in use of what have been considered part of the common core of AAE phonological and morphosyntactic patterns even between five regions in the state of North Carolina.

For example, Wolfram examined the “incidence of third person inflections –s absence in structures” (p. 299) produced by AAE speakers in the five communities in the state. His findings demonstrated significant differences in absent -s production rates not only by region but by generation (i.e., young, middle, old). Specifically, Wolfram
reported that “the black Appalachian communities of Texana and Beech Bottom obviously do not share this structural pattern to any great degree with the other African American communities; in fact, they tend to align with the regional white community” (p. 299) With respect to frequency of third person singular –s absence, Wolfram observed an incidence range from less than 5% to more than 75% depending on the region.

**Social-Communicative Perspective**

The last factor considered here is communicative contexts and situations. Even when a number of people are identified as AAE speakers, it does not mean that every one of them uses all of the same patterns identified in the dialect all the time, in every context. AAE use can be considered to be on a spectrum from very little evidence of use in just a handful of social situations to it being the person’s predominant dialect, including the use of a wide range of AAE linguistic patterns in diverse contexts (Green, 2002). In other words, no two speakers are exactly the same in their use of AAE.

When examining AAE from a social-communicative perspective, variability is also observed in relation to differences in contexts or situations (e.g., speaker differences, formality of the setting, topics being discussed) (Green, 2002, 2011; Jackson & Pearson, 2010; Renn & Terry, 2009; Van Hofwegen & Wolfram, 2010; Wolfram, 2007). For example, a child who is a speaker of AAE may use some patterns in speaking with a person of authority, such as a parent or other adult, but other patterns when speaking with a peer.

One depiction of context and age determining variability is provided for the past tense auxiliary “was.” Generally, past tense auxiliary/copula “was” is overtly marked and is considered to be consistent with the rules of MAE use. However, in her language
samples of developing AAE speakers, Green (2011) observed instances of non-overt as well as overt past was in past progressive constructions used by one of her typically developing, 5½ -year old participants (e.g., “The baby Ø was trying to get out of the umm bed”, “And then the dog was eating some food”; non-overt and overt was, respectively). Green concluded that “it might be the case that, at least in narratives, was [italics in original text] can be omitted given the past context” (p. 80).

Renn and Terry (2009) discuss the process of style shifting among African American Vernacular English (AAVE)³-speaking adolescents based on the formality of the situation. The authors describe style as “speakers’ conscious and unconscious use of linguistic structures to situate themselves with respect to others and to express identity” (p. 370). Renn and Terry studied the style shifting of 108 typically developing, African American boys and girls from lower and middle socioeconomic status homes who were 11 – 13 years of age under two different conditions of formality – formal and informal. The formal conditions included simulated presentations of two different speeches, one for their parents and the other for kids only. The informal conditions included a peer-to-peer environment where the youth were engaged in discussion about self-selected topics on problems or issues, and a free talk period during a snack.

Also as part of their study, the investigators sought to examine if there were a handful of AAE morphosyntactic features that were the most significant in style shifting. Therefore, they looked at six features from the well over thirty features often used in calculating dialect density and for examining style shifting, and use the subset of features to more closely examine which of the features shift in response to the formality of the

³ AAVE is the term used in the original text
context. The features they used in their subset included nasal fronting (e.g., “swimmin’” for *swimming*), copula absence, modal auxiliary absence (e.g., “How you do this?” for *How do you do this?*), third person singular –s absence, multiple negation, and “ain’t” for *is not*. According to the authors, these features were chosen for “their apparent sensitivity to context” (p. 383), such as changes in context, which was the primary purpose of the study. At the conclusion of their study, Renn and Terry found that the adolescents used significantly more AAE features in the informal contexts than in the formal contexts. In addition, they found that their subset of features “could effectively be used to identify style shift in AAVE” (p. 385).

In summary, there can be variability in forms used within any dialect, within any dialect community, within any given speaker, and within and between language samples. Not all children who are speakers of AAE use all AAE patterns in all contexts (Green, 2002, 2011; Jackson & Pearson, 2010).

**How to Identify AAE-Speakers and Determine the Density of AAE Dialect**

In many of the studies on AAE use and its relationship to academic performance, researchers have used various strategies to determine just how “AAE-speaking” are the AAE-speakers they are studying. In other words, they attempt to verify that a child is indeed an AAE-speaker and to measure the frequency or consistency (also known as density) with which the child uses the AAE variety of American English. In many research projects, *listener judgment* has been used to make the distinction of whether or not the participant is an AAE-speaker. In this case, there are usually two or more members of the study who are either identified AAE users or are highly familiar with the
patterns demonstrated in AAE. These judges use comparisons of their decisions based on their expertise to come to an agreement about whether or not a child should be considered to be an AAE speaker, i.e., a person who uses AAE as their first dialect in their spoken or written language (e.g., Oetting & McDonald, 2002; Wyatt, 1990). However, this method may be considered subjective by some, as well as limiting for those who are not as familiar with the AAE system and its patterns.

Other researchers have used measures that quantify types of patterns and/or the frequency of tokens, or number of instances in which the classifying patterns are observed, within a language sample to make determinations about AAE status. In this case, the researcher sets a criterion for a predetermined number of morpho-syntactic and phonological patterns that are consistent with the dialect (Oetting & McDonald, 2002; Seymour, Bland-Stewart, & Green, 1998). Yet another measurement strategy researchers have used is Dialect Density Measures (DDMs). DDMs have been used to make determinations that not only identify children as AAE speakers, but that measure the frequency/ratio of their use of contrastive AAE patterns in relation to MAE patterns or to contexts where non-contrastive MAE patterns are an option (e.g., Charity, Scarborough, & Griffin, 2004; Connor & Craig, 2006; Craig & Washington, 2004, 2006; Craig, Zhang, Hensel, & Quinn, 2009; Garrity & Oetting, 2010; Oetting, Cantrell & Horohov, 1999; Oetting & McDonald, 2002).

According to Craig and Washington (2006), DDMs are calculated as a ratio with the total number of dialect (AAE) features being divided by the total number of words produced in a language sample. DDMs can be used to calculate a sum total of AAE features, phonological features (PhonDDM), morpho-syntactic features (MorDDM) or a
combination of phonological and morpho-syntactic features (CombDDM). This procedure has some advantages over use of expert judgment, such as its usefulness in determining the density of the dialect used. However, there have been criticisms of its use as well based on which features have been classified as being part of AAE and which have not (e.g., Green, 2011). Green (2011) reports concerns about describing some patterns as distinctly a part of MAE, when in fact they may be variations of AAE.

Green (2002, 2011) explains that although AAE is a rule-governed linguistic system with some linguistic patterns that differ from acceptable Mainstream American English linguistic rules, it is also a variety of American English and thereby has many linguistic patterns that are consistent with Mainstream American English phonology and morpho-syntax. As a result, a child may actually be a robust user of AAE dialect, but not necessarily be measured as such because of the number of features they may use that are also evidenced in SAE. Using DDMs, these SAE-like features would not be counted as AAE features and may skew the determination with regard to the degree to which that child is considered to be an AAE-speaker. Therefore, this type of measurement should be used with caution and with knowledge of those features that may actually be AAE-related, but are also demonstrated in SAE. In fact, Clark (2006) advocates that “a comprehensive investigation of AAE usage should involve an analysis of the grammaticality or rule-governed use of each AAE pattern in addition to measures of dialect density” (p. 4).

Despite the challenge of using DDMs as a tool for determining dialect density overall, the degree of dialect use (e.g., strong, moderate or minimal use) can be instrumental in alerting evaluators as to how the child should be evaluated (i.e., with
which evaluation tools/methods) and what factors to take into consideration. Examining the intensity or frequency of contrastive versus non-contrastive patterns can also be useful in measuring how close an AAE-first speaking child is to learning to inter- and intra-dialect-shift for the purposes of mastering the SAE variety typically required in the school setting.

With the goal of developing an objective and consistent measure that could be used to identify children as speakers of AAE as their first dialect, as well as to make a rough determination of the consistency with which they use AAE, Seymour, Roeper and J. de Villiers (2003) used information they acquired from nationwide testing of both AAE- and MAE-speaking children to develop a criterion referenced screening tool. The first section of the screener “contains morpho-syntax and phonology Identifier Items on which AAE-speaking children produce systematically different responses from MAE” (Seymour, Roeper, J. de Villiers, & P. de Villiers, 2003). In addition, children’s responses from this part of the screener can be used to make a general determination of how strongly the child’s linguistic patterns vary from MAE with three categories of “Language Variation Status” (i.e., MAE, some variation from MAE, strong variation from MAE).

**Limited Consistency in Transition from AAE to MAE as a Theory**

Included in the concern about the use of AAE as a variable that contributes to the achievement gap is that not all AAE speakers equally or effectively transition to using MAE patterns in the school environment (Clark, 2006; Craig & Washington, 2004, 2006; Green, 2002; Horton-Ikard & Pittman, 2010; Jackson & Pearson, 2010; ). Even with the
overlapping of rules and patterns between AAE and MAE, the question of whether AAE-speaking students actually learn when and how to “switch” from AAE-specific (or contrastive) patterns to MAE-compatible (i.e., non-contrastive) patterns may be at the forefront in the explanation for lower achievement in school-based standardized, high-stakes measures where performance is judged relative to MAE use.

One theory about the variability in “switching” is the hypothesis that AAE and MAE are so closely related that it may be difficult for AAE-speakers to distinguish between the two. In a literature review by Fogel and Ehri (2000), the authors referred to previous writing by Stewart (1967) that addressed possible reasons for the success or difficulty of AAE-speaking children in learning to transition from AAE to MAE. In their summary of Stewart’s chapter, the authors suggested that because there are so many similarities (as opposed to differences) between the two varieties of the same language, it may be more difficult for AAE-speakers to tease out those feature or systems that are different from MAE than it would be if they spoke an entirely different language (Fogel & Ehri).

Another hypothesis regarding the inconsistent patterns of transition is based on the idea of the variable metalinguistic skills of the children learning MAE as a second dialect. There has been discussion among researchers about the roles of metalinguistic awareness and “linguistic flexibility,” and the ways in which skills in these areas contribute to the ease or proficiency with which children and adolescents shift between dialect patterns (Connor & Craig, 2006; Terry, 2012). As noted earlier, some researchers have alluded to differential skills in linguistic awareness and flexibility and their correlation to dialect shifting skill. In her study of the relationship between dialect
variation and emergent literacy skills, Terry (2012) describes this hypothesis of linguistic awareness/flexibility, and suggests that metalinguistic capability may influence a young child’s likelihood of being successful with dialect shifting and developing MAE as a second dialect:

Finally, a relatively new hypothesis, the linguistic awareness/flexibility hypothesis, prefices the role of metalinguistic knowledge in literacy skill acquisition and achievement and the role of sociolinguistic contexts in language use and linguistic diversity. According to this hypothesis, frequent production of NMAE [non-mainstream American English] forms in speech contexts that presuppose MAE use (e.g., schools) may be indicative of poorer metalinguistic awareness skills, in general, which may interfere with literacy achievement more so than DVAR [dialect variation] itself (Charity et al., 2004; Connor & Craig, 2006; Craig & Washington, 2004a; Terry & Connor, 2010; Terry et al., 2010; Terry & Scarborough, 2010). p. 69

This hypothesis reflects the thought that some students have limited or reduced linguistic awareness and flexibility, which may account for varied levels of dialect shifting even with increased exposure to school English (or MAE) in different child speakers of AAE (Terry, 2012; Connor & Craig, 2006).

**What is Dialect Shifting?**

A proliferation of research studies has been conducted that examines when and how AAE-speaking children demonstrate the transition from the predominance of AAE-use to the predominance of MAE use in their spoken and written language. This process has been known by various titles including code-switching, dialect-switching, dialect-shifting and style shifting, to name a few (Craig & Washington, 2004, 2006; Green, 2002, 2011; Horton-Ikard & Weisman, 2005; Jackson & Pearson, 2010; McGregor, 2000; Pearson, Conner, & Jackson, 2012; Renn & Terry, 2009). Some in the field of linguistics prefer not to use the term code-switching as it is more pertinent to the switching back and
forth that occurs with speaker of more than one language rather than between dialects or varieties of the same language. Therefore, for the purposes of this paper, namely to examine the transitioning observed in speakers who use AAE as a first dialect or as part of bidialectalism (i.e., users of two dialects) in their spoken and written skills, the term “dialect-shifting” will be used.

Developmentally, as with any other language variety, in AAE there are differences in forms used at progressing ages. Jackson and Pearson (2012) did an examination of declining language variability, and increased dialect shifting, for features evident in AAE speakers due to increasing age and exposure to school. They investigated transitions in the use of contrastive and non-contrastive morpho-syntactic structures across ages. Their study included 511 African American English speakers learning GAE as a second dialect and 218 GAE-speaking controls between the ages of 4 and 12 years. The authors used elicitation tasks from the DSLT (Seymour, Roeper & de Villiers, 2000).

There were 33 morpho-syntactic items from the DSLT used to target 10 morpho-syntactic structures that are contrastive between AAE and GAE and two structures that are considered non-contrastive. The contrastive structures included “third-person singular /-s/ (3rd –s) for lexical verbs; past copula, invariant agreement (e.g., they was); 3rd –s with ‘do’; 3rd –s with ‘have’; ‘are’ auxiliary; ‘is’ auxiliary; ‘is’ copula; multiple negation; possessive /-s/; and past tense marker /-ed/.” The two non-contrastive structures were “past tense copula or auxiliary (e.g., he was sick) and possessive pronouns (e.g., the kite is theirs)” (pp. 138-139). Jackson and Pearson looked at the children’s frequencies for either marking (overt marking) or not marking (zero marking)
of the GAE required patterns for each of the above morpho-syntactic structures to determine if they fell into one of three categories: high overt markers (i.e., overt marking on at least 28 of the 33 contrastive items presented), high zero markers (i.e., zero marking on 21 or more of the 33 items) or mixed markers (i.e., those who were neither high nor zero markers). The responses of the GAE-speaking controls were used to provide benchmarks for overt marking.

Jackson and Pearson found that for the non-contrastive structures, the developmental trajectory was similar for the AAE and GAE speaking participants. In fact, they determined that the “overt marking [for non-contrastive features] was at near-ceiling levels by age 6 for both dialect groups” (p. 139). On the other hand, for the contrastive morpho-syntax, the AAE-speakers demonstrated significantly lower overt marking levels at every age as compared to the GAE-speakers, but they demonstrated considerable variability in their response patterns. In addition, consistent with the claim of increased dialect shifting with age, further analysis revealed that “the overall level of overt marking for contrastive features was higher at the older ages [9 through 12 years] than at the younger ages [4 to 5 years]” even though zero marking was still “around the 30% level at ages 9 through 12” (p. 140).

Craig and Washington (2004) studied dialect-shifting from AAE to MAE-acceptable pattern usage across grades. They did so by analyzing narrative discourse samples for frequency and variability of AAE forms used by child speakers in preschool through grade 5. Each grade, preschool to fifth, was a separate cohort, and the entire sample included 400 typically developing African American boys and girls who lived in either low- or middle-income homes. The participants were asked to describe three
different action pictures from the Bracken Concept Development Program (Bracken, 1986) in varying order as the prompt for gathering spoken discourse samples and for calculating the frequency of AAE structures used by their participants using morphological dialect density measure (MorDDMs).

Their results revealed that the frequency of dialect use, as measured in MorDDMs, was relatively constant for preschool through kindergarten and also for first grade through fifth grade. However, they observed increased dialect shifting, as evidenced by a significant decrease in MorDDMs, in the transition from kindergarten to first grade. The researchers pointed out that pragmatically, as they mature, children learn to match linguistic form to language function and context. They added, “it is not surprising, therefore, that young African American students are sensitive to the SAE demands of classrooms and texts, are responsive to these formal exposures, and begin to adapt their linguistic forms to the SAE contexts in relatively short timeframes” (2004, p. 459).

**Types of Dialect Shifting**

Although AAE is a complete system, as noted earlier, it is comprised of some patterns, and/or rules for those patterns, that are specific to AAE and others that are consistent with MAE. As a result, many researchers have referred to any change of speaking patterns that included decreased use of contrastive AAE patterns and increased use of non-contrastive AAE patterns (or obligatory patterns according to the rules of MAE) as “dialect shifting” (or “code switching”). However, in their reiteration of the position of Green (2011), Pearson, Conner and Jackson (2012) state that, “when AAE
speakers use shared [MAE and AAE] structures, they do not step out of AAE, as the 
shared structures are also an integral part of AAE” (p. 2).

According to Green (2011), there are two distinct forms of dialect shifting; 
namely “inter-dialect shifting” and “intra-dialect shifting.” Inter-dialectal shifting (or 
code-shifting) refers to the act of “moving from one code to another.” Intra-dialectal 
shifting is “a shift between variants within one dialect” (e.g., AAE), where “one 
requirement is that both variants be part of the same grammar” (Green, 2011, p. 189). It 
is not always clear which type of shifting is taking place. In the following case described 
by Green, there is an instance of overlap in one of the variants of preverbal had and 
perfective/past verb:

Using the inter-dialectal variation paradigm, three of the following forms would 
be considered variants of AAE and one variant would be considered a shift to a form that 
is consistent with MAE:

1. had started  AAE
2. had start    AAE
3. started      MAE
4. start        AAE

(Adaptation of Green, 2011, p. 192)

However, using the intra-dialect variation paradigm all four of the previous forms would 
be considered variants of AAE, as described below:

1. had started ([overt] had + verb [overt] –ed)  AAE
2. had start ([overt] had + verb [absent –ed]) AAE
3. started ([absent had] + verb [overt] –ed)    AAE
4. start ([absent had] + verb [absent –ed])    AAE

(Adaptation of Green, 2011, p. 193)
Clearly more work has to be done to identify other AAE variable patterns that also mimic MAE. Without this information it is difficult to determine if a child is truly learning MAE or demonstrating variability within AAE. In addition, evaluators may make the assumption that a child is demonstrating inconsistent skills in shifting between dialects when they actually may be demonstrating *intra-dialect* shifting in their use of AAE and consistency in abiding by the rules of AAE use. In this situation, the evaluator may mistakenly label the child as developing MAE when in fact they may not be doing so. As a result, they should not be evaluated by MAE linguistic standards.

Finally, when the assumption is made that every morphological or syntactic form that correlates with MAE is in fact a shift to and/or evidence of MAE use, it is possible, if not probable, that AAE dialect density is being incorrectly calculated. For example, if a child produces the contracted form of auxiliary “be” in one sentence and then uses a zero marking for auxiliary “be” in the next sentence, their dialect density would be calculated at 50% AAE use rather than the 100% AAE use they are truly demonstrating. As a result, the child may not be identified as one who could benefit from explicit general education instruction, such as contrastive analysis that teaches the MAE correlates to their native AAE patterns. In addition, they may be targeted for special education interventions because of the “inconsistency” in their dialect-shifting patterns with the erroneous assumption that they are predominantly MAE users.

Armed with this change of perspective related to dialect distinctions (i.e., between AAE and MAE), researchers may need to revisit the more narrow perspective of dialect shifting (i.e., *inter-dialect shifting*) as it relates to recognizing and teaching child AAE-speakers who are learning MAE as a second dialect.
Learning MAE as a Second Dialect through Exposure

As noted previously in this text, research has demonstrated the influence that years of school experience have on changing the ratios of AAE and SAE use by AAE-speakers in progressing grades, demonstrating increasing MAE variety use within the school setting (Charity, Scarborough, & Griffin, 2004; Clark, 2006; Connor & Craig, 2006; Craig & Washington, 2004; McGregor, 2000; Terry N., Connor, Petscher, & Conlin, 2012). The most predominant venue for exposure to MAE in schools is through literacy-based activities (e.g., reading and writing) where the expectation for MAE use may be considered to be explicit (versus implicit or implied). However, Connor and Craig (2006) also demonstrate this “dialect shift” in oral tasks that have explicit expectation for use of SAE (such as sentence imitation) in spoken language as young as preschool. And, as with written narrative transitions to MAE, African American students who speak AAE show a general shift to MAE in their oral narratives in their middle to high school years compared to elementary level African American students who are speakers of AAE. Therefore, no assumptions can be made purely on the basis of children’s AAE use for non-explicit language (such as everyday conversation and social communication with AAE-speaking peers) about how students will perform on oral or written language tasks where there is an explicit expectation for school English use.

Relationships between AAE Use and Literacy

Much of the research on AAE and literacy has focused on the correlation between AAE use and reading and writing achievement in school. Some believe that the mismatch between AAE and the school dialect (i.e., MAE) may interfere with or even
inhibit reading and writing performance for AA students who are speakers of AAE
dialect (McGregor, 2000). Connor and Craig (2006) looked at the possible influence of
AAE use on emergent reading skills in African American preschoolers who had very
limited experience with formal schooling. The researchers examined the correlation
between AAE dialect density and emergent literacy skills such as vocabulary,
metalinguistic awareness and letter-word recognition skills. They asked the children to
“read” the wordless book, “Frog, Where are You?” as the prompt for acquiring the
percent of DDMs.

Vocabulary testing was completed using the Peabody Picture Vocabulary Test –
Third Edition (Dunn & Dunn, 1997) at the beginning of the school year in the fall and
then in the following spring using the Picture Vocabulary Test of the Woodcock-Johnson
Tests of Achievement – Third Edition (Woodcock & Mather, 2001). All other measures
were completed in the spring of the year. Metalinguistic awareness skills were measured
using the Sentence Imitation subtest of the Test of Language Development – Second
Edition: Primary (Newcomer & Hammill, 1988), administered to assess morpho-syntactic
awareness and syntactic sophistication; and the two-part Rhyming Task from the
Michigan Literacy Program Profile (Michigan Department of Education Early Literacy
Committee, 2003), used to assess rhyme recognition and rhyme generation. Finally,
letter-word recognition skills were measured using the Letter and Word Identification
Test of the Woodcock-Johnson Tests of Achievement – Third Edition (Woodcock &
Mather, 2001).

Connor and Craig’s results reflected a U-shaped correlation between the percent
of DDMs produced in the children’s language samples and their rhyming, vocabulary and
letter-word recognitions skills in the spring of their preschool year. Specifically, this correlation indicated better performance on the early literacy tasks for students who spoke AAE with “high frequency” and those who spoke AAE with “low frequency.” However, they noted that students who spoke AAE with “moderate frequency” demonstrated poorer performance on rhyming, vocabulary and letter-word recognition measures.

These results could be interpreted to indicate that the children who spoke with a “high frequency” of AAE use displayed mastery of AAE, thereby demonstrating good linguistic skills overall. Those children in the “low frequency” category may have in fact been more MAE-dominant. Therefore their use of AAE may be less of a factor, or it is possible that they were already successful with dialect-shifting. In the latter case, the “low frequency” children also demonstrate good linguistic skills. Contrary to the findings of the other two groups, it is possible that the “moderate frequency” group of children had had a great deal of exposure to AAE, but had not mastered it as well. If so, it is possible that this was the case because their linguistic skills were not as strong as those of the children in the other two categories.

It is interesting to note that in comparing the demographics of their groups, although fall vocabulary was controlled for in all analyses, Connor and Craig found that the children (from low SES families) attending the Pre-K program in an “urban fringed” school district started the school year in the fall with significantly lower vocabulary scores than did the children (from middle SES families) who attended Pre-K in a “mid-sized city” district. This discrepancy in performance validates other research findings that indicate children from low SES communities may be at risk for lower vocabulary
scores than children from middle SES families/communities based on standardized test measures.

Craig and Washington (2004) studied a broader age range and investigated the concept of “dialect-shifting” as a grade-related process of transitioning away from greater AAE use to evidence of decreased AAE and increased standard American English (SAE). They used a picture description task to compare the transition frequency (i.e., dialect shifting) of the participants to their reading acquisition skills in cross-sectional analyses of students who range from preschool level to 5th grade. One third of the students were determined to be of low SES and the other two thirds of middle SES. In addition, as with the previous study, one third of participants were from a midsize central city and two thirds were from an urban-fringed community in the metropolitan Detroit area. However, there was not a one-to-one correspondence between community and SES; and in fact, analyses revealed no interaction effect between DDM scores and SES nor was there a main effect for SES.

Craig and Washington measured reading skills by using students’ scores from a combination of national and state standardized reading achievement tests. In addition, vocabulary scores were gathered for students at the preschool through third grade levels using the Peabody Picture Vocabulary Test-III as part of the participant selection process. The students’ frequency and types of AAE dialect tokens (i.e., features/patterns) were measured as morpho-syntactic DDMs (MorDDMs) based on language samples gathered from the students’ descriptions of three colored action pictures from the Bracken Concept Development Program (Bracken, 1986).
The results of this study indicated significant main effects for community and grade in measuring MorDDMs. The MorDDMs produced by the students from the urban-fringed community were determined to be twice as evident as those produced by the students from the midsized central city. However, the effect size was very small. The grade effect was analyzed further and found to reflect consistent frequency of MorDDM productions between preschool and kindergarten groups and between first through fifth grade groups. However, there was a significant drop in MorDDMs between the group in kindergarten and the group in first grade. Also of interest was that although there was a decrease in MorDDMs after kindergarten, there was actually a steady increase in the number of different types of AAE morpho-syntactic features produced by the groups of students in grades one through five, with the greatest variety of types produced by the fourth and fifth grade groups of students.

In addition, Craig and Washington conducted further analyses and found that, even with great variability in AAE use within each grade, there were four distinct clusters evident (i.e., low, moderate, high, and very high clusters) based on the amount of AAE used both within the preschool and kindergarten cohorts and within the first through fifth grade cohorts. The majority of the preschool and kindergarten groups (50%) fell in the moderate cluster. However, for the first through fifth grade cohorts, the majority of students (68%) produced contrastive AAE features consistent with the low range. The researchers determined that the participants in the low cluster who were in the first through fifth grade cohorts were the shifters because they reflected the downward shift in AAE feature use seen in the transition from the kindergarten group to the first grade group. The first through fifth grade participants who used moderate to high levels of
MorDDMs (32%) were classified as the non-shifters as they demonstrated the same or higher frequency of contrastive AAE feature use as the largest cluster (i.e., moderate) represented by the younger, preschool to kindergarten levels.

The researchers then compared the reading achievement and vocabulary scores for the two major MorDDM cluster groups (i.e., low versus a collapsed group for moderate to high levels) in grades one through five. The results indicated that the shifters performed significantly better than the non-shifters on the measures of reading achievement in a two group means comparison (independent $t(197) = 3.21, p = .002$ with a large effect size, $d = .72$). There was also a statistically significant effect for vocabulary with the shifters demonstrating greater mean standard scores for vocabulary (101.63) than the non-shifters (92.75); even though the mean scores for both groups were within the average range. Finally, because there was a significant main effect for community when examining the use of contrastive AAE features, an analysis was done comparing the dialect shifting of the participants in the two different communities. Again there was a significant difference in which the participants from the midsize central city were more likely to be in the low MorDDM cluster (86%) than the participants from the urban-fringed community (54%), “and thus were considered to be dialect shifting” (p. 457).

Based on their findings, Craig and Washington concluded that the participants in the dialect-shifting groups had an advantage for reading acquisition over those in the non-shifting groups in that the shifting groups’ reading scores did not mimic the Black-White reading achievement gap reported in national data, but the non-shifting group scores did. Therefore, the authors surmised that the students who demonstrated dialect shifting may
have been more “linguistically advanced” based on the observations of greater variety of AAE morpho-syntactic structures used by these students and their significantly greater vocabulary achievement performance on the PPVT-III. However, they could not substantiate a causal relationship between linguistic prowess and tendency for dialect-shifting for their participants who were immersed in school with standard American English. Their conclusion about dialect shifters being linguistically advanced is relatively consistent with the later study of Connor and Craig (2006). However, as the authors stated, there could not be a causal relationship established between dialect shifting skills and better reading skills. Therefore, it is also possible that for the participants who were considered to be shifters, vocabulary skills and exposure to SAE within the midsized central city affected their propensity for dialect shifting.

Additional research has been conducted on possible associations between overall dialect shifting and other metalinguistic skills, such as morphological awareness (Apel & Thomas-Tate, 2009) and overall familiarity with the tenets of “school English” (Charity et al., 2004) among African American students who are speakers of AAE. Apel & Tate-Thomas (2009) studied the relationship between degree of AAE use and written morphological awareness ability in low-income fourth-grade African American students. They also investigated the relationship between phonological and orthographic transparency and student morphological awareness skills. Unlike many previous studies that used DDM’s to measure prevalence in use of AAE, these authors used the Diagnostic Evaluation of Language Variation (DELV; Seymour et al., 2003) to determine each student’s level of AAE use (variation from SAE). Their participants included 30, fourth-grade African American students who were assigned to two AAE groups based on
amount of variation from SAE: (a) Group 1 showed strong variation from SAE and was a slightly older group of students and (b) Group 2 showed little or no variation from SAE in the level of AAE dialect. The participants were given assessment measures aimed at investigating five literacy and literacy-related areas, including two morphological awareness tasks, three standardized reading measures, a standardized spelling task, a standardized phonemic awareness task, and a standardized receptive vocabulary test.

Apel and Thomas-Tate’s results revealed (a) no difference in written morphological awareness skills between the two groups, and (b) no group differences on the five measures of literacy and literacy related areas (reading composite, passage comprehension, spelling, phonemic awareness, and receptive vocabulary). However, there was a significant main effect for awareness of transparent derived words (e.g., the base word [teach] is both phonologically and orthographically evident in the derived word [teacher]) vs. “shift items” (derived forms that change in the way they sound [phonologically], are seen [orthographically], or both from their base words; e.g., music – musician, nerve – nervous, five – fifth, respectively).

Overall, the investigators found that scores on the morphological awareness tasks (combined) were significantly related to word reading level, spelling skill, and vocabulary size, but not to reading comprehension performance or phonemic awareness scores. The authors also make reference to previous studies that indicate morphological awareness skills have been shown to be positively associated with literacy development, particularly for word reading, spelling, and reading comprehension. Therefore, Apel and Thomas-Tate’s results bring into question the assumption that the home-school dialect mismatch in and of itself is what impedes African American students’ abilities to use
metalinguistic skills, such as awareness of derivational morphological forms, and consequently to develop reading and writing consistent with their White counterparts.

Charity et al. (2004) looked at student familiarity with School English (SE) as it relates to reading achievement for kindergarten through second grade students. Previous research on children in this age range has revealed that children tend to retain home dialect for forms or words that they are not familiar with in SAE sentence imitation tasks. Therefore, Charity and her colleagues used a sentence imitation task to determine levels of SAE familiarity by the children in their study. Their research was carried out in three different school communities across the country including Cleveland, Washington D.C. and New Orleans. Charity and her colleagues found that in the explicit SE expectation task of sentence imitation, there was greater overall familiarity with SE, based on accurate imitation of phonological and morphological SAE forms in the sentence imitation tasks, as students progressed from kindergarten to second grade. Their results also indicated a positive correlation between SE familiarity and reading scores for this population.

Interestingly, the authors found that students in New Orleans consistently demonstrated lower scores on SE familiarity compared to students in Washington DC and Cleveland. It is possible that the School English system used in New Orleans, a southern U.S. state, is influenced by the southern White American English (SWAE) standard dialect. SWAE varies from northern and mid-western SE and may be more closely related to AAE. Therefore, the students from New Orleans mostly likely have not had exposure to the SE observed in Cleveland and Washington DC.
Dialect Shifting In Differing Modalities of Communication

More recently, researchers have also found that there is a process of dialect shifting from AAE to MAE seen when comparing oral (or spoken) narratives to written narratives, as well as within language-based math tasks (Craig, Zhang, Hensel, & Quinn, 2009; Fogel & Ehri, 2000; Ivy & Masterson, 2011; Terry, Hendrick, Evangelou, & Smith, 2010; Thompson, Craig, & Washington, 2004). For example, Thompson, Craig and Washington (2004) examined the frequency of contrastive AAE features by 50 AAE speaking third graders on three different tasks: picture description, oral reading of SAE text, and writing. They found that all of the students demonstrated a decrease in frequency of AAE features used and an increase in SAE features evident as they transitioned from the more implicit expectation of SAE use in the oral tasks to the increasing more explicit expectation of the reading and writing tasks, even though the tasks were presented in randomized order. In many instances the oral narrative prompts used in research studies have had at best an implicit expectation for use of MAE, whereas the written narrative prompts and tasks have had explicit expectations for MAE use. The results of Thompson’s study suggests that when there is an explicit expectation for SAE use, speakers of AAE are more likely to dialect shift to SAE.

Another such study by Craig et al. (2009) explored the concept of dialect shifting in transitioning from oral narrative tasks to written narrative tasks in first through fifth graders. They measured spoken AAE dialect frequency of use through DDMs by prompting students to describe three colored action pictures from the Bracken Concept Development Program (Bracken, 1986). Written language DDM frequency was measured in written language samples describing those same pictures.
Craig and her colleagues found that most students demonstrated a decrease in DDMs from oral to written narratives no matter what their reading achievement levels. However, when the students were divided into two reading level groups (below average reading level and average or above reading level), 19% of the students in the below average reading group and 8% of the students in the average to above average reading level group did not demonstrate dialect shifting.

Further examination of the oral to written language dialect-shifting phenomenon was conducted by Ivy and Masterson (2011). They reviewed previous research by Kroll (1981) on the natural progression of written language development for MAE speaking children. Included in Kroll’s research findings was that children tend to write the way they speak in kindergarten through second grade. In addition, Kroll found that children do not begin to demonstrate narrative writing styles that reflect the “school writing” expectations until they reach third to fourth grade.

In their own research, Ivy and Masterson examined the differences between spoken language AAE use and written language AAE use for third grade and eighth grade African American students who are speakers of AAE. They employed two measures of AAE use: (a) percentage occurrence of AAE features, and (b) DDMs. The percentage of features measure was based on the frequency of use of six targeted AAE grammatical features (i.e., absence of verbal –s, plural –s, possessive –s, regular past –ed, regular be copula and be auxiliary) in the students’ spoken and written narrative samples. This was calculated by dividing the total number of opportunities for the six features by the total number of occurrences to determine the overall percentage occurrence. The DDM was calculated by summing the number of times the six AAE grammatical features
were used and dividing that number by the number of words within the first 50 complete communication units (CCUs; independent clause and their modifiers) in each of the spoken and written samples. Some of the spoken samples and most of the written samples for both grade levels contained less than 50 CCUs, but in these cases all CCUs were used for the analyses.

In their results, Ivy and Masterson (2006) found a transformation in writing similar to typically developing MAE students’ writing. The differences between the writings of the third and eighth graders reflected a progression in dialect shifting from AAE to SAE when performing written narrative tasks. Neither the percentage of occurrence nor the DDM measures were statistically different in comparing spoken and written samples for the third graders. However, both measures of AAE use – percentage of occurrence and DDM – showed statistically significant difference between spoken and written samples for the eighth graders. The results indicated significantly lower AAE levels in written language than in spoken samples. In other words, the degree of dialect shifting between speaking and writing was not significant at the third grade level, but it was at the eighth grade level with large effect sizes for both measures. However, it is interesting that there was not a significant difference in spoken DDMs between the third and eighth grade students.

Based on their findings, Ivy and Masterson considered the increased dialect shifting from spoken to written language at the eighth grade level to be validation of previous research findings. Prior research results have led to the suggestion that dialect shifting occurs as a consequence of increased linguistic awareness skills or a meta-awareness of speaking and/or writing expectations in the school setting. This included
increased linguistic awareness of the pragmatic differences in expectations between written language (considered to be more formal) and spoken language (considered to be more informal) as children progress through the grades.

Terry and his colleagues (Terry, Hendrick, Evangelou, & Smith, 2010) examined the roles of not only linguistic awareness but also of cognitive load, in their participants’ performance on math tasks that were heavily influenced by language (i.e., word problems). Their study included typically developing second-grade children who were identified as AAE-speakers, but with varying density. The researchers found that the greater the frequency and diversity of AAE patterns (increased overall density of the dialect) observed in their participants, the more likely they were to demonstrate difficulty with tasks that included highly contrastive word forms not generally observed in their spoken language (particulary overtly marked third person singular /-s/). In addition, with additional testing information, their participants did not demonstrate any significant difficulties with working memory. Therefore, Terry and his colleagues concluded that the increased incidence of depressed scores on word problems that included overtly marked third person singular /-s/ was highly correlated with the strong nonmainstream speakers’ lack of familiarity with or use of the overt marker, and consequently the lack of awareness placed an additional cognitive burden on the children as they completed the language based math tasks.

The linguistic awareness/flexibility hypothesis is being considered here in the context of developing dialect shifting skills, or even bi-dialectism. However, the question of decreased linguistic awareness has also been raised relative to MAE speaking
students who demonstrate specific language impairments\(^4\). MAE-speaking students with SLI present with difficulties in developing age-level morpho-syntactic skills. It is possible that AAE speakers with SLI also present with linguistic awareness/flexibility deficits that may impede their development of dialect shifting skills as compared to their typically developing AAE speaking peers.

**What is Specific Language Impairment?**

Specific language impairment (SLI) has been identified as the presence of a language deficit in the absence of significant intellectual deficits, neurological damage, sensory disorders, emotional problems, or environmental deprivation. Children with SLI have been found to retain significant deficits in language acquisition after four years of age. They follow the typical sequence of acquisition of language overall, but their development of various morpho-syntactic and phonological skills within each stage of development may be unpredictable or inconsistent (Paul, 2001; *see also* Rice & Wexler, 1996; Rice, Wexler, & Cleave, 1995; Rice, Wexler, & Hershberger, 1998; Rice, Wexler, & Redmond, 1999). This classification is used to reflect that, for unknown reasons, children with SLI have not made the transition to the more mature patterns of morpheme use.

One theory about the nature of SLI has been presented by Rice, Wexler and Cleave (1995): the Extended Optional Infinitive (EOI) account. The EOI account is prefaced by the belief that typically developing young children, prior to age 5 years, go

\(^4\)The terms *specific language impairment* (SLI) and *language impairment* (LI) are used interchangeably throughout the current document. Although there are differences in the diversity and magnitude of the impairment when comparing these two terms, for the purpose of this study the expressive language deficits are consistent with each other.
through a period of language development in which tense and other morphological
marking is optional rather than obligatory (i.e., omission of morphological markers is
allowed). For example, the absence of auxiliary BE use and verb tense marking are
developmentally acceptable for young MAE speakers. However, children with SLI often
evidence omission of obligatory morphological markers, such as auxiliary BE, past tense
verb –ed, and third person singular verb -s, well past the MAE cut-off of 5 years of age.
In addition, they do not demonstrate awareness of these morphological differences in
comparison to their peers without explicit intervention/instruction.

Characteristics of SLI are not completely homogeneous and vary somewhat from
person to person. However, patterns that identify those with SLI include use of
incomplete or choppy sentence formulation; less complex sentence structures than their
age level peers; absence of, errors in, or inconsistent use of obligatory morphological
markers (e.g., auxiliary “be” forms, past tense –ed, third person verbal –s); pronoun
confusion (e.g., substitution of object pronouns for subject pronouns); article confusion
(e.g., using non-specific “a” for specific “the”); and overuse of demonstrative such as
“this” and “that” (Jones Moyle, Karasinski, Ellis Weismer, & Gorman, 2011; Paul, 2001;
Rice & Oetting, 1993).

Other challenges that children with SLI may present with include deficits in oral
narrative skills. These may include difficulties with topic maintenance; unclear
referencing to previously used words (lexical referencing) and/or to previously identified
characters (personal referencing); insufficient provision of information for their age level
(e.g., limited details); and poor or immature use of cohesive ties. These challenges are
evident in the spoken and written productions of children with SLI (Colozzo, Gillam,
Wood, Schnell, & Johnston, 2011; Dockrell, Lindsay, Connelly, & Mackie, 2007; Fey, Catts, Proctor-Williams, Tomblin, & Zhang, 2004; McCabe, Bliss, Barra, & Bennett, 2008; Nippold, Mansfield, Billow, & Tomblin, 2008).

Along with spoken and written narrative deficits, children with SLI often demonstrate lower than average expressive vocabulary skills (Colozzo, Gillam, Wood, Schnell, & Johnston, 2011; Jones Moyle, Karasinski, Ellis Weismer, & Gorman, 2011; Ouellette, 2006; Paul, 2001). This can be realized as an overabundant use of non-specific terms such as “thing” and “stuff”, redundant use of a limited repertoire of different word types (e.g., verbs, nouns, adjectives) and a tendency to use significantly less variety of words in their spoken and written language. The number of different words (NDW) used is another variable that has been examined in a number of research studies that examine language skills of children with SLI (Hewitt, Hammer, Yont, & Tomblin, 2005; Jacobson & Walden, 2013; Leonard, Miller, & Gerber, 1999; McGregor, Oleson, Bahnsen, & Duff, 2013; Owen & Leonard, 2002; Redmond, 2004; Watkins, Kelly, Harbers, & Hollis, 1995; Wetherell, Botting, & Conti-Ramsden, 2007; Williams, Larkin, & Blaggan, 2013). NDW is a relatively simple calculation that counts the number of novel words in a 50- or 100-utterance language sample. However, derivations of previously counted words are not considered to be novel and therefore not added to the count. NDW has been used in research as a measure to discriminate between typically developing and language impaired children at the preschool and beginning elementary levels. The effectiveness of NDW in research to discriminate between TD children and children with SLI has been inconsistent with respect to the contexts in which the utterances were collected.
For example, Owen and Leonard (2002) found that NDW was mediated by the effects of the participants’ mean lengths of utterance based on words (MLUw). The differences in NDW were significant for low versus high MLUw, but were not significant for language categories (normally developing and SLI). The researchers speculated that the lack of difference between language groups may have been because (1) the participants in the SLI group demonstrated only mild deficits and did not have the semantic deficits that may be evidenced by those with moderate SLI impairments, and (2) the utterances were collected from children producing self-directed spontaneous language where they could dictate the topic of conversation. According to Owen and Leonard, there may have been more of a discrepancy noted if the language samples had been collected based on topics chosen by others.

Contrary to the findings of Owen and Leonard (2002); Watkins, Kelly, Harbers and Hollis (1995) investigated the benefit of using NDW as an index for distinguishing lexical diversity between typically developing children and children with language impairment over the use of token-type ratios (TTR), which was more traditional at that time. TTR is a ratio that divides the number of different words in a 50- or 100-utterance language sample by the number of total words. Watkins and her colleagues found that while TTR did not distinguish between typically developing preschoolers, preschoolers with SLI and their MLU matched peers, using the measure of NDW successfully discriminated between their participants who were TD and those with SLI. There was a statistically significant difference between the NDW scores of the TD children and the children who were MLU-matched peers for the SLI group.
In an attempt to specify the use of NDW as a clinical marker, Leonard, Miller and Gerber (1999) investigated the number of different verbs and nouns used by typically developing preschoolers (ages 2 years, 2 months to 6 years, 11 months) as compared to those with SLI within 100-utterance spontaneous language samples elicited during play. These analyses were used as part of overall assessments of the preschoolers’ finite verb morphology and noun-related morphology composites, both as a function of lexical diversity (verb and noun diversity, respectively). In agreement with the results of Watkins and Kelly, Leonard and his colleagues found that means for the children with SLI reflected statistically significantly lower diversity for both verbs and nouns across the ages as compared to their typically developing peers.

In an assessment of slightly older children, Redmond (2004) measured NDW as a lexical diversity marker for SLI to discriminate between the lexical skills of five- to eight-year-old children who presented with attention deficit/hyperactivity disorder, SLI, or typical language and attention development. NDW analyses were based on 100-utterance samples collected during conversation between the children and adults while engaged in play. In Redmond’s results, there was a significant discrepancy between the three groups’ means with the SLI group mean being statistically lower than the other two (i.e., $F (2, 30) = 5.136, p = 1.012$; pair-wise comparisons reaching the 0.05 significance level: $SLI < ADHD = TD$). In addition, box plots for NDW showed little overlap between the SLI group and the ADHD and TD groups.

Williams, Larkin and Blaggan (2013) examined the written language distinction between 8- to 10.5-year old children with SLI and typically developing children, using the number of unique words as the measure of lexical diversity. Each of the participants
was given a writing prompt and allowed to write their responses within a 15-minute timeframe. As with previous spoken language results, Williams and his associates found a significant discrepancy in the NDW used by the TD and SLI groups in their written language, with the SLI group results being significantly lower. These results suggest that NDW can be a viable measure for discriminating between TD children and those with SLI in both spoken and written language samples that are not self-prompted.

**Misdiagnosis of SLI in AAE-Speaking Children**

Unfortunately, children who speak AAE in school are often misdiagnosed as having language delays or specific language impairment (SLI). At the same time, children who actually do have SLI but who are AA may be undiagnosed because well-intentioned school staff may make the assumption that their students’ language difficulties are a reflection of their nonmainstream dialect use rather than evidence of a disability. It can be especially difficult to differentiate between the skills of children who use AAE as a first dialect and children with SLI (Seymour, 2004). Although typical AAE-speakers produce patterns that are based on a complete, rule-governed system, many of the surface morpho-syntactic patterns evident in AAE are also seen in MAE-speaking children with specific language impairment (SLI; Bland-Stewart, 2005; Craig & Washington, 2006; Garrity & Oetting, 2010; Green, 2011; Horton-Ikard & Weismar, 2005; Oetting & McDonald, 2001; Seymour, Bland-Stewart, & Green, 1998; Stockman, 2010).

An example of this can be seen when reviewing the identified SLI patterns of optional auxiliary BE use and tense marking. Interestingly, these patterns are also
evident as typical structures for AAE-speaking children (e.g., acceptable present progressive AAE forms could include “the boy $\varnothing_{\text{aux}}$ walking” as well as “the boy’s walking” and acceptable past tense AAE forms could include “the boy walk-$\varnothing_{\text{ed}}$” or “the boy had walked” as well as “the boy walked”). However, based on the EOI account of SLI, beyond the age of five to six years, typically developing MAE-speaking children obligatorily mark tense on verbs rather than providing the “bare stems”, or uninflected verb forms, and rather than omitting auxiliary BE forms (e.g., “He want an apple,” “Mary going to the store”, respectively; Garrity, 2007, p. 5). Children who fail to use the obligatory inflected verb forms and auxiliary, as well as copula BE forms, by this age, regardless of their dialect, may be diagnosed with SLI.

**Challenge of Discerning between SLI and AAE**

Unlike typical MAE development, in AAE, it is not only acceptable, but it is common to retain the optionality of verb marking, auxiliary BE, and copula BE use. As a result, a MAE speaking child (beyond six years of age) with SLI and an AAE-speaking elementary-aged child may both present with absence of auxiliary BE and verb tense markers in their spoken language (e.g., “He$\varnothing$-s make$\varnothing$-ing a mess all over the floor”). The difference is that according to the rules of AAE, this is a grammatically acceptable production for the AAE-speaking child. Therefore, therapists who are not familiar with the rules of AAE may erroneously identify the AAE-speaking child as having SLI.

Discriminating between typically-developing and language-impaired AAE child speakers is complicated when relying solely on differences in morpho-syntactic patterns in that many differences are in frequency of pattern use rather than distinctly absent or
present patterns as would be seen in distinguishing these two performance groups when the language variety is MAE (e.g., Cleveland & Oetting, 2013; Garrity & Oetting, 2010; Jackson & Pearson, 2010; Oetting & McDonald, 2001; Seymour, Bland-Stewart, & Green, 1998). Bishop (1994) studied the speech of 8- to 12-year old children diagnosed with SLI. She found that “substitution of stems for inflected forms occurred with irregular as well as regular verbs,” and she added that “children who used a specific inflectional form correctly in some utterances omitted it in others, suggest[ing] a limitation of performance rather than competence” (p. 507 [abstract]). The typical variability of patterns used by AAE speakers may be confused with the abnormal variability observed in SLI and hence, a teacher or therapist may attribute the AAE-speaking child’s “inconsistencies” to limitations in performance.

However, there are rules and constraints governing when and where absence or variability in the use of these morphological patterns is acceptable in AAE grammar. Understanding the rules and constraints of morpheme use has the potential to help identify AAE speakers who may or may not also have SLI.

If contrastive features or patterns of AAE are to be used in identifying SLI, they may be most useful when observed in conjunction with a more comprehensive analysis or in post hoc analyses. Post hoc contrastive analyses and/or more comprehensive analyses could be used for verification of group differences between typical and impaired children rather than as predictive for a diagnosis of SLI in an individual. However, research does provide information on a small subset of specific patterns that can be used in verifying this group distinction. For example, Oetting and McDonald (2001) found that the following patterns discriminated between Southern African American English-speaking
six-year-olds based on group category of typically developing or specific language impaired children: (1) zero-marking of irregular past (e.g., “dress” for dressed, “finish” for finished in “It’s finish”), (2) non-inversion of Wh- questions (e.g., “Why this one won’t fit?” for Why won’t this one fit?), and (3) zero-marking of irregular third person present (i.e., “say” for says, “do” for does, “have” for has) (pp. 222 – 223), with SLI children demonstrating an increased rate of the first two patterns and a lower rate of the third pattern [i.e., less likely to use say, have, and do for says, has and does] relative to their typically developing peers.

However, in a more recent study, Cleveland and Oetting (2013) investigated the frequency of overt marking of verbal –s by six-year-old AAE and Southern White English (SWE) speakers by dialect (AAE vs. SWE) and clinical status (TD vs. SLI) as it functioned in four different linguistic variables (verb regularity [regular vs. irregular verbs], negation, expression of a habitual activity, and expression of historical present tense). Within this study, the researchers used previously obtained spoken language samples from 26 AAE-speaking children combined (SLI = 14, TD = 12) and analyzed the contexts and frequency rates of overt/zero marking of verbal –s. Although their overall results suggested that verbal –s cannot be used to distinguish children with and without SLI in AAE, there were other interesting findings and recommendations. One such finding was that the children in both the TD and SLI groups in this study evidenced “very low rates” (p. 612) of overt marking of verbal –s overall. It would be interesting to determine if this is true for older AAE-speaking children as well.

Second, the AAE SLI group frequencies reflected a higher rate of overt –s marking on the regular verbs than on the irregular verbs (i.e., have, do & say combined),
while the TD group’s rates of overt marking were comparable in frequency between regular and irregular verbs. Both of these observations were contradictory to those found in previous research conducted on adults (Fasold, 1972, as reported by Cleveland & Oetting, 2013, p. 605) that found higher rates of overt marking on irregular “have” than on regular verbs. However, after further analysis of the rate of overt marking for each of the irregular verb types (i.e., “have”, “do”, “say”), Cleveland and Oetting found that for both the AAE TD and AAE LI groups, the children’s rates of overt marking for “have” were higher than their rates of overt marking for “do” and “say”. In addition, all of the AAE children’s “rates of overt marking for ‘have’ were also higher than their rates of overt marking for regular verbs” (p. 610), consistent with the adult studies.

Third, although it was not reported as to whether or not it was statistically significant between the AAE TD and SLI groups, the children in the SLI group did not overtly mark “do” or “say” at all (SLI group percent of overtly marked verbal –s for “do” and “say”: $M = 0.00$ percent; $SD = 00$) while the TD group rates of marking for the same irregular verbs may have been minimal (“do”: $M = 13$, $SD = 31$; “say”: $M = 32$, $SD = 47$), but they were evident. This may suggest that total absence of overt marking in these contexts, at this age, is a possible red flag for language impairment in this study’s age range. This would be consistent with Jackson and Pearson’s (2009) finding suggesting that total absence of overt marking is a strong indicator of possible language impairment in children over the age of 8 years old (See discussion of Jackson & Pearson [2009] below).

Finally, with regard to the Cleveland and Oetting study, as stated in their Discussion, the rate of overt verbal –s marking may still be a useful assessment measure
in other communities of AAE child speakers where TD children overtly mark verbal –s with greater frequency (perhaps > 50%) than was evident in their current study (< 25%). In addition, rate of marking may be a helpful diagnostic measure for determining strengths and weakness related to the child’s speaking, reading and writing systems.

More recent studies have also shown promise in discriminating language impaired AAE speaking children from those that are non-impaired. One such investigation is based on examination of obligatory possessive -‘s marking in ellipsis (Conner, personal communication). Conner has found that children with SLI may zero-mark possessive –’s in ellipsis. For example:

That’s SharonØ’s car. (acceptable Ø’s; non-obligatory –’s in child AAE)

1. No, that’s Lisa’s. (obligatory –’s in child AAE)

2. *No, that’s LisaØ’s. (unacceptable Ø’s; evident in SLI child AAE)

The second response would be evidence of a disordered pattern that would not be produced by a typically developing AAE-speaking child.

Jackson and Pearson’s (2009) large sample study of age related changes in overt-marking (OM) versus zero-marking (ZM) of child AAE features indicated that variability (i.e., mixing of overt- and zero-marking) is seen at ages 4 through 12 years. Overall, they observed a steady increase in overt marking that was closer to General American English the longer children were in the educational setting. It was rare to find “absolute absence of overt marking” in AAE-speaking children especially after the age of 8 years. The investigators point to 100% zero marking as a possible red-flag indicating a “language problem” among AAE-speaking children 8 years of age and older (p. 144).
Interestingly though, research provides mounting evidence that even child AAE-speakers with SLI adhere to the linguistic constraints of the dialect. For example, Garrity and Oetting (2010) examined the three auxiliary BE forms (am, is, are) produced by 30 AAE-speaking children with and without specific language impairment (SLI). Their study included 10, six-year-old children with SLI; 10 typically developing, age-matched peers; and 10 language-matched peers. The participants’ overt and nonmainstream productions of the targeted present progressive BE forms (am, is, are) were analyzed in both spontaneous language samples and in elicited probes. Their results verified that, as a group, the children identified as having SLI overtly marked am, is and are in similar proportions to the typically developing control groups. In the elicited probes task, all three groups produced nonstandard BE productions for is (n = 34) and are (n = 55) more than for am (n = 17), which was consistent with linguistic constraints/patterns recognized in adult AAE speakers, even though the SLI group overtly marked the targeted BE forms at a lower rate than the control groups (SLI M = 45% vs. control M > 60%).

Children identified as having SLI are not only characterized by their deficits in understanding and production of morphological structures. It appears that they also demonstrate deficits in the linguistic awareness and flexibility needed to integrate these skills into their language use unless they are provided with explicit intervention or instruction. Given the hypothesis that linguistic awareness and flexibility may account for varied levels of dialect shifting with increasing exposure to school English (or MAE) in typically developing child speakers of AAE (Connor & Craig, 2006; Horton-Ikard & Pittman, 2010), it would be expected that “dialect/variety shifting” would be inhibited even more in AAE child speakers who also present with SLI.
Assessment Methods for Detecting SLI in AAE-Speaking Children

Various strategies have been used to identify the presence of SLI in children who speak AAE. Assessment methods range from being based solely on contrastive or non-contrastive patterns of phonology and morpho-syntax (e.g., Bland-Stewart, Elie, & Townsend, 2013; Garrity & Oetting, 2010; Oetting & McDonald, 2001; Seymour, Bland-Stewart, & Green, 1998; Velleman & Pearson, 2010) to a compilation of strategies that encompass alternative or multiple linguistic domains (Burns, de Villiers, Pearson, & Champion, 2012; Peña, et al., 2006; Stockman, Guillory, Seibert, & Boult, 2013; Seymour, Roeper, & de Villiers, 2003) and qualitative analyses of patterns in both elicited and spontaneous samples (Clark, 2006). In addition, some researchers have been looking not only at production measures, but also at ways of assessing comprehension (de Villiers & Johnson, 2007; Johnson, 2005; Johnson, de Villiers, & Seymour, 2005).

Because of the challenges in distinguishing AAE patterns from SLI-related patterns based on MAE, particularly when the focus has been primarily on morpho-syntax, there has been a trend toward exploring linguistic domains that can be determined to be dialectally/culturally “neutral,” when assessing the speech and language of AAE speakers who may have language impairment. The research conducted by Seymour, Bland-Stewart, and Green (1998) was instrumental in focusing on the areas of assessment that are considered to be non-dialect specific in American English; including the “non-contrastive” components of AAE phonology, morphology and syntax. In this work, Seymour and his colleagues were successful in identifying morpho-syntactic “error patterns” produced by AAE speaking children who had language impairments based on the structures of AAE that overlap with those of Standard American English (SAE). For
example, the article “a” is considered to be a “shared” feature between typical AAE and SAE speakers. Therefore, if an AAE speaker evidences the absence of the article “a” in their sentences (e.g., “John is __ boy”), it is more likely due to language impairment than dialect difference (pp. 96-97). Overall, the authors examined eleven non-contrastive features and determined that they were effective in distinguishing language impaired from non-language impaired students above the age of five years.

Although this information was instrumental for use in identifying language disabilities in AAE-speaking children, speech-language pathologists are often required to use standardized assessment tools to document language impairment in the children they assess, regardless of their first language or dialect. Until fairly recently, the range of available standardized measures that could be used to assess the unique needs of children whose first dialect is not MAE was very limited. One way of assisting SLPs to overcome their lack of sensitivity to the distinctive patterns of non-mainstream speakers in the vast majority of norm referenced tests was for test developers to qualify responses for AAE-speaking (and other non-mainstream dialect speaking) students. The information on acceptable AAE-related patterns was often placed in the test manuals, sometimes as appendices, which may or may not have been accessed by the testing SLPs. This approach could be confusing to therapists who were not familiar with nonmainstream dialects used by their students.

Fortunately, the assessment field was further enhanced with the development, and later standardization, of the Diagnostic Evaluation of Language Variation (DELV; Seymour, Roeper, & de Villiers, 2003). This diagnostic tool was devised to assist with distinguishing phonological and morphological differences from possible disorders. It
also assesses the non-dialect specific functioning of school age children in the age range of 4 years and 0 months to 9 years and 11 months with regard to their pragmatic (i.e., perspective taking in speech acts, discourse skills, “wh” question asking) and semantic (i.e., Verb Contrast, Preposition Contrast, Quantifiers, and Fast Mapping) skills.

As a result of the information obtained from this research, and other research like it, SLP’s now know that assessing African American English speaking children can effectively be done by focusing on the non-contrastive elements of speech and language. We must take care to not get caught up in the rightness and wrongness of how a child speaks in relation to SAE (as is often heard in the school setting) (Wheeler & Swords, 2006). In following up with this line of investigation, Seymour, Roeper and de Villiers (2003) developed a criterion referenced screening tool (Diagnostic Evaluation of Language Fundamentals-Screening Test, DELV-ST, 2003; and a standardized assessment tool (Diagnostic Evaluation of Language Variation – Norm Referenced, DELV-NR, 2005) with standardizations that represented all ethnic groups based on the 2000 U.S. Census, including AAE speakers. Interestingly, in the norm-referenced version, the authors included additional domains of language, not only morpho-syntax.

Along with standardized means, informal measures and dynamic assessments that target the evaluation of narrative language and its components have been proposed. The foci of these studies have ranged from to micro-analysis (e.g., sentence structures, use of cohesive ties) to macro-analyses (e.g., narrative components, narrative complexity) (Burns, de Villiers, Pearson, & Champion, 2012; Craig & Washington, 2000; McGregor, 2000; Oetting & McDonald, 2001; Washington & Craig, 2004). For example, previous research has shown that the syntactic features most likely to distinguish typical from
disordered AAE speaking children in their narrative language include: inappropriate, decreased or absent use of past tense “-ed” verb markers (which is actually a contrastive feature for AAE), prepositions, and pronouns and significantly increased use of demonstratives (i.e., that, this, these, those). In relation to speakers of SAE, typically developing child speakers of AAE produce spoken narratives that are developmentally comparable with regard to grammatical complexity and the complexity of sentence use (Craig & Washington, 2000; Oetting & McDonald, 2001; Washington & Craig, 2004; from Stockman, 2010).

**Oral and Written Narrative Samples to Assess SLI in AAE-Speakers**

Fey and his colleagues (Fey, Catts, Proctor-Williams, Tomblin, & Zhang, 2004) posited that in the area of language assessment, “any appraisal of a school age child with a history of LI [language impairment] should include assessment of narrative composition in both oral and written modalities” (p. 1316). In a recent study by Burns, de Villiers, Pearson and Champion (2012), the authors used the Short Narrative subtest from the Dialect Sensitive Language Test (DSLT; Seymour, Roeper, & de Villiers, 2000) to examine the linguistic and cultural neutrality and short-comings of language impaired (LI) children as measured by four narrative language elements in 4- to 9-year-olds: (a) reference contrasting, (b) temporal expressions, (c) mental state descriptions, and (d) understanding of behavior based on false belief. Their results determined that “for the features tested here, age and clinical status were significant effects but dialect was not” (p. 142) and that “in the context of this narrative elicitation, all four of the narrative indices proved to be dialect neutral across the age range” (p. 144). In addition, narrative
cohesion (i.e., reference contrasting and temporal expressions) was significant in discriminating between typically developing and language impaired groups for children from 4 to 5 years of age. The mental state descriptions and understanding of false beliefs tasks showed developmental trends in both the AAE and SAE speakers, as well as distinguishing between TD and LI children.

In using written language as part of the assessment process, it is important to assess not only word level skills, but writing in a more holistic manner, such as narrative composition. Horton-Ikard (2009) sought to describe the AAE token types (i.e., types of AAE features or patterns) used to tie sentences together and the overall rates of cohesive adequacy for four major types of cohesive devices: (a) personal reference, (b) demonstrative reference, (c) conjunctive markers and (d) lexical markers. She states that “cohesion ties together and organizes structures so that messages and meaning are communicated effectively” (p. 394). According to Horton-Ikard, prior research has found “a child’s lack of ability to use cohesive markers to communicate and share information effectively may be a sign of impaired language abilities” (p. 394).

In her study, Horton-Ikard included 33 AAE-speaking children, in groups of 7-, 9- and 11-year olds who were from middle to upper SES communities. These students had Dialect Density Measures of 15% or more (which she considered to represent moderate to high use of AAE). The results of her findings suggested that children who used AAE produced the same category types of cohesive markers that have been reported for children who use Standard American English. Based on Horton-Ikard’s findings, it is probable that AAE-speaking children with SLI will demonstrate similar difficulties in narrative cohesion as MAE-speaking children with SLI.
Horton-Ikard also reported evidence of a developmental progression with regard to the type and accuracy of use of cohesive markers, in that the majority of the 7-year-old group did not use demonstrative, adversative conjunctive, or lexical markers more than five times, whereas these markers were used more than five times by the majority of the 9-year-old and all of the 11-year-old groups. Finally there was a form of either developmental progression or dialect shifting observed in the use of AAE referential token types with a decrease in frequency of occurrence for two of the types measured (i.e., undifferentiated pronoun case [e.g., use of object pronoun for subject pronoun; “her went to the store”] and pronoun extension [e.g., object forms are extended to coordinate subjects; “my mom and them was making pie”]) from 7-year-olds to 9-year-olds and from 9-year-olds to 11-year-olds.

**Alternative Assessment Strategies**

**Analysis of Spoken Narrative Components in Dynamic Assessment**

McGregor (2000) studied the development of narrative skills in preschool aged AAE-speaking children and found developmental trends differentiating 3-year olds from 4- and 5-year old children related to six structural elements used in their narratives. For example, the 4- and 5-year-olds were more likely to use setting statements and exhibit complicating actions and codas (endings) in their stories than the three-year-olds. This type of information could be used in dynamic assessments of younger children who are speakers of AAE.
Analysis of DDMs

As with studies that measure dialect shifting and its relationship to school-related skills, many of the studies that look at the differences between typical and disordered nonmainstream patterns use DDMs to document differences in frequency of AAE pattern use (e.g., Coles White, 2004; Craig & Washington, 2004; Garrity & Oetting, 2010; Oetting, Cantrell & Horohov, 1999). However, as noted earlier, concern about using DDMs in this way comes from the fact that there are many features that overlap between SAE and AAE, because of variability in the AAE dialect system (Green, 2002).

Other Consideration in Assessment

One of the pitfalls in assessing AAE-speaking children is relying solely on morpho-syntactic production information, particularly when looking for marking of contrastive features such as plural and possessive –s, third person singular subject-verb agreement, use of copula and/or auxiliary “be”, as well as aspectual “be”. Not only are these features that may be absent in AAE dialect, they can also be variable both between and within speakers of AAE at all ages. Other morpho-syntactic and phonological measures that may lead to erroneous diagnosis of language impairment include standardized sentence imitation tasks and articulation/phonological tests that have not taken the patterns of non-mainstream English speakers into consideration in their standardization. Particularly with preschool and early elementary aged, AAE-speaking children, we are more likely to see AAE dialect influence in their responses to these types of measures (Charity, Scarborough, & Griffin, 2004; Craig & Washington, 2004; Craig & Washington, 2006; Green, 2011; Jackson & Pearson, 2010; Washington & Craig, 1994).
Other factors that may increase the difficulty of assessing the speech and language of AAE dialect users have to do with the variability in use of AAE patterns within the communities of AAE speakers, as well as the influence of socio-economic status (Washington & Craig, 1998). Children from low SES families may be at risk for delays in vocabulary development regardless of race or primary dialect use (Hart & Risley, 2003; Pearson, Conner, & Jackson, 2012; Terry N. et al., 2010). Therefore, best practice in assessing AAE-speakers should include evaluating language in a range of environments so as not to make errors in determining dialect dominance, which also may lead to misdiagnosis of speech-language disorder. In her unpublished dissertation, Maya Reynolds Clark (2006) advocates using a combination of strategies described as “contextual analyses.” In her work, Clark proposes that “a comprehensive investigation of AAE usage should involve an analysis of the grammaticality or rule-governed use of each AAE pattern in addition to measures of dialect density” (pp. 4-5). She adds that contextual analysis can be used for discovering both linguistic patterns of dialect and patterns of disorder in dialect. Although this type of assessment process can be time-consuming for school-based SLPs, who may have large, diverse caseloads and limited time, it could be included as part of a follow-up dynamic assessment conducted over time for AAE-speaking children who are already in therapy services.

As a culturally unbiased, norm-referenced assessment tool, the DELV can be instrumental in providing SLP’s with a time-saving standardized measure that can be used to screen for use of AAE and to assist in discriminating between TD and LI speakers of AAE. It can also be administered by non-AAE speaking SLPs. However, it is limited in its age range (i.e., 4 to 12 years of age for AAE determination and 4 to 9 years of age...
for language disorder determination) and may miss some of the deficits seen in spontaneous language production and/or the ability to adequately formulate oral/written narratives, which are a hallmark requirement in schools and in high-stakes testing. This, again, is where the use of dynamic assessment becomes useful as a way of investigating the ability of children to learn in an “assess – teach – re-assess” format. Dynamic assessment also affords us the ability to look at non-standardized environments for testing.

**Marking of Third Person Singular Verbal -s in AAE-Speaking Children**

Clark (2006) and other researchers report that shifts in AAE dialect use following MAE immersion in school are not seen in all speakers of AAE and most likely are not seen as much in AAE-speaking children with SLI. She adds that this lack of shifting by children with SLI is most likely because of the challenges inherent in morpho-syntactic awareness and learning of linguistic rules in children with SLI, no matter what the dialect use. One morpho-syntactic pattern that has the potential to assist in identifying inter-dialect shifting skills, and possibly linguistic flexibility skills, of typically developing and language impaired AAE-speakers is the overt or zero marking for third person singular verbal -s.

Various studies have demonstrated that overt marking of third person singular verbal -s is not necessarily inherent in the AAE dialect (Horton-Ikard & Pittman, 2010; Jackson & Pearson, 2010; de Villiers & Johnson, 2007; Johnson, 2005; Johnson, de Villiers, & Seymour, 2005). In a study designed to teach SE correlates for commonly used AAE patterns in the written language of African American English speaking third
and fourth graders, Fogel and Ehri (2000) identified six syntactic features (or patterns)\(^5\) in the writing of their targeted participants. Among these were two structures that Fogel and Ehri labeled (a) third-person present tense singular ‘s’ and (b) subject-verb agreement.

More recently, researchers who study AAE rules and patterns, have identified the first pattern (i.e., third person present-tense singular “s”; e.g., Jessica lives) as a marker of third person singular “verbal agreement” or “number concord marker” (Johnson, 2005; Johnson et al., 2005), or “verbal –s” (Green, 2002, 2011). Johnson (2005) posits that in MAE, the most common form of present tense marking is present progressive –ing rather than the verbal –s marker (e.g., “the boy is playing” vs. “the boy plays”). In MAE, the distinction in third person singular subjects is that they are obligatorily marked as bare stem verb + ‘-s’ (i.e., “he plays,” “she plays,” “it plays”) versus all other person/number subjects, which are marked by the bare stem verb only (i.e., “I play,” “you play,” “we play,” and “they play”). In addition, this verbal agreement pattern carries over to the irregular verbs “do” (i.e., “I/you/we/they do”, but “it/he/she does”) and “have” (i.e., “I/you/we/they have”, but “it/ she/he has”). An exception to this rule or pattern is the verb “be”, which, in MAE, has three different patterns for the various subject noun/pronoun person and number markings (i.e., I am, you/we/they are, he/she/it is).

In AAE, the verbal –s may be absent or present in third person singular subject environments. In addition, verbal –s is not necessarily restricted to third person singular (e.g., “When we go to the store…”, “they think we don’t know no better”). As noted

\(^5\) Targeted patterns included: (1) possessive “s”, (2) past tense “ed”, (3) third person present-tense singular “s”, (4) plural “s”, (5) indefinite article “an” before a vowel, and (6) third person singular and plural subject-verb agreement
by Green (2011), it may be that, in AAE, one of the rules for inclusion of verbal –s is variable use for habitual actions. Habitual actions, as marked by invariant BE (non-inflected) followed by the present progressive verb–ing/verb-in’, suggest an action that is recurrent or on-going (e.g., “I don’t know why they eats so much” or “I don’t know why they BE eatin’ so much”; “She talks on the phone all day, every day” or “She BE talkin’ on the phone all the time”).

In the study noted earlier that highlighted research done by Jackson and Pearson (2012), in addition to determining the percentages of “marking” categories (i.e., hi-overt marking, hi-zero marking and mixed marking) measured by age, they examined the rate of overt, zero or mixed marking for targeted contrastive structure by the children in their study. They discovered that after examining the AAE patterns used by all of the age groups in their study (i.e., ages four, five, six, seven to eight, nine to ten, and 11 – 12 years of age) the 9- to 12-year old children demonstrated the highest incidence of consistent overt (GAE) marking for any given contrastive pattern. Eighty-four percent of the 9- to 12-year olds in their study overtly marked the auxiliary “are” and demonstrated the GAE-consistent pattern for representing negation (i.e., use of single negation terms only). Therefore, even at age 12, there are typically developing AAE speakers who variably mark the contrastive structures discussed in this article. However, with the 9- to 12- year olds, even though none of the features examined were zero marked 100% of the time, 3rd –s was the most frequently zero marked pattern overall. More than 80% of the children zero marked this form at least some of the time.

Johnson and her colleagues (de Villiers & Johnson, 2007; Johnson, 2005; Johnson, de Villiers, & Seymour, 2005) conducted a series of studies to examine
comprehension of “third person –s” by 4- to 6-year old MAE- and AAE-speaking children. Previous research findings determined that MAE-speaking children as young as 36 – 48 months of age accurately use third person -s, but even with adult AAE-speakers, this form is rarely used. The line of investigation documented by these three studies was pursued because many language assessment batteries include comprehension/use of third person -s as one of the markers to distinguish typical from impaired language functioning in children.

The studies focused on three different aspects of third person -s within the two dialect groups. In all of their studies, the children were asked to distinguish between two pictures per item. The first study (Johnson et. al., 2005) investigated comprehension of -s as a clue to subject number agreement in 3-6 year-old, MAE-only speakers. Their results indicated sensitivity of -s use for determining subject number for the older, 5-6 year olds. In the second study, Johnson (2005) employed the same methodology as in the first study, but for 4-6 year-old, AAE-speaking children. The results of this study showed evidence that AAE-speaking children do not demonstrate sensitivity in their comprehension of -s use to indicate subject number within that age range. The final study (de Villiers & Johnson, 2007) was a two-part investigation using two different samples of children, one group of 4-6 year-old MAE-speakers and one group of 4-6 year-old AAE-speakers performing the same tasks. The first part of the study was designed to examine the children’s comprehension of third person -s as a generic marker vs. the absence of -s as an indication of a singular past event marked by non-inflected verbs (e.g., “who just cut the bread?” vs. “who just cut the bread?”). The results for this part of the study indicated that neither the MAE-speaking nor the AAE-speaking participants
demonstrated consistent accuracy or sensitivity to these differences at any of the sample ages. The second part of the study was designed to examine MAE- and AAE-speaking children’s comprehension of -s used to mark a third person singular verb versus the absence of -s which would indicate a noun-noun compound by MAE standards (e.g., “the baby shampoo’s” vs. “the baby shampoo,” respectively). To avoid confusion with AAE patterns, there were no plural options available for the noun-noun compound targets.

Based on the results of the three studies, De Villiers and Johnson (2007) concluded that, not only are 4- to 6-year old AAE-speaking children similar to adult AAE speakers in that third person -s is rarely used, AAE-speaking children in the 4- to 6-year old age range do not appear to use the morphological marker -s as a linguistic cue. This was evident whether it was to distinguish singular from plural subjects (e.g., “the cats sleep on the bed” vs. “the cat sleeps on the bed” where the verb begins with the “s” to mask whether singular or plural nouns [“the cats sleeps on the bed” vs. “the catsleeps on the bed”]), to distinguish generic aspect from past tense on unmarked verbs (e.g., “who just cuts the bread?” vs. “who just cut the bread?”), or to distinguish compound nouns from third person verbs (e.g., “the baby shampoo” vs. “the baby shampoo’s,” respectively). Therefore, the authors strongly advised against using third person -s on language assessment batteries for AAE-speaking children.

However, their results were based on preschool to early elementary-aged children and included only spoken language information, not written language. Also, unlike the rule for MAE, in which verbal -s is used as a third person singular marker only (i.e., all other subjects are zero -s marked in non-past contexts), in AAE, verbal -s may be used in
other subject contexts, such as first person singular or plural contexts or in third person plural context, and still be considered to be grammatical (Green, 2002, 2011).

Production of third person singular, non-past -s (or verbal -s) is clearly an obligatory MAE pattern, but it is not evident as an obligatory rule for AAE-speakers, whether they are young children, adolescents or adults. It is the proposal of this study that when this pattern is present in AAE-speakers with any regularity, it is most likely the result of inter-dialect shifting (i.e., shifting from using one dialect pattern to using a distinctly different dialect pattern) rather than intra-dialect shifting (i.e., shifting from one variant to another within the same dialect). Some might consider this to be “true” dialect shifting from an AAE pattern to an MAE pattern. However, not only do AAE-speakers use zero -s marking with third person singular subjects, production of the invariant “be” followed by a present progressive verb-ing pattern is used to mark habitual state or action instead of using the third person singular for this function (e.g., “she be asking her mom for money to go to the mall,” glossed in MAE as, “she always asks her mom for money to go to the mall” or “she is always asking her mom for money to go to the mall”).

However, it is unlikely that habitual BE is more prevalent in the written language of typically developing, middle to late elementary, school-aged AAE-speaking children than it is in their spoken language. This is because of the explicit nature of the requirements for SAE use in writing, or at least AAE patterns that overlap with SAE, as children progress through the grades in school. Contradictory to this expectation, habitual BE is clearly a contrastive pattern (i.e., never evident in MAE, but frequently evident and accepted in AAE) that is not “acceptable” in the written product of school students; even though it is an acceptable and efficient pattern in the AAE variety of
speaking to mark recurrent or ongoing action (or states). For example, an AAE-speaking child or adult can exclaim, “She be talkin’ on the phone,” and the remainder of that phrase, “all the time,” can be implied without saying it.

Horton-Ikard and Pittman (2010) studied the written and spoken language samples of 22 AAE-speaking 10th-grade students who were amongst a group of students labeled as “struggling writers” based on their below grade level performance on the writing subtest of the Florida Comprehensive Assessment Test (FCAT). The adolescents in this study were all classified as typically developing, with no history of speech-language or other developmental concerns, and attended a high school where the majority of the students were African American, and the majority of the students received free or reduced lunch. To assess their spoken and written language skills, the students were given either an expository prompt or a persuasive prompt in order to elicit language samples in both modalities.

Although the researchers were assessing error patterns that were a combination of writing conventions and content based, they also identified patterns that were dialectally different from what they term standard written English (SWrE). They found that “more than 50% of the students continue to employ the variable use of subject-verb agreement,” described as “disagreement in number for the subject and verb of a sentence” (p. 196). Therefore the use of third person singular -s for verbs in the written (i.e., explicit MAE-expected) domain may be evidence of the linguistic awareness of its need in MAE and demonstration of a true shift from AAE to MAE.

We have some information on pattern differences for non-mainstream (i.e., AAE, SoWE/SWE) speakers identified as SLI at young ages and evidence of the patterns of
interest at older ages for AAE-TD “struggling writers” in their writing (i.e., Horton-Ikard & Pittman, 2010). Therefore the question remains about what these patterns look like in terms of “variety shifting” for fourth grade AAE-speaking children (e.g., differences between spoken and written use of third person singular subject-verb agreement, and between two types of written elicited tasks) when we compare TD to SLI students. Specifically, we can look at evidence of less shifting to the MAE pattern for SLI students than for TD students as the tasks become more explicit in expectations for MAE. Is there a different pattern of shifting to something other than MAE patterns (possibly indicating lack of comprehension of the MAE, and maybe the AAE, rules of S-V agreement)? If there is less shifting, this could be a validation of the theory of diminished linguistic awareness and/or flexibility in SLI for AAE speakers as well.

**Overview of Current Study**

The current study focuses on examining inter-dialect shifting between the AAE-acceptable (zero-marking) and the MAE-acceptable (overt-marking) structures for third person singular verbs (i.e., 3rd singular -s) when comparing the frequency of use for the different structures in spoken and written language for both typically developing and language impaired fourth-grade students. The 3rd singular verbal -s were elicited through probes on three experimental tasks. The first two tasks were adopted from an open response task on the English Language Arts (ELA) portion obtained from the Massachusetts Comprehensive Assessment System (MCAS; the Massachusetts statewide academic proficiency test, 2008) that used the narrative text, *The Hello, Goodbye Window* (Juster & Raschka, 2005). For the current study, this same prompt was used to
elicit both a set of spoken and written responses pertaining to the actions or events that occur every time the characters gather together at the house with The Hello, Goodbye Window. The third experimental task included a set of printed, fill-in-the-blank cloze sentences with corresponding pictures that required the participant to write in an appropriate 3rd singular verb to complete each sentence.

In addition to probing the frequency of overt- or zero-marked 3rd verbal -s use between clinical language groups, the current study explored any possible correlations among the participants’ frequency of overt verbal -s marking in the written tasks and the scaled scores received by the participants’ on their third-grade, ELA component of the MCAS.

The purpose of this study was to determine if there were distinguishing factors between typically developing and language impaired AAE-speaking fourth graders with regard to the patterns they used to express habitual present third person singular verbs (overt- or zero-marking of third person verbal –s) in three modalities: a) a spoken narrative and/or historical open response; b) the same in writing; and c) an elicited cloze sentence task with a fill-in-the-blank format. This study addressed the following research questions.

Research Questions

1. Does the experimental protocol designed to focus on habitual aspects of third person verbal -s use effectively identify inter-dialect shifting for TD and LI fourth graders who are variable speakers of AAE?

   • Null hypothesis: Administration of the experimental protocol is not effective in detecting shifting between overt- and zero-marking of third
person verbal -s in either the TD or LI fourth grade groups that include
speakers of AAE.

- Alternate hypothesis: Administration of the experimental protocol is
effective in detecting shifting between overt- and zero-marking of third
person verbal -s in either the TD or LI fourth grade groups that include
speakers of AAE.

2. Do the fourth grade AAE-speakers in the LI and TD groups demonstrate
comparable rates of shifting between overt-marking and zero-marking of verbal -s
when comparing their responses to the spoken vs. the written vs. the cloze
sentence tasks?

- Null hypothesis: There are no discrepancies in the frequency rates of
  overt- and zero-marking of verbal -s seen between the speakers in the LI
group and those in the TD group when comparing their responses to the
spoken vs. the written vs. the cloze sentence tasks.

- Alternate hypothesis: There are discrepancies in the frequency rates of
  overt- and zero-marking of verbal -s seen between the speakers in the LI
group and those in the TD group when comparing their responses to the
spoken vs. the written vs. the cloze sentence tasks.

3. Does the category of AAE use (as measured by variation from MAE) assigned to
each participant correlate with the frequency of shifting demonstrated by the
participants within the TD and LI groups?

- Null hypothesis: There is no correlation between category of variation
  from MAE dialect use (i.e., strong and some vs. minimal and MAE) and
frequency of shifting between overt- and zero-marking of verbal -s for the participants in the TD and LI groups.

- Alternate hypothesis: There is a correlation between category of variation from MAE dialect use and frequency of shifting between overt- and zero-marking of verbal -s for the participants in the TD and LI groups.

4. Does the frequency rate of overt verbal -s marking correlate with the ELA scaled scores received by each study participant on the ELA portion of their third-grade Massachusetts Comprehensive Assessment System (MCAS) exam?

- Null hypothesis: There is no correlation between the participants’ frequency rate of overt verbal –s marking and their third grade ELA MCAS scores.

- Alternate hypothesis: There is a correlation between the participants’ frequency rate of overt verbal –s marking and their third grade ELA MCAS scores.
CHAPTER 3

METHODS

The purpose of this study was to investigate whether there are significant contrasts between typically developing (TD) and language impaired (LI) African American children who are at least minimal users of AAE dialect with regard to their frequency and degree of inter-dialect shifting between AAE- and MAE-consistent third person singular verb patterns when the expectancy for MAE productions changes from being more implicit (as with spoken language) to being increasingly more explicit, as would be anticipated with the written language tasks. In the sections that follow, the methodology will be described with respect to the research design, independent and dependent variables, participants, experimental test protocols, procedures, and other assessment measures used.

Research Design

This comparative study included two independent samples of fourth grade students who are bi-dialectal or variable speakers of AAE to investigate whether both groups of participants demonstrate comparable frequency rates of dialect shifting between AAE- and MAE-specific patterns in their responses to three experimental language output tasks.

Independent Variables

The independent variables included: 1) the scaled scores on the English Language Arts (ELA) component of the state level Massachusetts Comprehensive Assessment System (MCAS ELA test) for 12 of the 13 study participants; 2) the scaled score obtained from the Partnership for Assessment of College and Careers test (PARCC; a nationwide
assessment also known Common Core) for the remaining participant; 3) the dialect variation categories and risk for language impairment levels from the Diagnostic Evaluation of Language Variation-Screening Test (DELV-ST); 4) the standard scores obtained from the Peabody Picture Vocabulary Test-4th Edition (PPVT-4); and 5) clinical language group membership.

**Dependent Variables**

The dependent variables include the frequency rates, as a percentage of productions per opportunity, for overt verbal –s marking obtained from both groups of participants language productions during three experimental language output tasks comprised of: 1) a descriptive task designed to elicit a spoken language sample (Spoken Responses task); 2) the same descriptive task designed to elicit a written sample (Written Responses task); and, 3) the explicit context of completing a 12-item, printed cloze sentence completion task (Cloze Sentence task). Refer to Appendix A for a table of Independent and Dependent Variables and the forms of measurement obtained for each variable.

**Statistical Analyses**

Because the two groups of participants were relatively small in number and of unequal sizes, nonparametric statistics were conducted to assess statically significant differences between and within groups. Statistical significance was determined using an alpha level of 0.05 (two-tailed) and any calculated effect size of 0.50 or greater was determined to be significant. The dialect shifting analyses compared mean ranks for the two independent groups’ performance on each of the three experimental tasks using three separate Mann-Whitney U tests. The Wilcoxon Signed Rank statistic was calculated to
determine median rank differences within groups by repeated measures for task pairs. In addition, multiple correlation analyses were calculated to examine possible relationships among variables. Correlational analyses were completed using Spearman’s Rho Test of Correlations.

This study also included collection of each participants’ high-stakes, test score as part of the investigation into the possible influence of inter-dialect shifting skill on those scores relative to the state averages for White and AA students who have taken the same tests. Table 3.1 outlines the differences in performance on both tests between African American and White students in third grade.

Table 3.1: Third Grade ELA PARCC & MCAS Statistics for the State of MA

<table>
<thead>
<tr>
<th></th>
<th>2015 PARCC and MCAS Results by Race/Ethnicity: English Language Arts (Two Highest Categories of Performance at State Level)*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>PARCC Exceeds &amp; Meets Expectation (%)</td>
</tr>
<tr>
<td>African American</td>
<td>33%</td>
</tr>
<tr>
<td>Students</td>
<td></td>
</tr>
<tr>
<td>White Students</td>
<td>61%</td>
</tr>
</tbody>
</table>

Source: Lee & McKenzie, 2015: PowerPoint Presentation; 2015 State PARCC Results: A Webinar for School and District Leaders, p. 25; * Statistically representative samples were used to report state trends in grades 3-8 for ELA and Mathematics

Participants

This study included two groups of participants with a combined total of 13 African American students who were selected for study as they met the inclusion criteria. Among the 13 participants, three had just completed third grade, and 10 were in fourth grade or had just completed fourth grade. All of the participants were determined to be bidialectal speakers of African American English (AAE) and Mainstream American
English (MAE). The two groups of participants included one group of six (6) participants who had been identified as having language impairment by their school districts, plus one participant who was identified by the parent as having language difficulty. The second group consisted of seven (7) participants who were identified as typically developing. The mean age for the participants was 10 years and one month with a range of nine years, three months to 10 years, 10 months. Specific details of each group’s composition is provided in the Participant Selection, Group Assignments and Demographics section that follows.

The participants were recruited anonymously through four elementary schools and three community service programs whose populations included predominantly African American children, all within a mid-sized urban city in Western Massachusetts.

Based on the most recent available census (July, 2015) report, the urban city from which the participants were recruited had an estimated population of 154,341 residents with a median household income of $34,731 for the years 2010-2014. The number of people living at the poverty level for 2014 was estimated at 30.1%. According to the April 2010 city census (www.census.gov, retrieved July 11, 2016), 38.8% of the population was identified as Latino or Hispanic, 36.7% White only (not Hispanic or Latino), and 22.3% identified as African American (not Hispanic or Latino). According to the Massachusetts Department of Elementary and Secondary Education (DESE, 2016), for the 2015-2016 academic year, African Americans accounted for 19.4% of students enrolled in the city’s public school district, 64.5% were Hispanic, 12.3% were White, 2.5% were Asian, and 1.2% were Multi-Race, Non-Hispanic. In addition, DESE’s reporting for the 2014-2015 school year identified that 87% of the school district’s
students were considered to be from low income households, 19.5% were students with disabilities, and 17.2% were considered to be English Language Learners (ELL).

All participants entered into the study through a rolling recruitment procedure over the course of one year (July 2014-July 2015); however, each participant completed their study participation within two months following the initial intake for participation in the study. This recruitment procedure resulted in participants who were from a range of grades and ages.

**Recruitment and Informed Consent**

This study was approved by the University of Massachusetts-Amherst’s Internal Review board (IRB) in the Office of Grant and Contracts (OGCA) and the Office for the Protection of Human Subjects. The principal research investigator (PI) successfully completed the Collaborative Institutional Training Initiative (CITI) prior to the start of the study. Participants were recruited via printed solicitations sent home anonymously to the parents/guardians of all rising and current fourth-grade level student within the participating elementary schools and the community service programs regardless of race, ethnicity, primary and secondary language, and disability. The flyer explicitly stated that African American children were invited to participate in a “Spoken and Written Language Study”; however, the letter was sent home with all students in the targeted grade (see Appendix B for recruitment flyer). Parents/guardians of the children who called the PI or returned contact information by mail expressing their interest in having their child participate in the study were given additional details about the study and met in person with the PI at a non-obligatory intake session, which was subsequently scheduled at a future date and time. During the intake session held in the
parent’s/guardian’s home or at a location of their choosing, the parent/guardian and child were provided a description of the study and the written informed consent. No other information was solicited from the parents/guardians until they agreed to participate in the study and signed the informed consent form. The informed consent form outlined the testing procedures and trial tasks to be completed, the timelines anticipated for participation in the study, and the voluntary nature of participation. In addition, the principal investigator reviewed the informed assent with the child, which the child signed indicating agreement to participate. To encourage consistent participation in the study for all sessions, each participant received a small stipend or tangible gift, such as a five dollar ($5.00) gift card for one of two fast food chains, at the completion of the intake; a grade level book that featured African American children as the main character(s) at the completion of the first child data collection session; and a twenty dollar ($20.00) gift card to their choice of a local book store or toy store at the completion of their second/final data collection session. All families who agreed to participate were given the options of having the testing completed in their home or another site of their choice. Three of the participants had their intakes and testing sessions conducted at libraries near their home community while the remaining ten participants had intakes and testing sessions completed in their homes.

**Participant Selection, Group Assignments and Demographics**

As part of the selection and consent process for this study, the parent/guardian of each participating child completed a questionnaire to: verify that each child was parent/guardian-identified as African American; determine the educational and employment status of the families; and obtain information about any previous concerns or
diagnoses for each child. Exclusion criteria for the participants in the typically developing (TD) group included no significant histories or evidence of the following: a) speech and/or language deficits; b) sensory (i.e., hearing, vision) impairments; c) physical/motor disabilities; d) social-emotional impairments; or e) cognitive impairments/learning difficulties. In addition, the parents/guardians and teachers (by way of parent/guardian reports) of the TD group participants reported no concerns about spoken language skills/competencies. Participants in the LI group were identified as language impaired by parent/guardian report and were currently receiving intervention services for their disability. However, the participants did not have a history of a significant physical/motor, sensory (i.e., hearing, vision), or social-emotional impairment.

Of the 13 participants, six were TD students who had no reported history of language impairment; had no history of receiving speech-language therapy services; and no parent/guardian reported concern about their child’s speech or language development. An additional student was also reported as TD with the exception of a history of speech therapy for lisping of sibilant sounds. Moreover, the student had no evidence or history of current or past language impairment based on school and parent reports. Therefore, this participant was included in the group with the first six participants who comprised the TD group. A total of seven (7) TD students \( n = 7; M \text{ age} = 10 \text{ years, 2 months}; \text{age range} = 9 \text{ years, 8 months to 10 years, 10 months} \) served as the language control group.

Five of the six remaining students in this study were diagnosed with language impairment prior to entering the study and were receiving speech-language therapy services in their schools during the timeframe of this investigation. In addition, although the last remaining student had no prior diagnosis of LI or speech-language therapy
services, the child’s mother expressed concerns about his/her spoken language skills.

Therefore, the student was added to the other five to create the language impaired (LI) group, for a total of six students \( n = 6; \) mean age = 10 years, 0 months; age range = 9 years, 3 months to 10 years, 10 months).

Socioeconomic (SES) levels for each participant were estimated using the Hollingshead Rating Scale (Hollingshead, 1975). The Hollingshead scale uses information reported about occupation and education of each child’s parent(s) to determine the SES level of the family. In addition, information regarding the mother’s level of education (i.e., highest grade attained) is included since published studies have suggested maternal level of education may correlate with frequency of nonmainstream dialect use (e.g., Van Hofwegen & Wolfram, 2010). Each participant’s demographic information (i.e., age, grade, maternal level of education, family SES, DELV-ST results) is presented in Table 3.2.

The majority of the participants in this study were from families in the low, low-middle and middle SES levels based on the demographics of the population for this school district. Even though the majority of students in the district were identified as Hispanic (at nearly 61%), African American students make up 19.4% and White students comprise only 13.5% of the total student body. Therefore, just over 80% of the students in the district are non-White and most use a variation of American English that would be considered non-mainstream as their first/home dialect.
Table 3.2: Demographic Information

<table>
<thead>
<tr>
<th>Participant Code</th>
<th>Age yrs; mos</th>
<th>Grade</th>
<th>Mother’s Highest Level of Education/ Degree</th>
<th>Family SES</th>
<th>DELV-ST Dialect Category</th>
<th>DELV-ST Diagnostic Risk Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>TD (N=7)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B2</td>
<td>10;10</td>
<td>R5</td>
<td>Bachelor’s</td>
<td>Middle</td>
<td>MAE</td>
<td>Lowest</td>
</tr>
<tr>
<td>B4</td>
<td>10;1</td>
<td>4</td>
<td>Some College</td>
<td>Low-Mid</td>
<td>MAE</td>
<td>Low-Med</td>
</tr>
<tr>
<td>B7</td>
<td>10;1</td>
<td>R5</td>
<td>Some College</td>
<td>Low-Mid</td>
<td>MAE</td>
<td>Lowest</td>
</tr>
<tr>
<td>B8</td>
<td>10;1</td>
<td>R5</td>
<td>Bachelor’s</td>
<td>Middle</td>
<td>MAE</td>
<td>Lowest</td>
</tr>
<tr>
<td>G2</td>
<td>9;8</td>
<td>R4</td>
<td>Bachelor’s</td>
<td>Middle</td>
<td>MAE</td>
<td>Lowest</td>
</tr>
<tr>
<td>G3</td>
<td>10;5</td>
<td>R5</td>
<td>Doctorate</td>
<td>Upper-Mid</td>
<td>MAE</td>
<td>Lowest</td>
</tr>
<tr>
<td>G6</td>
<td>9;10</td>
<td>R4</td>
<td>Some College</td>
<td>Middle</td>
<td>Strong</td>
<td>Lowest</td>
</tr>
<tr>
<td>M (SD)</td>
<td>10;2(0;5)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LI (N=6)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B1</td>
<td>10;5</td>
<td>R5</td>
<td>HS</td>
<td>Low-Mid</td>
<td>Some</td>
<td>Highest</td>
</tr>
<tr>
<td>B3</td>
<td>9;5</td>
<td>4</td>
<td>HS</td>
<td>Low-Mid</td>
<td>MAE</td>
<td>Low-Med</td>
</tr>
<tr>
<td>B5</td>
<td>10;2</td>
<td>4</td>
<td>Some College</td>
<td>Middle</td>
<td>Strong</td>
<td>Highest</td>
</tr>
<tr>
<td>B6</td>
<td>9;3</td>
<td>R4</td>
<td>Doctorate</td>
<td>Upper-Mid</td>
<td>Some</td>
<td>Low-Med</td>
</tr>
<tr>
<td>G4</td>
<td>10;10</td>
<td>R5</td>
<td>HS</td>
<td>Low</td>
<td>MAE</td>
<td>Med-High</td>
</tr>
<tr>
<td>G5</td>
<td>9;11</td>
<td>R5</td>
<td>Associate’s</td>
<td>Low-Mid</td>
<td>MAE</td>
<td>Low-Med</td>
</tr>
<tr>
<td>M (SD)</td>
<td>10;0(0;7)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

B = boy; G = girl; TD = Typically Developing group; LI = Language Impaired group; R4 = Rising Fourth grader; R5 = Rising Fifth grader; SES = Socioeconomic status; HS = High School; DELV-ST = Diagnostic Evaluation of Language Variation-Screening Test

Assessment Measures

A combination of standardized, criterion-referenced, and experimental design testing procedures were conducted as part of this study to assist with determining density of AAE use and as supplemental measures for describing levels of functioning for Clinical Group (TD or LI) participants, as well as for testing the participants’ use of third person verbal −s in a combination of spoken and written modalities. In the section that follows, each assessment instrument is described with respect to its purpose, the composition of the test, and its psychometric properties.
Diagnostic Evaluation of Language Variation-Screening Test

In order of presentation, the first assessment tool administered to all participants was the Diagnostic Evaluation of Language Variation-Screening Test (DELV-ST; Seymour, Roeper, & J. de Villiers, 2003), which is a criterion referenced screening instrument comprised of two parts. According to the authors, the DELV-ST is based on previous morpho-syntactic, wh-movement, and non-word repetition research as child performance in each of these language domains relates to specific language impairment. The DELV-ST was standardized on a sample of 1258 children with oversampling of African American children from lower socioeconomic levels to “ensure the most representative sample of AAE speakers” (Seymour, Roeper, & de Villiers, 2003). Seymour and his colleagues also explained that the sources of validity evidence for the DELV-ST included evidence based on content, response processes, relationship of one to another variable (i.e., DELV-Criterion Referenced edition), and on clinical studies.

Part One, the Language Variation Status segment, of the DELV-ST has been validated as an effective tool for distinguishing children who speak MAE from those who use a nonmainstream variation (particularly AAE). The degrees of language variation are categorical and based on raw scores for 5 phonological and 10 morpho-syntactic items. The categories are described as “strong variation from MAE”, “some variation from MAE” or “Mainstream American English”, and the cut scores for each of the three dialect categories varied by age. For this portion of the screener, the entire test’s standardization sample of children was between the ages of 4 through 12 years, and was divided by variety of American English spoken (i.e., AAE-speaking, MAE-speaking). All of the AAE-speakers were represented by African-American children and the MAE-
speakers were represented by predominately Caucasian children (348 children; 75% of the MAE-speaking sample), with smaller samples of children of Hispanic (82 children) and Other (11 children) races/ethnicities (Bland-Stewart, 2005; Bland-Stewart, Elie, & Townsend, 2013; Bland-Stewart & Pearson, 2006; Moland, 2011; Seymour, Roeper, & de Villiers, 2003).

The inter-examiner reliability testing was completed for a sample of the African American, AAE-speakers. A correlation coefficient was not report for this portion of the screener. However, seventy-two percent of the children were classified identically by both examiners on this sample.

Content validity is evident for this portion of the screener in that it uses some of the same contrastive morpho-syntactic and phonological patterns (i.e., specific to AAE-speakers) identified in prior AAE research as well as in clinical studies. In addition, the total non-MAE score means for the AAE-speaking group are higher than the total non-MAE score means for the MAE-speaking group at every age. Also, it should be noted that the total number of non-MAE responses tended to decrease for both groups as the children’s age ranges increased (i.e., the older the group, the lower the total number of non-MAE responses for both groups). The means for non-MAE responses produced by the AAE-speakers ranged from highs of 9.62 for the four-year-old group level and 10.08 for the five-year-old group level to lows of 5.85, 6.49, 5.17 and 5.66 for the 9-, 10-, 11- and 12-year-old groups, respectively. The non-MAE responses produced by the MAE-identified speakers ranged from a high of 4.48 for the four-year-old group level to 0.95 for the 11-year old group and 0.88 for the 12-year-old group level. There was no overlap between the means for the oldest AAE-speaking group and for the youngest MAE-
speaking group. This information is significant to the dialect classifications assigned for the current study.

Part Two of the DELV-ST, the Diagnostic Risk Status (DRS) portion, is designed to probe for risk of language impairment by assessing non-contrastive language structures and skills (Bland-Stewart & Pearson, 2006). The first set of items in Part Two assesses production of certain morpho-syntactic structures (i.e., copula and auxiliary verb was, possessive pronouns [hers, theirs]) and understanding of complex wh–questions. The last set of test items assesses the child’s short term phonological memory through their ability to remember and imitate unfamiliar nonsense words. Part Two and other portions of the DELV-ST were used as guides in assessing speech-language production skills. The child’s raw score is used to determine if their language skills fall into one of four categories: a) lowest risk for disorder; b) low to medium risk for disorder; c) medium to high risk for disorder; or d) highest risk for disorder, and is based on whole-year age. For the current study, scores in the low to medium to high risk or highest risk category were expected for students who had already been identified as language impaired. This was also the distinction used for the standardization testing for this portion of the screening test.

Part Two was normed on the same sample population as Part One, but only for the children between the ages of 4 years 0 months through 9 years 11 months, resulting in a total sample size of 1014 children. The sample was then divided by diagnostic status of the child (i.e., non-clinical, typically developing; clinical, diagnosed with and receiving services for language disorder or delay) for each whole year age group. The same children who participated in the inter-examiner reliability testing for Part One were used
to test for inter-examiner reliability of diagnostic classification for Part Two. The inter-examiner reliability correlation coefficient between test scores by the two administrations was strong at .80.

One measure of testing for Part Two was completed for validity of classification between non-clinical and non-clinical based on agreement between the this part of the test and the a priori classifications of the children in the standardization sample. This measurement used the Total Diagnostic Error Score means and standard deviations for each whole year interval for the non-clinical and clinical samples. The means for the non-clinical group were lower than the means for the clinical group at every age and they decreased by age. The non-clinical means ranged from 8.85 (SD = 4.5) at the 4-year-old group level to 1.70 (SD = 2.29) at the 9-year-old group level. The clinical group means ranged from 14.42 (SD = 4.73) at the 4-year-old group level to 5.04 (SD = 2.43) at the 9-year-old group level (Seymour, Roeper, & de Villiers, 2003).

The validity of the four sub-classifications (i.e., lowest risk for disorder, low-medium risk for disorder, medium-high risk for disorder, highest risk for disorder) was also assessed based on a priori classification. Part Two achieved the goal of classifying most of the children who were typically developing in either the low or low-medium risk categories and most of the children with language disorder in either the medium-to-high or highest risk category at each age level. For example, at the 9:0 to 9:11 age level, 74.5% of non-clinical children has total error scores that categorized them in the lowest two diagnostic risk classifications. While 81% of children, at the same age level, who were assigned a prior to the clinical group had total error scores that placed them in the medium-high and highest risks levels during the standardization testing.
The second test administered to each participant was the Peabody Picture Vocabulary Test-4th Edition (PPVT-4; Dunn & Dunn, 2007), a standardized test of receptive vocabulary. The PPVT-4 demonstrates strong reliability on both internal consistency (.94) and test-retest (.93) measures. Concurrent validity ranges from .41-.84 and predictive validity ranges from .50-.75. The PPVT-4 has been normed on over 3,500 people ranging in age from 2:6-90+ years. The normative sample was matched to the U.S. Census (2004) for gender, ethnicity, region, and SES. The standard score mean is 100 with a standard deviation of 15. Receptive vocabulary deficits are not necessarily an inherent characteristic of specific language impairment (SLI) in MAE speakers. However, previous studies have indicated that even typically developing speakers of AAE are at risk for showing below average vocabulary skills if they are from low income households (Hart & Risley, 2003; Ouellette, 2006; Pearson, Conner, & Jackson, 2012; Stockman, 2010). Given that 44.2% (6 out of 13) of the participants in the current study were AAE speakers who were from low to low-middle SES households, and they demonstrated evidence of dialect patterns that varied somewhat to strongly from MAE (according to their performance on the DELV-ST, Part One), it was possible that those participants would demonstrate receptive vocabulary scores that mimic mild delay on measures such as the PPVT-4. In addition, it was hypothesized that the PPVT-4 standard scores would show discrepancies between the TD AAE-speakers and those with LI as it is designed to do with MAE only speakers.
Experimental Protocol Tasks

Three tasks were devised to represent three levels of expectation for school-based (MAE-consistent) productions of third person verbal –s, ranging from the least explicit (spoken responses/contextualized) to most explicit (fill-in-the-blank written language/decontextualized). All three experimental tasks were designed by the investigator to specifically target the participants’ use of overt or zero productions of the third person present verbal –s, primarily in an habitual environment. As noted previously, in AAE there is more than one manner to express third person singular action (i.e., aspectual invariant “be” + regular verb-ing, zero-marked uninflected verb, or overtly marked verbal -s) depending on the context of its use (e.g., habitual, narrative). In addition, the first two syntactic forms used in AAE that are noted above (aspectual “be” and zero marked verbal –s) are clearly contrastive with the one MAE form (i.e., regular verb + -s).

The first two of the three experimental measures were based on a silent read along of the children’s book, *The Hello, Goodbye Window* (Juster & Raschka, 2005). Spoken Language and Written Language responses were elicited using the same verbal prompt – “Based on the story, using complete sentences, tell me (or write) ten (10) things that make visiting Nanna’s and Poppy’s house special to the little girl, to Nanna and/or to Poppy” (see Appendix C for complete administration instructions). The text from *The Hello, Goodbye Window* was used to test reading comprehension as part of the publicly released 2008 administration of the third grade English Language Arts open response portion of the Massachusetts Comprehensive Assessment System (MCAS), a statewide proficiency assessment administered in the spring of the targeted academic years. For
that test, the students were instructed to write in response to the following prompt –

“Based on the story, what makes visiting Nanna’s and Poppy’s house special to the narrator? Support your answer with important details from the story” (Massachusetts Department of Elementary and Secondary Education, 2012, p. 30). The book is written predominantly in the present tense with habitual aspect of the characters’ actions and states (e.g., excerpt: “Poppy makes breakfast. He says it’s his specialty. My favorite is oatmeal with bananas and raisins that you can’t see because he hides them down inside. I find them all.”) (Unnumbered pages). The participants were also provided with a printed graphic organizer that included nine stem verbs that could be used to assist with formulating responses based on story events (Appendix D).

The third of the three experimental tasks included 12 fill-in-the-blank, cloze sentences formulated to elicit third person verbal –s responses (Appendix E). In addition, a corresponding action picture was included immediately preceding each sentence. Five of the sentences used female nouns/pronouns, four included male nouns/pronouns and the last three were written with animal noun/pronoun references. In addition, there were three practice items at the beginning of the task to maximize the likelihood of obtaining the targeted present verb tense in the responses. This task was designed to be relatively decontextualized (in comparison to the previous two tasks) in order to mimic the type of task students are expected to complete in the school setting.

The principal investigator pilot tested the cloze sentence task using five, non-study subjects to insure the targeted structure (i.e., third person singular present tense verb [MAE or AAE]) was achieved for each item. Any prompt sentences that did not elicit the targeted structure for at least 4 of the 5 pilot participants were eliminated and
replaced until ten sentences meet the reliability criterion of 0.80 for the targeted structure. Results of the pilot testing on this task showed a reliability rate of 0.87 for the targeted structures for all 15 sentences (including the three practice sentences and the 12 task sentences). The differences in responses included one instance of the modal *can* + *infinitive verb* phrase and another, for a different trial subject, with future tense auxiliary *will* + *infinitive verb* phrase. However, no two or more subjects demonstrated off-task responses for any one of the task sentences. Therefore, the PI proceeded with the original set of sentences for this study.

**Data Collection**

The PI conducted all screening/intake sessions with the parent/guardian and child present for each family, as well as all data collection sessions conducted individually with each child participant. The PI is an African American and bi-dialectal (MAE and AAE, with MAE as her dominant dialect) and a certified speech-language pathologist. The PI has experience and expertise in identifying and working with students in the elementary public education setting from which the study participants were recruited, who are speakers of AAE.

The participants of the current study had three different study sessions, with the exception of one participant who had only an intake and one combined testing session due to the family’s difficulty with scheduling a third session. All tasks were presented in order as follows.
Session One

Participants were selected for this study, first by confirming that they evidenced at least minimal use of contrastive AAE morpho-syntactic and phonological markers. During the first of two sessions, the following criteria were employed using spoken language samples elicited during informal interview: a) evidence of at least three AAE morpho-syntactic patterns in the elicited spoken language sample (see Appendix F for AAE patterns referenced by Clark, 2006); b) use of at least one contrastive AAE phonological pattern in the spoken language samples (specified in the paragraphs that follow within this section); c) classification of AAE use based on performance on Part One of the Diagnostic Evaluation of Language Variation-Screening Test; and d) PI listener judgment.

AAE Screening

Part One of the DELV-ST was the first language measure given to each of the participants. Although it was predicted that the participants for this study would be identified as having at least “some variation from MAE,” following administration of this portion of the screening tool more than half of the participants were classified as predominantly MAE speakers comprised of six in the TD group and three in the LI group. However, as reported earlier, AAE use should be considered to be on a spectrum from very little evidence of use in just a handful of social situations to it being the person’s predominant dialect including the use of a wide range of AAE linguistic patterns in diverse contexts (Green, 2002). In addition, it has been well documented that AAE-speaking children in Grades 1 through 4 demonstrate minimal AAE use relative to other
In the current study, there was evidence of at least one contrastive phonological pattern (e.g., [d] for initial /ð/, and [f] for medial and/or final /θ/) and at least three different observations of AAE morpho-syntactic pattern types in the spoken language samples for all but two of the MAE defined participants (refer to Table 3.3 for examples of AAE patterns observed). Therefore the seven participants who had initially been identified as MAE speakers but demonstrated the targeted range of tokens for phonological and morphosyntactic patterns expected for AAE speakers were reclassified as demonstrating “minimal” variation from MAE. The two participants who demonstrated less than one AAE-consistent phonological and three different AAE-consistent morpho-syntactic patterns in their language samples remained in the category labeled MAE, as shown in Table 3.2. Despite being defined as MAE speakers for the purposes of this study, this does not suggest that the participants never verbally express themselves with AAE-consistent patterns. In fact, the results from Part One of the DELV-Screening Test helped to validate the majority of the participants as bidialectal speakers, which would be expected at this age/grade level.
Table 3.3: Participant Sampling of AAE Consistent Speech and Language Patterns

<table>
<thead>
<tr>
<th>Code</th>
<th>DELV-ST Category</th>
<th>AAE-Consistent Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>B2</td>
<td>Main</td>
<td>“gif[t]”, “wash[es]”, “She wash[ed/s] the clothes because they’re dirty”; “sometime[s]”; pronoun apposition (e.g., “the girl she...”, “Poppy he...”, “the queen of England, she...”); ‘poppy plays the harmonica to [for] the girl”; one zero copula is – “anytime the girl Ø[is] outside of the hello goodbye window...”</td>
</tr>
<tr>
<td>B3</td>
<td>Main</td>
<td>“The girl kick[ed] the drum...”; “axed”/[asked]; “the girl ass [asked] her dad...”</td>
</tr>
<tr>
<td>B4</td>
<td>Main</td>
<td>“gif[t]”; “he ax [asked] the lady...”; “they either get spook[ed]” “what [have] you got...”;</td>
</tr>
<tr>
<td>B7</td>
<td>Main</td>
<td>“gif[t]”</td>
</tr>
<tr>
<td>B8</td>
<td>Main</td>
<td>“gif[t]”</td>
</tr>
<tr>
<td>G2</td>
<td>Main</td>
<td>“She axed[asked] her dad on the phone”, /d/ for /ð/ in “them”; “liketa”/like to; “could”/can (e.g., “so he could git the cereal”, “so they could be well tomorrow”); “las[t]” (i.e., “I thought that wah duh las[t] one”); very deliberate in verbalization of words ending in “th” on items 1-5 on DELV Part One</td>
</tr>
<tr>
<td>G3</td>
<td>Main</td>
<td>“gif[t]”, “push[es]”, “axed” [asked] x2, “mom and dad picks her up”; “snowin’”/ snowing; “pitcher”/picture</td>
</tr>
<tr>
<td>G4</td>
<td>Main</td>
<td>“smoov”/smooth, “gif[t]”; “heØ[‘s] looking at the baby and his food”; “The boy ax [asked]the grocery store person...”; “The girl axed her dad...”; “I like to play at (on) snowy days”; “tryna”; “wif”/with; “hisself”/himself; “jus(t)” “fin(d); “leas(t)” “mos[t] everything”/almost; “anodder one”/another one; [d] for /ð/; most questions in statement form with rising inflection – does not start with “do” or “does” (exception “what if...”); “I’m suposta be 11 year ode(old) in the six[th] grade”; “I spelled before wrong, didn’t I?”</td>
</tr>
<tr>
<td>G5</td>
<td>Main</td>
<td>“gif[t]”; “o(l)der”; “las(t)” “it stink(s)”; “she wish[es]”; “Even though these taste like kinda Pringles, they Ø[are] actually kinda good”</td>
</tr>
<tr>
<td>B1</td>
<td>Some</td>
<td>“teef”/teeth, “breave”/breath; “they are always make[ing] funny faces”; “wif”/with</td>
</tr>
<tr>
<td>B6</td>
<td>Some</td>
<td>“gif[t]” “smooz”/smooth, “breathing”/breathe</td>
</tr>
<tr>
<td>B5</td>
<td>Strong</td>
<td>“teef”/teeth, “baf”/bath, “smoov”/smooth, “gif[t]”; “favit[favorite] peoples is [are] there”; “I didn’t mean a [to] pick Nanna”; “this is the book I’m having?”/ [Is this the book I’m going to have?]; “git”[get]; “She gits to go over[to] his house”; several request to repeat</td>
</tr>
<tr>
<td>G6</td>
<td>Strong</td>
<td>“teef”/teeth, “baf”/bath, “smoov”/smooth, gif[t], wash[es], push[es]; “git”/get; “cryin’”/is crying [cloze sentences]; “the boy play[ed]...and the girl play[ed]...”; “ca[lle]d”</td>
</tr>
</tbody>
</table>

Main = Mainstream; Some = Some Variation from MAE; Strong = Strong Variation from MAE

**Phonology Screening**

Participants in all groups were also screened for phonological skills using the DELV-ST and spontaneous speech production samples, for two reasons. First, such testing could rule out error patterns that would impede production of /s/ and /z/ in final
position. Production of these phonemes is required for the third person singular verbal –s marker. Secondly, this screening procedure assisted with identifying children as AAE speakers through use of the following patterns: [d] for initial /ð/ (e.g., [dɛm] for /ðɛm/), [f] for medial and/or final /θ/ (e.g., [bæftʌb] for /bæθtʌb/ or [bof] for /boθ/, respectively), [v] for medial /ð/ (e.g., [brʌvə] for /brʌðə/), monophthongization of vowels (production of a diphthong as a simple vowel), and final consonant cluster reduction (which occurs when the consonants in the cluster all share voicing or voicelessness) (as explained by Lisa Green, personal communication, September, 2012). These are phonological patterns that have been identified as contrastive markers in child AAE-speakers. All participants in the study demonstrated accurate productions of /s, z/ and /s, z/ blends in the screening procedures, at least in the word initial position or, for consonant blends, in the inter-syllabic environment (i.e., when the consonant blend [or cluster] is separated between two syllables within a word or word combinations. In addition, all participants presented with at least one example of one or more of the contrastive AAE patterns.

**Language Disorder Screening**

As a supplementary measure for verifying the participants’ clinical language status (TD or LI), Part Two of the DELV-ST was administered. Part Two, the DRS segment of the DELV-ST, is designed for children ages 4 years, 0 months through 9 years, 11 months. However, eight of the 13 participants (62%) in this study were above the cut-off age, ranging from 10 years, 1 month up to 10 years, 10 months. Despite the fact that there were participants who were above the age limitations for the DRS portion of the DELV-ST, because it is a criterion referenced assessment and it is the upper age
limit of this screener that was surpassed, the students whose ages are greater than 9 years, 11 months were more likely to have a false negative result (determination of no degree of risk for language impairment in presence of a true risk) than a false positive result (determination of risk of language impairment when there is not a true disability or risk of one). Because this screening test was designed with the selection of “the smallest number of items that could make the necessary distinction regarding…diagnostic risk status” (Seymour, Roeper, & de Villiers, 2003; p. 32), students aged 10 years, 0 months to 10 years, 10 months should theoretically demonstrate lower error scores than those of the younger 9 years, 0 month to 9 years, 11 months aged students if they are at the lowest risk for disorder.

To clarify, at the nine-year-old level, children who obtain a diagnostic error score of two (2) are considered to be in the “low to medium risk for disorder” category. A nine-year-old child with an error score of three (3) is classified as having a “medium to high risk for disorder,” and if that same age level child receives an error score of four or more (up to a 14+ error score for 17 items), their language skills fall into the “highest risk for disorder” category. Using these criteria as guides, students in the current study who are in the older age category should conceivably obtain lower or equal error scores relative to the test’s targeted age range of students. If they do not, they are just as likely as or more likely than their younger counterparts to demonstrate risk for language impairment. Therefore, the participants who had an existing diagnosis of language disorder and whose DELV-ST diagnostic scores met the criterion for low to medium risk of disorder or greater were considered to be verified for the LI group for this study (see Table 3.2 for each participants’ Diagnostic Risk designations).
Vocabulary Testing

After completing Parts One and Two of the DELV-ST, each study participant was given the PPVT-4 to assess receptive vocabulary skills. For the current study, participants in the TD group were expected to achieve standard scores that were no lower than one and a half standard deviations (≥1.5 SDs) below the mean (i.e., standard scores of 78 or greater) overall, regardless of the strength of their dialect variation from MAE. Published research shows that investigators have used less stringent guidelines for PPVT performance by AAE speakers in determining the absence of language impairment. For example, Craig and Washington (2004) used the lower end cut criterion of 2 SDs of the mean on the PPVT-III (i.e., SS ≥ 71; Dunn & Dunn, 1997) in their selection of TD, AAE-speaking participants for their study of grade related changes in dialect use. The range of standard scores for the participants was not explicitly stated in the author’s article; however, the authors reported the mean standard score for the “shifting” group to be 101.63 (SD = 11.95) and the mean SS for the “non-shifting” group, although statistically lower, was still above the -1.5 SD marker of 78 at 92.75 (SD = 12.56).

These results suggest that the majority of participants who were given the PPVT-III received standard scores that were well above the -2.0 SDs cut criterion. In effect, the use of ≥-2.0 SDs may be overly generous as a marker for typical receptive vocabulary functioning, even for AAE-speakers from low SES homes; and, in fact, this procedure may erroneously include participants with mild impairment.

Based on PPVT-4 standardizations, a standard score equivalent to -1.5 SD is a marker that delineates between the mild and moderate impairment categories for MAE speakers. However, for the current study, it is expected to be a buffer for distinguishing
average from below average performance for the AAE speakers. Therefore, it would be possible that the standard scores for the participants in the LI groups would be lower than one and a half standard deviations (< 1.5 SDs) below the mean (i.e., SS ≤ 78).

**Experimental Task One**

Each of the participants were given the option of completing either their Spoken Language or Written Language responses for the first experimental task session. Based on their preferences and/or requests for Session One, all of the LI participants and three of the seven TD controls completed the spoken response task that was based on the silent read along of the descriptive storybook, *The Hello, Goodbye Window* (Juster & Raschka, 2005). The remaining four TD controls completed the comparable written language task based on the same story book, again after a silent read along. The PI attempted to counterbalance the presentations of these two tasks within the two groups to minimize learning effects that could be evident if all participants were presented with the written task following the spoken task or if both tasks had to be presented in one session (Fey, Catts, Proctor-Williams, Tomblin, & Zhang, 2004). Because all of the participants in the LI group requested to provide their Spoken Language responses first, the counterbalancing was only accomplished for the participants in the TD group.

However, because of the small number of participants involved in the counterbalancing (n = 7), the effects could not be reliably determined statistically. For the TD group, Participants B4, B7, G2) were given the Spoken Response task on the first testing session, while Participants B2, B8, G3 and G6 were given the task of providing written responses to the prompt question, and vice versa for both groups. Based on visual inspection, the ordering of tasks did not seem to result in reliable differences in rate of
overt -s marking. The exact responses for the participants in the TD group will be addressed in the analyses section of the results. As a result, the book based Spoken Language and Written Language tasks were presented on different days for all participants (with the exception of B1 from the LI group as discussed). The presentation of these items were reversed in the second session (i.e., the participants who completed their Spoken responses to the story in the first session completed the corresponding Written Response task in the second session, and vice versa for the participants who began with the Written task for the first session).

The narrative text from the storybook prompt was presented in a guided reading format to minimize the effects of possible reading deficits for the students with identified language impairment (e.g., decoding, reading fluency and reading comprehension difficulties). The participants were given the physical book to follow along with a pre-recorded audio reading of the story read aloud by the principal investigator on a digital audio recorder/player (Olympus Digital Voice Recorder, Model VN-702PC), which they listened to through their own earphones or earphones provided by the PI. Following the guided read along, each child was asked a prompt question that was adapted from the question used for the original MCAS task. The revised prompt question was designed to elicit multiple examples of third person singular verb structures in spoken and written descriptive language samples.

Since speakers of AAE are more likely to demonstrate AAE structures and patterns in their spoken language (versus written language), the participants were predicted to produce at least one instance of AAE consistent structures for third person singular verbs including either verbs with zero (Ø) –s endings or invariant be + verb –ing
in their responses. Throughout the presentation and subsequent participant responses for the spoken and written experimental tasks, the participants were reminded to formulate their responses about actions that happen all the time (e.g., *Remember, you are telling/writing about things that the characters do or like to do every time the little girl goes to her grandparents’ house*) to redirect or decrease the likelihood of the participants’ use of past tense or future verbs rather than the targeted present (habitual) tense. Participants were also redirected if and when they began to formulate sentences with the modal “can” + infinitive verb structures.

For the written language descriptive task, the format was identical to the spoken task except that instead of providing spoken responses, the participants were asked to write their responses on lined paper. Again each participant’s responses were monitored to minimize or redirect any instances of past tense verb or modal + infinitive verb use in their printed response. In addition, each participant’s written responses were reviewed immediately following completion. If there were sentences that the PI missed that included a non-third person singular -s context, the participant was given the directions again and asked to formulate additional sentences so that a minimum of 10 instances of the target structure were acquired. In addition to regularized third person singular verb structures (overtly or zero marked ‘-s’), third person singular forms of the irregular verbs “do”, “say”, “have”, and “go” were included as evidence of overt or zero marking.

Participants’ spoken responses were audio recorded for later transcription by the author/principal investigator who has experience in identifying AAE patterns in the speech and language of child AAE speakers. For the written responses, each participant’s writings were reviewed immediately after they were completed. If there
were any illegible or misspelled words, the PI asked the participant for clarification of those words, by instructing the child to “please read this (these) word(s) out loud for me.” Reading back of responses word by word was avoided because of the concern that the child(ren) would provide clarifications that are more similar to spoken AAE structures than written (possibly) MAE structures that may have been intended in their original responses.

Session Two

The second session for each participant was conducted within two weeks of their first session for all but one of the participants in the LI group due to weather and scheduling challenges. Experimental Tasks Two and Three were presented in order following a brief warm up time that included casual conversation with the principal investigator.

Experimental Task Two

For this activity, each participant participated in the same guided reading opportunity as in his/her first session, but the response modalities (spoken or written) were reversed. Specifically, if the participant provided a spoken response to the book prompt for Session One, that participant was asked to provide a written response to the book prompt for Session Two, and vice versa.

Experimental Task Three

The last task for all participants was to complete a 15-item, written fill-in-the-blank sentence completion task, with the first three sentences serving as practice items and the remaining 12 sentences serving as the actual task. As with the first two experimental tasks, this cloze task targeted expression of the third person singular verb
structure. For this task all sentences were printed with a fill-in the blank line and paired with a corresponding picture depicting the targeted action word.

**Additional Data Collection**

**MCAS and PARCC Score collections**

The parents/guardians of each participant were asked to provide the scaled score for the ELA component of their child’s third grade MCAS test (Table 3.5). As can be seen in Table 3.5, the majority of the participants completed the statewide standardized testing in the Spring-half of the academic year ending 2014 (five of the seven TD participants and four of the six LI participants). One of the TD participants and one of the LI participants completed it in Spring 2013 and one participant in each group completed their targeted testing in Spring 2015. It is also important to note that Participant G6 completed the PARCC test in lieu of the MCAS test. Therefore, a concordance chart provided by the Massachusetts Department of Elementary and Secondary Education was used to determine her corresponding MCAS scaled score (Massachusetts DESE, 2015). The principal investigator obtained all state testing scores as they became available from the parents.

As can be seen below in Table 3.4, the majority of the TD participants in this study achieved MCAS scores that have been categorized by DESE to be in the “Needs Improvement” or “Proficient” range, with none in the “Advanced” or “Warning” range; however, the majority of the LI participants received scaled MCAS scores that placed their testing performances in the “Warning” or “Needs Improvement” with one on the lower end of the “Proficient” range. The MCAS scaled score ranges are explained in Table 3.5 (Massachusetts Department of Elementary and Secondary Education, 2013).
Table 3.4: Participants’ MCAS Scores by Clinical Language Group

<table>
<thead>
<tr>
<th>Coding by Group</th>
<th>Year Completed (Spring)</th>
<th>MCAS Scaled Score</th>
<th>Achievement Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>TD (n = 7)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B2</td>
<td>2013</td>
<td>236</td>
<td>Needs Improvement</td>
</tr>
<tr>
<td>B4</td>
<td>2014</td>
<td>238</td>
<td>Needs Improvement</td>
</tr>
<tr>
<td>B7</td>
<td>2014</td>
<td>244</td>
<td>Proficient</td>
</tr>
<tr>
<td>B8</td>
<td>2014</td>
<td>246</td>
<td>Proficient</td>
</tr>
<tr>
<td>G2</td>
<td>2014</td>
<td>246</td>
<td>Proficient</td>
</tr>
<tr>
<td>G3</td>
<td>2014</td>
<td>246</td>
<td>Proficient</td>
</tr>
<tr>
<td>G6</td>
<td>2015</td>
<td>252*</td>
<td>Proficient</td>
</tr>
<tr>
<td><strong>TD Mean (SD)</strong></td>
<td></td>
<td><strong>244 (5.42)</strong></td>
<td></td>
</tr>
<tr>
<td>LI (n = 6)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B1</td>
<td>2013</td>
<td>234</td>
<td>Needs Improvement</td>
</tr>
<tr>
<td>B3</td>
<td>2014</td>
<td>220</td>
<td>Needs Improvement</td>
</tr>
<tr>
<td>B5</td>
<td>2014</td>
<td>218</td>
<td>Warning</td>
</tr>
<tr>
<td>B6</td>
<td>2015</td>
<td>242</td>
<td>Proficient</td>
</tr>
<tr>
<td>G4</td>
<td>2014</td>
<td>214</td>
<td>Warning</td>
</tr>
<tr>
<td>G5</td>
<td>2014</td>
<td>236</td>
<td>Needs Improvement</td>
</tr>
<tr>
<td><strong>LI Mean (SD)</strong></td>
<td></td>
<td><strong>227 (11.43)</strong></td>
<td></td>
</tr>
</tbody>
</table>

MCAS = Massachusetts Comprehensive Achievement Scales; *MCAS score based on PARCC score 780 equivalent (Spring 2015 MCAS and PARCC Concordance, Massachusetts Department of Elementary and Secondary Education, 2015)

Table 3.5: MCAS Scaled Score Ranges

<table>
<thead>
<tr>
<th>Scaled Scores</th>
<th>Achievement Level</th>
<th>Description of Levels</th>
</tr>
</thead>
<tbody>
<tr>
<td>260-280</td>
<td>Advanced</td>
<td>Students at this level demonstrate a comprehensive and in-depth understanding of rigorous subject matter and provide sophisticated solutions to complex problems.</td>
</tr>
<tr>
<td>240-258</td>
<td>Proficient</td>
<td>Students at this level demonstrate a solid understanding of challenging subject matter and solve a wide variety of problems.</td>
</tr>
<tr>
<td>220-238</td>
<td>Needs Improvement</td>
<td>Students at this level demonstrate a partial understanding of subject matter and solve some simple problems.</td>
</tr>
<tr>
<td>200-218</td>
<td>Warning</td>
<td>Students at this level demonstrate a minimal understanding of subject matter and do not solve simple problems.</td>
</tr>
</tbody>
</table>

Observations of Additional AAE Patterns

As noted previously, in addition to collection of data for each participant’s productions of third person present tense (habitual or narrative) singular verbs for the experimental tasks, language samples were gathered to document other evidence of AAE phonological and morpho-syntactic structures. This information was collected online (as they occurred) as well as from the audio recordings of the participant’s elicited and spontaneous language productions during and between testing (refer to Table 4.1 for examples).

Response Transcriptions

All written responses to the book task were transcribed and analyzed for number of different words (NDW). In addition, the number of words per communication unit (C-unit) for both the spoken and the written responses were calculated. C-units were calculated as all independent clauses and their dependent clauses. Responses that included complete utterances/sentences and were directly related to the story were used in the calculations. Any duplications of words/phrases that were part of restarting or rephrasing (e.g., “the girl looks at her—her reflections in the mirror”), were only counted once. Productions of contractible auxiliaries (e.g., “she says she’s going home” for “she says she is going home”), copulas (e.g., “there’s a lotta…” for “there is a lotta…”,”she’s always happy” for “she is always happy”) and modals (e.g., “she says she’ll…” for “she says she will…”), as well as contractible “not” (e.g., “the girl doesn’t like…” for “the girl does not like…”) were counted as two words. Word fillers, such as “um” and “uh”, were not included in the word counts. The mean number of grammatical C-units was used in
correlation analyses to determine if there were any significant relational ties between this variable and the clinical grouping for the study.

Contextual assessments were also conducted to determine whether there were any differences with respect to the linguistic environments in which the target AAE structures (i.e., AAE-consistent third person singular verb pattern; “verb + zero -s” or “habitual BE + verb–ing”) were used by the participants in each language group. In addition, any spoken utterances or printed sentences containing unintelligible or illegible words were tallied to determine any differences in frequency between TD and LI group participants.

Analyses

As previously stated, given the small n’s for each group, the investigator could not interpret the outcomes of this study based on assumptions of a normal distribution, including the threat of possible ceiling effects and the heterogeneous nature of language patterns in children with language impairment. Therefore, the analyses for statistical significance were conducted using non-parametric statistical analyses. The raw data were also used to conduct correlation analyses, as well as qualitative assessments, which included formulation of scatter plots and comparisons of the participants’ responses to the study tasks.

Preliminary Analyses

The first three variables outlined below – vocabulary, number of different words per communication unit (NDW/C-unit) for the experimental written responses task, and mean length of C-units in words (MLC-Uw) for both the spoken and written responses for the narrative based prompt - were studied to determine any correlations that may exist
between the participants’ scores on each variable and their group membership status (TD or LI). Previous research supports that these three variables have been areas of deficit for MAE-speaking children with language impairment when compared to typically developing peers.

**Vocabulary**

All PPVT-4 standards scores were calculated and segmented into the test’s standard score mean and standard deviation categories based on performance. The categories were less than one standard deviation below the mean (below standard score of 78), between -1 SD and the mean of 100 (standard score of 78 to 100), greater than the mean of 100 up to +1 SD (standard score of 101 to 115), and greater than +1 SD (standard score of 116 or greater). Because the initial hypothesis for this study was that the participants in the LI group would demonstrate standard scores that were at least one standard deviation below the mean, a cross tabulation was also conducted to determine if this was indeed the case.

**Number of Different Words per C-Unit (NDW/C-unit)**

The mean NDW/C-unit was calculated for each participant’s written responses based on the text prompt used for the experimental tasks. The counts were determined by first counting the number of different words each participant used in their written responses. The Systematic Analysis Language Transcripts (SALT; Miller, 2016) Summary of C-Unit Segmentation Rules was then used as a guide for transcribing and calculating the number of C-units for each participant’s responses. The total NDWs were divided by the total number of C-units to determine the NDW/C-unit for each participant’s written sentences. The counts for each participant were then correlated with
their clinical group membership and with dialect category to examine for any significant relationships. Although there was an expectation for correlations between clinical group membership and NDW/C-Unit counts, there was no expectation of correlations between dialect group membership and NDW/C-Unit counts independent of clinical group.

**Mean Length of C-Units in Words (MLC-U_w)**

Each participant’s spoken and written responses to the narrative based prompt were transcribed into C-units. For the spoken responses, only utterances directly related to the prompt were included in this calculation. All printed sentences were used for transcribing C-units as with the transcriptions for mean NDW/C-unit. The only difference for this calculation was that all words in the text-based responses were used with the exception of repeated words in the spoken and written responses, and any false starts, restarts or revisions in demonstrated in the spoken response.

**Experimental Task Analyses**

Each participant’s performance on the experimental tasks – spoken and written responses and fill-in the blank cloze sentence tasks – that were designed to investigate the main question of frequency of overt verbal -s marking based on clinical group membership and, to a lesser degree, based on density of AAE use were examined next. Each participant’s frequency of overt verbal -s use was calculated individually, then summarized based clinical group membership, before being analyzed for significant difference in group performance. The comparative analyses were done both within clinical groups to examine any differences based on task, as well as between clinical groups for each task.
High-Stakes Test Performance Comparisons

The next outcome that was a primary focus of this study was on any observed correlations between the participants’ frequency of overt verbal -s marking across experimental tasks, particularly for the writing based tasks, and their third grade, ELA domain, MCAS (or converted PARCC) scaled score. This was purely a correlational analysis with no ability to suggest causation. However, it was conducted to investigate the need for further study to determine possible risk of fourth grade students who are determined to be at least variable AAE speakers with evidence on nonmainstream writing skills to achieve lower scores on state or nationwide high-stakes testing than their MAE speaking and writing counterparts.

Dynamic Assessments

The final assessments to be reported were qualitative including contextual differences between the use of zero and overt verbal -s marking for those participants who demonstrated variability in their use for either their spoken or written responses, or both, for the experimental tasks. This information was gathered from the samples of spoken and written responses that were directly related to the tasks’ prompt. The contexts were then examined for linguistic and phonological differences and reported as factors that may have contributed to zero verbal -s marking vs. overt marking. In addition, based on prior research with MAE speakers with language impairment who were more likely to produce utterances with diminished intelligibility, choppy or abbreviated grammatical structures and/or frequent restart/revisions (Paul, 2001); these features were examined in the spoken and written responses of the variable AAE speakers in the current study.
CHAPTER 4
RESULTS

Comparisons of performance on tests and tasks that have been used in prior studies to determine functional differences between MAE children with and without language impairment yielded some similarities and some differences based on group membership in the current study. In addition, the comparisons for the participants were made not only based on clinical status (TD or LI), but based on category of variation from MAE (strong variation, some variation, minimal variation, mainstream) in each of the domains tested/observed – receptive vocabulary, NDW/C-unit and MLC-Uw. The latter comparisons were completed to examine any previously unexplored effects that density of nonmainstream dialect variation may have on these same factors.

Receptive Vocabulary: PPVT-4 Standard Score Comparisons

Each participant’s clinical group and adapted dialect category, along with their PPVT-4 standard score, are reported in Table 4.1. Although, as noted previously, there was reason to believe that the participants in the LI group would demonstrate below average standard scores for this assessment tool, it is evident from the bar graph in Figure 4.1 that none of the participants’ standard scores were less than -1 SD of the mean. However, it is also evident that the majority of the participants in the LI group achieved standard scores between -1 SD and the mean (four of the six participants), while the majority of the participants in the TD group achieved standard scores between the mean to +1 SD (four of the seven participants), and one of the TD participants had a standard score that was greater than +1 SD. Therefore, most of the TD participants achieved
standard scores that were above the mean, but most of the LI participants achieved standard scores that were at the mean or below.

The boxplot seen in Figure 4.2 further elaborates on the differences in median standard scores for the two group, demonstrating that although there was overlapping in the range of standard scores, the median score was above the mean of 100 for the TD group, but the median score was below 100 for the LI group.

Table 4.1: PPVT-4 Standard Scores by Clinical Group and Dialect Category

<table>
<thead>
<tr>
<th>Participant Code</th>
<th>Dialect Category (Variation from MAE – Adapted)</th>
<th>DELV-ST Diagnostic Risk Category</th>
<th>PPVT-4 Standard Score</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TD (N=7)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B2</td>
<td>Minimal</td>
<td>Lowest</td>
<td>112</td>
</tr>
<tr>
<td>B4</td>
<td>Minimal</td>
<td>Low-Med</td>
<td>103</td>
</tr>
<tr>
<td>B7</td>
<td>Mainstream</td>
<td>Lowest</td>
<td>94</td>
</tr>
<tr>
<td>B8</td>
<td>Mainstream</td>
<td>Lowest</td>
<td>110</td>
</tr>
<tr>
<td>G2</td>
<td>Minimal</td>
<td>Lowest</td>
<td>124</td>
</tr>
<tr>
<td>G3</td>
<td>Minimal</td>
<td>Lowest</td>
<td>114</td>
</tr>
<tr>
<td>G6</td>
<td>Strong</td>
<td>Lowest</td>
<td>91</td>
</tr>
<tr>
<td><strong>M (SD)</strong></td>
<td></td>
<td></td>
<td><strong>107 (11.64)</strong></td>
</tr>
</tbody>
</table>

| **LI (N=6)**     |                                               |                                 |                       |
| B1               | Some                                          | Highest                         | 95                    |
| B3               | Minimal                                       | Low-Med                         | 111                   |
| B5               | Strong                                        | Highest                         | 86                    |
| B6               | Some                                          | Low-Med                         | 92                    |
| G4               | Minimal                                       | Med-High                        | 87                    |
| G5               | Minimal                                       | Low-Med                         | 108                   |
| **M (SD)**       |                                               |                                 | **97 (10.63)**        |

B = boy; G = girl; TD = Typically Developing group; LI = Language Impaired group; R4 = Rising Fourth grader; R5 = Rising Fifth grader; DELV-ST = Diagnostic Evaluation of Language Variation-Screening Test; PPVT-4 = Peabody Picture Vocabulary Test-4th Edition
Figure 4.1: Group PPVT-4 Categories Based on Standard Scores

Figure 4.2: Median and Variance Differences in PPVT-4 Standard Scores
As a follow-up to this information, a Spearman’s Rho ($r_s$) correlation was calculated to determine if there was a significant correlation between clinical group and PPVT-4 standard scores. Spearman’s Rho is a nonparametric measure that was chosen for this analysis because of the limited number of participants in each of the groups. The results of the Spearman’s Rho analysis with an alpha level of 0.05 (two-tailed) indicated there was a moderate correlation (based on the absolute value of $r_s$ that within the range of 0.30 and 0.50) between the two variables (clinical language group and PPVT-4 scores), revealing that the LI group achieved a lower mean rank for PPVT-4 scores than the TD group. However, the correlation between PPVT-4 scores and clinical group was not statistically significant, $r_s (11) = -0.454; p = 0.119 (\alpha = .05, \text{two-tailed})$.

To expand on this correlation visually a bar graph (Figure 4.3) was created to demonstrate the number of participants who achieved PPVT-4 scores in the categories of -1 SD to the Mean, the Mean to +1 SD, and greater than +1 SD based on dialect category. For more detailed examination, a scatterplot was formulated based on PPVT-4 standard scores, which also included descriptors of the density of AAE use determined for each participant (see Figure 4.4). On both the bar graph and the scatterplot it was evident that the two participants in each group who were classified as demonstrating strong variation from MAE had the lowest standard scores for each group. This may indicate that not only do fourth graders with language impairment generally score lower on the PPVT-4, but it is possible that children who demonstrate strong variation from MAE may be at risk of achieving PPVT-4 scores that are somewhat lower than their peers who demonstrate less intense variation from MAE.
Figure 4.3: PPVT-4 Results by Category of Performance by Dialect Group

Figure 4.4: PPVT-4 Standard Scores by Clinical Group and Dialect Density
Number of Different Words per Communication Unit (NDW/C-unit)

The number of different words (NDW) metric used to evaluate written narratives has been identified in previous research as a challenge for students with language impairment (Leonard, Miller, & Gerber, 1999; Redmond, 2004; Watkins, Kelly, Harbers, & Hollis, 1995; Williams, Larkin, & Blaggan, 2013). In the current study, even though the participants were given a graphic organizer to help structure their writing content, the participants with identified language impairment were expected to demonstrate use of fewer NDW in their written responses. Therefore, there were two counts, NDWs and NDW/C-unit to account for participant differences with respect to numbers of sentences (translated into C-units) produced. This hypothesis was also tested by conducting a Spearman’s Rho correlation analysis. The information was gathered to assist in determining whether or not NDW/C-unit was a differentially diagnostic factor in distinguishing between TD and LI AAE-speakers in this study. The participants’ NDW and NDW/C-unit counts are reported in Table 4.2.

In calculating the NDW, stem words and inflected versions of the same words were counted as one word (e.g., “color” and “coloring”, “like” and “likes”, “sleep” and “sleepy”), as were derivations of “have”, “do” and “go.” However, if the inflected versions resulted in significantly different spelling of the word (e.g., is/are/am, can/could, say/said), the words were counted separately. All proper names comprised of phrases used in the book were counted as one word (e.g., “hello, goodbye window”, “goodbye window”, “queen of England”), unless only one word from the phrase was also used (e.g., “window” and “hello, goodbye window” were counted as two different words, as were “window” and “goodbye window”) to maintain consistency in scoring.
Table 4.2: Mean Number of Different Words, Number of C-Units and Number of Different Words per C-Unit by Participant and Clinical Language Group

<table>
<thead>
<tr>
<th>Participant Code</th>
<th>NDW-written</th>
<th># of C-units - written</th>
<th>NDW/C-unit - written</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TD Group</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B2</td>
<td>61</td>
<td>13</td>
<td>4.69</td>
</tr>
<tr>
<td>B4</td>
<td>70</td>
<td>11</td>
<td>6.36</td>
</tr>
<tr>
<td>B7</td>
<td>41</td>
<td>10</td>
<td>4.10</td>
</tr>
<tr>
<td>B8</td>
<td>41</td>
<td>10</td>
<td>4.10</td>
</tr>
<tr>
<td>G2</td>
<td>45</td>
<td>10</td>
<td>4.50</td>
</tr>
<tr>
<td>G3</td>
<td>43</td>
<td>11</td>
<td>3.91</td>
</tr>
<tr>
<td>G6</td>
<td>44</td>
<td>11</td>
<td>4.00</td>
</tr>
<tr>
<td><strong>M (SD)</strong></td>
<td><strong>49.29 (11.47)</strong></td>
<td><strong>10.4 (0.55)</strong></td>
<td><strong>4.52 (0.86)</strong></td>
</tr>
<tr>
<td><strong>LI Group</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B1</td>
<td>20</td>
<td>6</td>
<td>3.33</td>
</tr>
<tr>
<td>B3</td>
<td>48</td>
<td>11</td>
<td>4.36</td>
</tr>
<tr>
<td>B5</td>
<td>42</td>
<td>12</td>
<td>3.50</td>
</tr>
<tr>
<td>B6</td>
<td>28</td>
<td>10</td>
<td>2.80</td>
</tr>
<tr>
<td>G4</td>
<td>39</td>
<td>11</td>
<td>3.55</td>
</tr>
<tr>
<td>G5</td>
<td>88</td>
<td>20</td>
<td>4.40</td>
</tr>
<tr>
<td><strong>M (SD)</strong></td>
<td><strong>44.17 (23.72)</strong></td>
<td><strong>11.67 (4.59)</strong></td>
<td><strong>3.66 (0.62)</strong></td>
</tr>
</tbody>
</table>

First, a boxplot was constructed to verify the need for non-parametric testing in determining correlations between NDW/C-unit for the participants’ written responses and their clinical status. As can be seen in Figure 4.5 below, there were not only noticeable differences in distributions of variance for the two clinical groups, along with skewed median, but there was also an extreme outlier in the TD group (Participant B4). These factors served to justify the use of nonparametric correlation analyses that use ranks rather than exact scores, specifically to minimize the effect of the outlier.
Results of the Spearman’s Rho correlation analysis indicated a strong correlation (based on the absolute value of $r_s$ being greater than 0.50) between number of different words per C-unit (NDW/C-Unit) and clinical group membership ($r_s = -0.537, p = 0.059, ns$). The scatterplot in Figure 4.6 shows that NDW/C-units correlated with the participants’ group membership; participants in the LI group had fewer NDW/C-unit than participants in the TD group. In other words, the correlation between the number of different words used per C-unit and group membership was strong, although the number of participants reduced the possibility of statistical significance. Therefore, even though the $p$-value of 0.059 did not reach statistical significance ($\alpha \leq 0.05$; two tailed), the results for the current study were consistent with the previous studies that indicated that children with language impairment are likely to produce fewer different words in their written responses than are typically developing children.
In addition to plotting participants by clinical group, in Figure 4.6 the participants were marked by dialect variation category for visual inspection. In reviewing the scatterplot, along with information provided in Table 4.2, the participants in the LI group who presented with “some” to “strong” variation from MAE (B1, B5 and B6; based on responses on the DELV-ST given at intake) had the lowest averages for NDW/C-unit with frequencies of 3.33, 3.50 and 2.80 average NDW/C-unit, respectively, when compared to the participants who presented with “minimal” variation from MAE at intake (B3, G4 and G5; with frequencies of 4.36, 3.55 and 4.40 average NDW/C-unit, respectively).

In the TD group, there was only one participant, G6, with “strong variation” from MAE. The remainder of the participants in that group were categorized as “primarily MAE speakers” or speakers who demonstrated “minimal” variation from MAE. Participant G6 displayed fewer NDW/C-unit (average of 4.00 NDW/C-unit) than the majority of the TD group participants. The only other member of the TD group to produce a lower average NDW/C-unit for the Written Response (average of 3.91 NDW/C-unit) was Participant G3, who demonstrated “minimal” variation from MAE. However, it was also interesting to note that the two TD participants who were categorized as “primarily MAE speakers”, Participants B7 and B8, produced minimally increased NDW/C-unit over Participant G6 (averages of 4.10 NDW/C-unit for both B7 and B8). Furthermore, Participants B7 and B8 produced fewer NDW/C-unit than the other three participants in the TD group who were all categorized as AAE speakers who demonstrated “minimal” variation from MAE.

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Mean Length of Communication Units in Words (MLC-Uₜ)

Previous research results have demonstrated that MAE-only speaking children with language impairments tend to formulate stories with fewer words and utterances than those with typical language skills (see Fey, Catts, Proctor-Williams, Tomblin, & Zhang, 2004). Even though the participants in the current study were not instructed to produce complete stories, they were asked to either tell or write about several actions or events conducted by the story character(s) in a series of complete sentences as responses to the test prompt. Therefore, the following correlational analyses were performed to determine whether the AAE-speaking children in the LI group for the current study would present with similar results as MAE-only speaking children with LI in that they

---

6 Because the participants of this study were prompted by the PI to produce the target number of sentences, the mean number of C-units was not calculated. All participants were cued to produce at least 10 responses (spoken and written).
would produce shorter C-units (decreased mean length of C-units in words; MLC-U_w) in comparison to the AAE-speaking TD group participants. Table 4.3 includes information on each participant’s MLC-U_w for both the Written Responses and Spoken Responses tasks.

Table 4.3: Average Number of Words per C-Unit by Narrative Task

<table>
<thead>
<tr>
<th>Participant Code</th>
<th>Dialect Category (Adapted)</th>
<th>MLC-U_w for Written Responses task</th>
<th>MLC-U_w for Spoken Responses task</th>
</tr>
</thead>
<tbody>
<tr>
<td>TD (N=7)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B2</td>
<td>Minimal</td>
<td>8.15</td>
<td>9.23</td>
</tr>
<tr>
<td>B4</td>
<td>Minimal</td>
<td>9.53</td>
<td>8.68</td>
</tr>
<tr>
<td>B7</td>
<td>Mainstream</td>
<td>7.00</td>
<td>6.77</td>
</tr>
<tr>
<td>B8</td>
<td>Mainstream</td>
<td>6.50</td>
<td>6.64</td>
</tr>
<tr>
<td>G2</td>
<td>Minimal</td>
<td>8.60</td>
<td>10.10</td>
</tr>
<tr>
<td>G3</td>
<td>Minimal</td>
<td>12.64</td>
<td>11.30</td>
</tr>
<tr>
<td>G6</td>
<td>Strong</td>
<td>7.45</td>
<td>8.20</td>
</tr>
<tr>
<td>LI (N=6)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B1</td>
<td>Some</td>
<td>6.00</td>
<td>7.44</td>
</tr>
<tr>
<td>B3</td>
<td>Minimal</td>
<td>7.90</td>
<td>8.31</td>
</tr>
<tr>
<td>B5</td>
<td>Strong</td>
<td>6.25</td>
<td>4.78</td>
</tr>
<tr>
<td>B6</td>
<td>Some</td>
<td>5.50</td>
<td>8.55</td>
</tr>
<tr>
<td>G4</td>
<td>Minimal</td>
<td>6.55</td>
<td>8.00</td>
</tr>
<tr>
<td>G5</td>
<td>Minimal</td>
<td>8.75</td>
<td>8.98</td>
</tr>
</tbody>
</table>

Figure 4.7 shows a boxplot that demonstrates evidence of an outlier (Participant G3) when comparing total number of words per C-unit (or MLC-U_w) for the Written Responses to the story prompt for the two clinical groups. As with the NDW calculations, proper names that included multiple words were counted as one word (e.g., “Queen of England”, “Hello, Goodbye Window”).
To minimize the effects of the outlier, the Spearman’s Rho analysis was used to detect any significant correlations between the two variables of total number of words per C-unit in the Written Responses task and clinical group membership. The results of the analysis revealed a $r_s = -0.495$, suggesting a moderate correlation, with the participants in the LI group producing fewer words per C-unit than the participants in the TD group. The correlation indicated that higher word/C-unit scores were associated with membership in the TD group and lower scores were found in the LI group. This can be seen in the scatterplot provided as Figure 4.8. Again, the participants were coded by dialect variation category to assist with visually detecting any patterns of difference in MLC-U_W based on dialect variation as well. As with the NDW/C-unit observations, in the TD group, the three participants with the fewest total words/C-unit are those categorized as “MAE” and “strong variation from MAE” speakers. In addition, the three
participants in the LI group with the fewest total words/C-unit are those with “some” to “strong variation” from MAE. Therefore, we see that in writing, the participants in the *some* and *strong* variation groups not only produced fewer different words in their written responses, but also fewer total words/C-unit when compared to the majority of the speakers who demonstrated *minimal* variation from MAE in this study.

Figure 4.8: Mean Length of C-Units in Words by Clinical Group and Dialect Category for Written Responses
The MLC-Uw (based on the total number of words produced per C-unit on average) for each participant’s responses to the Spoken Responses task prompt were also calculated and plotted for visual inspection (see Figure 4.9). Because there was extraneous conversation throughout the Spoken Responses task, only utterances directly related to the prompt were included in the calculation, and again, proper names that included multiple words were counted as one word. The participants’ word counts were grouped by AAE variation category with “1” for MAE, “2” for Minimal variation from MAE, “3” for Some variation from MAE, and “4” for Strong variation from MAE. It is noteworthy that Participant G3, who produced the fewest NDW/C-unit in written productions, actually used the longest MLC-Uw in spoken productions, not just for the TD group but for all study participants. In addition, Participant G6 (strong variation) who produced fewer NDW/C-unit in her written productions, actually produced more total words per C-unit than the MAE participants in her spoken responses.
Verbal –s Marking Analyses

The next section includes the testing of the main hypotheses of this study, which focus on differences in dialect shifting for verbal -s between and within the two clinical groups. Statistical analyses and visual inspection were used to identify any differences in the frequency rates of overt-marking of verbal -s as the dependent variable with the independent variables of clinical group and experimental tasks.

Inter-dialect shifting

In this study, the primary goal was to answer the question of whether or not there were differences in frequency between the TD group and the LI group with regard to inter-dialect shifting between AAE productions of third person singular verb constructions (i.e., zero-marked -s) and MAE third person verbal -s constructions (i.e., overtly marked -s). Therefore, group differences were calculated based on number of opportunities for MAE-based verbal -s constructions for each of the three experimental protocols/modalities (i.e., Spoken Responses and Written Responses to narrative prompt, fill-in-the-blank Cloze Sentence Responses) and the actual number of productions of AAE-acceptable third person agreement patterns (i.e., zero verbal -s) for each of the three modalities by the TD group and the SLI group participants.

The initial descriptive analyses were conducted to quantify the participants’ productions of AAE and MAE patterns for third person singular verbs for the spoken and written modalities. The between subjects independent variable was the clinical language groups (i.e., TD, LI), while the within subjects independent variables were the three experimental tasks (i.e., spoken description of narrative task, written description of
narrative task, cloze sentence task). The participants’ performance on each task was measured in MAE pattern frequency. The percentage of MAE pattern use was calculated by dividing the number of times the participant produces an MAE-consistent third person singular verbal pattern by the combined number of AAE- and MAE-consistent patterns produced and multiplying by 100; MAE pattern frequency = [MAE / (AAE + MAE) * 100] for each response modality (i.e., Spoken Responses, Written Responses, responses to Cloze Sentences). The frequency rates achieved by each participant are shown in Table 4.4.

Table 4.4: Frequency Rates of Overt Verbal –s Production per Opportunity

<table>
<thead>
<tr>
<th>Groups</th>
<th>Dialect Variation</th>
<th>Experimental Tasks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Spoken Responses</td>
</tr>
<tr>
<td>TD (N = 7)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B2</td>
<td>Minimal</td>
<td>1.00</td>
</tr>
<tr>
<td>B4</td>
<td>Minimal</td>
<td>1.00</td>
</tr>
<tr>
<td>B7</td>
<td>MAE</td>
<td>1.00</td>
</tr>
<tr>
<td>B8</td>
<td>MAE</td>
<td>1.00</td>
</tr>
<tr>
<td>G2</td>
<td>Minimal</td>
<td>1.00</td>
</tr>
<tr>
<td>G3</td>
<td>Minimal</td>
<td>1.00</td>
</tr>
<tr>
<td>G6</td>
<td>Strong</td>
<td>1.00</td>
</tr>
<tr>
<td>Group Mean (SD)</td>
<td></td>
<td>1.00 (0.00)</td>
</tr>
<tr>
<td>LI (N = 6)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B1</td>
<td>Some</td>
<td>.88</td>
</tr>
<tr>
<td>B3</td>
<td>Minimal</td>
<td>1.00</td>
</tr>
<tr>
<td>B5</td>
<td>Strong</td>
<td>1.00</td>
</tr>
<tr>
<td>B6</td>
<td>Some</td>
<td>.94</td>
</tr>
<tr>
<td>G4</td>
<td>Minimal</td>
<td>1.00</td>
</tr>
<tr>
<td>G5</td>
<td>Minimal</td>
<td>.97</td>
</tr>
<tr>
<td>Group Mean (SD)</td>
<td></td>
<td>.964 (0.45)</td>
</tr>
<tr>
<td>TOTAL (N = 13)</td>
<td></td>
<td>.984 (0.04)</td>
</tr>
</tbody>
</table>
The boxplots given as Figures 4.10 - 4.12 illustrate the skewness of the medians and confidence intervals of overtly marked –s frequency counts calculated for each clinical group based on each of the three experimental tasks. For example, in Figure 4.10, the median frequency rates for spoken responses for the two groups were relatively close to each other; however, the TD group had no variance in score, and the boxplot for the LI group on the same task illustrated data which were asymmetrically distributed because of skewness in one direction (with a clear ceiling effect) for both groups.

Figure 4.11, which represents the group medians for the written task, reflects two clear outliers, one for each clinical group. Figure 4.12 also demonstrates substantial skewness for both clinical groups, again with a clear ceiling effect for overt verbal –s frequency within the TD group on the cloze sentence task.

![Figure 4.10: Medians and Variances in Frequency Rates for Overt -s Marking of Spoken Responses by Clinical Language Group](image-url)
Figure 4.11: Medians and Variances in Frequency Rates for Overt -s Marking on Written Responses by Clinical Language Group

Figure 4.12: Medians and Variances in Frequency Rates for Overt -s Marking on Cloze Sentence Task by Clinical Language Group
Differences between and within groups by tasks were tested for statistical significance using the Mann Whitney U Test and repeated Wilcoxon Sign Rank tests, respectively, using an alpha level of 0.05 ($\alpha \leq .05$). These analyses were used to test for differences in distribution of ranked scores by group (i.e., TD vs. LI) and by task (i.e., spoken task vs. written task vs. cloze task). There were three sets of null and alternative hypotheses for these comparisons.

**Between Group Analyses**

Three separate Mann-Whitney U tests were conducted to determine if there were differences in frequency of overt verbal -s marking between the LI and TD groups for each of the three experimental tasks. The mean ranks for each clinical language group (TD and LI) were calculated and compared based on each participant’s frequency of overt verbal -s productions per opportunity for each of the three experimental tasks. The tasks (spoken sentence responses, written sentence responses, fill-in-the-blank cloze responses) were ordered from least to most explicit in expectation for MAE use. Although the total sample size was fewer than 20 participants for this study, the asymptotic significance levels were reported instead of the exact significance levels because of the large numbers of ties in the data. When there are large numbers of ties the exact significance levels may be inflated (Laerd Statistics, 2015).

The first analysis was run for the Spoken Responses’ overt verbal -s frequency rate (see Table 4.5). Distributions of the frequency rate for LI and TD groups were not similar, as assessed by visual inspection. In addition, frequency rates for the TD group (mean rank = 8.50) were statistically significantly higher than for the LI group (mean rank = 5.25), $U = 10.500$, $z = 10.500$, $p = .042$. The LI group demonstrated a greater
frequency rate for use of zero marking for the third person singular verb environment than the TD group. However, results were not significant when comparing groups for the Written Responses task – TD (mean rank = 4.43) and LI (mean rank = 6.50), U = 18.000, z = -.466, p = .641; or for the Cloze Sentence task – TD (mean rank = 7.86) and LI (mean rank = 6.00); U = 15.000, z = -.932, p = .351.

Table 4.5: Mean Ranks for Experimental Tasks and Levels of Significance of Differences by Clinical Language Group

<table>
<thead>
<tr>
<th>Experimental Task</th>
<th>Mean Rank (by Group)</th>
<th>U statistic</th>
<th>p-value (α ≤ 0.05)</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spoken Responses</td>
<td>TD: 8.50</td>
<td>LI: 5.25</td>
<td>10.500</td>
<td>.042*</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Significant</td>
</tr>
<tr>
<td>Written Responses</td>
<td>TD: 4.43</td>
<td>LI: 6.50</td>
<td>18.000</td>
<td>.641</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Not significant</td>
</tr>
<tr>
<td>Cloze Sentence Responses</td>
<td>TD: 7.86</td>
<td>LI: 6.00</td>
<td>15.000</td>
<td>.351</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Not significant</td>
</tr>
</tbody>
</table>

It is interesting to note; however, that based on visual inspection of the data (see Table 4.4 and Figures 4.13 and 4.14), there was evidence of variable but less frequent overt verbal -s marking (hence greater frequency of zero marking) in both of the writing tasks for TD participant G6 who demonstrated strong variation from MAE when compared to the other TD participants, regardless of the lack of zero verbal -s marking in the spoken language task. In addition, LI participant B5, who was classified as having strong variation from MAE and had the highest risk for language impairment amongst the participants in the LI group (based on the DELV-ST, DRS; refer to Table 3.2), demonstrated the highest frequency rate for overtly marked verbal -s (100%) in the Spoken and Written Responses tasks (but not the Cloze Sentence task) combined when compared to the other TD and LI participants classified as having some to strong
variation from MAE. It is possible that Participant B5’s language therapy/intervention has included a strong focus on explicit teaching of “appropriate” language structures including MAE acceptable use of third person verbal -s.

Figure 4.13: Mean Frequency of Overt Verbal -s by Dialect Category -Written Task

Figure 4.14: Mean Frequency of Overt Verbal -s by Dialect Category -Cloze Task
Within Groups Analyses

In addition to comparing group differences based on frequency rate of overt marking of third person singular verbal -s for each of the experimental tasks completed, the PI sought to determine if there were any significant differences in overt marking between tasks for participants within each clinical group. The participants’ verbal -s productions were compared for differences between the following response modalities: a) Spoken Responses and Written Responses; b) Spoken Responses and fill-in-the-blank, Cloze Sentence Responses; and c) Written Responses and fill-in-the-blank, Cloze Sentence Responses. These analyses were first completed for the TD group, and then for the LI group, using the Wilcoxon Signed Rank Test. The median ranks for overt verbal -s frequency productions rates calculated for each of the clinical groups by experimental tasks are reported in Table 4.6. The median ranks were used to determine statistical significance for difference in rate of overt -s marking between tasks for each group.

Table 4.6: Median Ranks for Overt -s Marking by Experimental Task and Group

<table>
<thead>
<tr>
<th>Clinical Group</th>
<th>Median Rank by Experimental Task</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Spoken Responses</td>
</tr>
<tr>
<td>TD</td>
<td>1.000</td>
</tr>
<tr>
<td>LI</td>
<td>0.985</td>
</tr>
</tbody>
</table>

TD Group Analyses by Experimental Task

In the TD group, all seven of the participants produced the verbal -s at a frequency rate of 1.00 (or 100%) in all opportunities of third person singular verbal -s production in their Spoken Responses (i.e., if there was opportunity to overtly mark the verbal -s, it was overtly marked). Therefore, when comparing verbal -s productions in their Spoken Responses to those in their Written Responses and to those in their fill-in-
the blank Cloze Sentence Responses, the frequency rate could only decrease or remain
the same as the rate for the Spoken Responses task (see Table 4.4).

Even though there were slight decreases in the mean frequency rates for each
participant’s overt verbal –s production when comparing the Spoken Responses task
productions to each of the written tasks (i.e., Spoken Response task mean = 1.00, sd =
0.00; Written Response task mean = 0.936, sd = 0.95; Cloze Sentence task mean = 0.950,
sd = 0.71), as shown in Table 4.7, none of the comparisons between experimental tasks
yielded statistically significant median rank differences for frequency rate of overt verbal
-s marking within the TD group.

Table 4.7: TD Group - Median Rank Differences for Experimental Tasks

<table>
<thead>
<tr>
<th>Task Comparisons</th>
<th>Median Rank Differences</th>
<th>z-score</th>
<th>p-value; α= .05 (two-tailed)</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Written-Spoken</td>
<td>.000</td>
<td>-1.604</td>
<td>.109</td>
<td>ns</td>
</tr>
<tr>
<td>Cloze-Spoken</td>
<td>.000</td>
<td>-1.604</td>
<td>.109</td>
<td>ns</td>
</tr>
<tr>
<td>Cloze-Written</td>
<td>.000</td>
<td>-0.816</td>
<td>.414</td>
<td>ns</td>
</tr>
</tbody>
</table>

*ns* – not significant

For the first set of analyses, which compared overt marking rates for Spoken
responses to those of Written Responses, three of the seven TD group participants
demonstrated fewer productions of overt marking (with greater zero marking) for the
written responses tasks than they did for the spoken responses task, and the remaining
four participants showed no change in overt marking of verbal -s. However, there was
not a statistically significant median difference (*Mdn Diff* = 0.00 for frequency of overt
marking) between the group’s productions of verbal -s when comparing their spoken
responses (*Mdn* = 1.00 frequency rate) to their written responses (*Mdn* = 1.00 frequency
rate); *z* = -1.604, *p* = .109, *ns*. 

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To follow up with the counterbalanced presentation of the Spoken and Written Response task for the book prompt, overt verbal -s production rates were compared in Table 4.8. Of the three participants who completed the spoken response task first, two (B4 and G2) had the same frequency rate (100% and 100% of opportunities were overtly marked) for both tasks, and one participant (B7) had a slightly lower rate of overt marking on the Written Response task than on the Spoken Response task (i.e., 100% and 90%, respectively).

Of the four participants who completed the Written Response task first, two participants, B8 and G3, produced overt -s with the same rate of frequency for both tasks (i.e., 100% and 100%). The other two participants, B2 and G6, demonstrated higher overtly marked frequency rates on the Spoken Responses task than on the Written Responses task (i.e., Spoken 100% for both, but 91% and 75%, respectively on the Written task). These results seem to suggest that there was not a clear influence of order of presentation (or of dialect variation) on overt marking frequency rate. However, the fact that the TD group’s presentations of tasks were counterbalanced while the LI group’s presentations of tasks were not may present as a limitation in this study.

Table 4.8: TD Group - Participants’ Dialect Variation and Order Narrative Tasks

<table>
<thead>
<tr>
<th>Participants’ Order of Task Presentation</th>
<th>Dialect Variation</th>
<th>Experimental Task Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Spoken</td>
</tr>
<tr>
<td><strong>Spoken Responses First (N = 3)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B4</td>
<td>Minimal</td>
<td>1.00</td>
</tr>
<tr>
<td>B7</td>
<td>MAE</td>
<td>1.00</td>
</tr>
<tr>
<td>G2</td>
<td>Minimal</td>
<td>1.00</td>
</tr>
<tr>
<td><strong>Written Responses First (N = 4)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B2</td>
<td>Minimal</td>
<td>1.00</td>
</tr>
<tr>
<td>B8</td>
<td>MAE</td>
<td>1.00</td>
</tr>
<tr>
<td>G3</td>
<td>Minimal</td>
<td>1.00</td>
</tr>
<tr>
<td>G6</td>
<td>Strong</td>
<td>1.00</td>
</tr>
</tbody>
</table>
The second experimental task comparison was between median rank for frequency rates of overt verbal -s marking on the Spoken Responses and fill-in-the-blank Cloze Sentence tasks. The result was similar to that of the median difference found between the median ranks for the group’s frequency rates of overt -s marking on the Spoken Responses and Written Responses tasks. Three of the participants demonstrated a decreased rate of overt verbal -s marking for the Cloze Sentence task, while the remaining three maintained their rate of marking. The median rank for the frequency rates achieved on the Cloze Sentence task was the same as those achieved for the Spoken Response task (Mdn = 1.00); Mdn Diff = 0.000, z = -1.604, p = .109. For the third comparison between the Written Responses and Cloze Sentence Responses, one of the participants demonstrated a decrease in rate of overt marking in the Cloze task, two participants showed an increase in rate of overt marking for the Cloze task, and the remaining four participants demonstrated no change in rate of overt marking. Once again the median rank for each of the two tasks was the same (Mdn = 1.00); Mdn Diff = 0.000, z = -.816, p = .414, ns.

By examining the data reported in Table 4.3, it is evident that Participants B4, B8 and G2 showed consistent overt marking of verbal -s in all three tasks, while Participants B7 and G6 demonstrated a decreased rate of overt marking in both the Written Response and Cloze Sentence Tasks. Participant B2 showed a decreased rate of overt marking on the Written Response Task only and G3 exhibited a decreased rate on the Cloze Sentence Task only.

In summary, all seven TD participants demonstrated 100% overt marking of verbal -s for the Spoken Responses task. However, four of the seven (57% of) TD
participants demonstrated decreased rate of marking for one or both of the written tasks (Written Response and/or Cloze Sentence Response tasks). Specifically, three of the seven (43%) demonstrated a decreased rate of overt marking on the Written Responses task including B2, B7 and G6. In addition, three of the seven (43%) demonstrated decreased rate of marking on the Cloze Sentence task, including B7, G3 and G6.

**LI Group Analyses by Experimental Task**

The same pairs of comparisons were conducted for the LI group as were for the TD group based on median ranks for each experimental task. The only exception was the counter-balancing of Spoken Responses and Written Responses tasks which did not occur with the LI group participants. All participants in the LI group were given the Spoken task first and the Written task second. Similarly, none of the median rank differences for frequency rate of overt –s marking by this group’s participants were statistically significant when comparing each of the three experimental tasks (see Table 4.9).

However for this group, there was variability in the rate of overt marking for the Spoken Responses task, as well as for the two writing tasks (i.e., Written Responses task, Cloze Sentences task), as can be seen in referring back to Table 4.4

Table 4.9: LI Group - Median Rank Differences for Experimental Tasks

<table>
<thead>
<tr>
<th>Task Comparisons</th>
<th>Median Rank Differences</th>
<th>z-score</th>
<th>p-value; α=.05 (two-tailed)</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Written-Spoken</td>
<td>-0.042</td>
<td>-1.214</td>
<td>.225</td>
<td>ns</td>
</tr>
<tr>
<td>Cloze-Spoken</td>
<td>-0.136</td>
<td>-1.214</td>
<td>.225</td>
<td>ns</td>
</tr>
<tr>
<td>Cloze-Written</td>
<td>0.000</td>
<td>-0.552</td>
<td>.581</td>
<td>ns</td>
</tr>
</tbody>
</table>

*ns – not significant*

The first set of task comparisons examined overt verbal –s use in Spoken Responses versus Written Responses. Of the six LI group participants in the study, three of the participants demonstrated a decreased rate in productions of overt marking on the
Written Responses tasks than they did for the Spoken Responses task. Two of the participants showed an increased rate of overt marking of verbal -s in writing and one participant showed no difference in overt marking between these two tasks. The median rank difference of overt -s frequency rates between the group’s Spoken Responses (Mdn = .986) and Written Responses (Mdn = .959) was not statistically significant; Mdn Diff = -0.042, z = -1.214, p = .225 (α ≤ .05, two-tailed).

The second comparison between the Spoken Responses and the fill-in-the-blank Cloze Sentences tasks yielded the same results as those of the first comparison. Three of the participants demonstrated a decreased rate of overt verbal -s marking for the Cloze Sentence task, two displayed an increased rate of overt marking for the Cloze Sentences task over the Spoken Response task, and one participant showed no change. The LI group’s median rank for frequency rate of overt marking on the Cloze Sentence task (Mdn = .864) was lower than the median rank for overt marking on the Spoken Responses task (Mdn = .986), but the median rank difference was not significant; Mdn Diff = -0.136, z = -1.214, p = .225 (α ≤ .05, two-tailed).

Finally, for the third comparison between the overt marking frequency rates for the Written Responses task and the Cloze Sentence task, two of the participants demonstrated a decreased rate of overt marking in the Cloze Sentence task, two participants showed an increased rate of overt marking for the Cloze Sentence task, and the remaining two LI participants demonstrated no difference in rate of overt marking between the two tasks. Although the median rank for frequency rate of overt verbal -s marking for the Written Response task (Mdn = .959) was slightly higher than the median rank for frequency rate on the Cloze Sentence task (Mdn = .864), the difference between
the two median ranks was not significant; \( Mdn \ Diff = 0.00, z = -0.552, p = .581 (\alpha \leq .05, \) two-tailed).

As with the TD group results, visual inspection of Table 4.4 offers greater understanding of the variability in overt verbal -s marking rates for the LI group. However, unlike the participants in the TD group, none of the participants in the LI clinical group demonstrated consistent rates of overt marking of third person verbal -s across all three tasks. Participants B1 and B3 demonstrated a greater rate of overt marking in the Spoken Response task over the two writing tasks, with B3 showing consistent overt marking for the Spoken Response task. Participants B6 and G5 demonstrated consistent overt marking for both of the writing tasks, but not for the Spoken Responses task. Participant B5 demonstrated consistent overt marking of verbal -s for both the Spoken and Written Response tasks, but variably marked it for the Cloze Sentence task, while Participant G4 demonstrated consistent overt marking on the Spoken Response and Cloze Sentence tasks with variable marking for the Written Response task. Interestingly, of all the participants in the LI group, Participants B6 and G5 exhibited the smallest degree of variability across all tasks with only one instance of zero marking each on the Spoken Response task. Participant B1 demonstrated the greatest rate of zero marking for each of the three task with overt marking frequency rates of 0.875, 0.167 and 0.182 for the Spoken, Written and Cloze tasks, respectively.

One of the most significant questions of this study pertained to the variability in the frequency rate of overt verbal -s responses by the two groups. Based on the theory of decreased linguistic awareness/flexibility for children with language impairment, there was the assumption that there would be less variability in differences between the overt
verbal –s marking rates for the spoken and the two writing responses produced by the TD participants. The TD group participants were expected to show greater awareness of the dialect expectation for the spoken versus the written tasks, resulting in more consistency with respect to dialect shifting. In contrast, the participants with LI were expected to show greater variability in their differences in responses because of inconsistency in awareness of demands for dialect shifting.

In fact, the TD group demonstrated no variability in their frequency rate of overt verbal -s marking in their Spoken Responses, in that 100% of the TD participants overtly marked the verbal -s in that context. Fewer than 50% of the TD group showed variability in overt marking (i.e., did not consistently mark verbal -s) on the Written Responses and Cloze Sentence tasks. Forty-three percent of these participants (but not always the same participants) showing some degree of variability on each of those two writing tasks. However, more members of the LI group demonstrated variability on each of the three tasks. Fifty percent of the participants demonstrated variability in overt marking of verbal -s on the Spoken Responses, Written Responses, and Cloze Sentence tasks. Individual overt -s levels on these tasks ranged from 17% to 100% production of this MAE feature in the LI group. In the TD group, individual overt -s levels ranged from 75% to 100% production.

The TD group demonstrated a wider range of variability between tasks, with between 43% and 100% of the members displaying variability on a given task, possibly suggesting that the nature of the task had somewhat more impact on this group as a whole. However, the TD group also had three of seven participants who demonstrated consistent overt marking across all tasks. In contrast, all of the LI group members
displayed variability with respect to their levels of overt marking from one task to another (refer to Figures 4.10 through 4.12).

Interestingly, although the sole TD participant who presented with strong variation from MAE, Participant G6, consistently produced the verbal -s overtly for the Spoken Responses task, that same participant did not demonstrate consistency in overt marking for either of the writing tasks. She overtly marked verbal -s at frequency rates of 75% and 83% of the time for the Written Responses and Cloze Sentence tasks, respectively. In fact, Participant G6 demonstrated the greatest variability, and the lowest frequency rates, of overt marking for each of the writing tasks when compared to the responses of all of the other participants in the TD group. Because Participant G6 was the only participant in the TD group to be categorized as having either strong or some variation from MAE based on the DELV-ST, it is difficult to determine whether the degree of non-mainstream dialect use was the primary factor contributing to this difference. In addition, Participant G6 had not yet begun fourth grade at the time of testing and was considered to be a rising fourth grader.

However, the other TD group participant who was a rising fourth grader but demonstrated very little divergence from MAE based on spontaneous productions and results on the DELV-ST was Participant G2. When comparing Participant G2’s frequency rates of overt verbal –s marking on the experimental writing tasks to those of Participant G6 , unlike Participant G6, Participant G2 continued to demonstrate consistent (100%) overt third person verbal –s marking on both the Written Responses and Cloze Sentences tasks. This observation may suggest that dialect density could very
well have played a role in the consistency with which third person verbal -s was overtly marked in writing tasks for the typically developing AAE speaking children in this study.

**Overt Verbal -s and MCAS**

The last section of the analyses examines any significant statistical correlations between the participants’ frequency of overt verbal –s marking during the experimental tasks and the scaled scores they received on the English Language Arts (ELA) portion of the third grade Massachusetts Comprehensive Assessment System (MCAS) testing. Not all of the study participants completed the third grade MCAS exam in the same academic year (see Table 3.4), but the scaled scores and categories of performance (i.e., Warning, Needs Improvement, Proficient, Advanced) were consistent for the years that the participants took this exam (i.e., Spring 2013, Spring 2014, Spring 2015) (Massachusetts Department of Elementary and Secondary Education, 2013, 2014, 2015). Also, as reported previously, Participant G6 completed the PARCC test, which is the nationally administered counterpart to the state administered MCAS. Therefore, the MCAS and PARCC concordance table (provided by the DESE website) was used to calculate Participant G6’s comparable MCAS score for Grade 3 (Massachusetts DESE, 2015).

All correlational analyses were performed using the Spearman’s Rho statistical test to assess the strength, direction and statistical significance of correlations between the two variables of overt third person verbal -s marking on the three experimental tasks and the participants’ scaled MCAS scores (or in the case of G6, the MCAS score that converted from her PARCC score). The study participants’ MCAS scaled scores and averaged rates for overt verbal –s marking across all tasks and across written tasks are reported in Table 4.10.
Table 4.10: MCAS Scores and Overt -s Markings used in Correlational Analyses

<table>
<thead>
<tr>
<th>Participant Code</th>
<th>MCAS Scaled Scores</th>
<th>Overt -s Marking averaged across all Experimental Tasks</th>
<th>Overt -s Marking averaged across both Writing Experimental Tasks</th>
</tr>
</thead>
<tbody>
<tr>
<td>TD (N=7)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B2</td>
<td>236</td>
<td>0.97</td>
<td>0.96</td>
</tr>
<tr>
<td>B4</td>
<td>238</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>B7</td>
<td>244</td>
<td>0.93</td>
<td>0.90</td>
</tr>
<tr>
<td>B8</td>
<td>246</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>G2</td>
<td>246</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>G3</td>
<td>246</td>
<td>0.97</td>
<td>0.96</td>
</tr>
<tr>
<td>G6</td>
<td>252*</td>
<td>0.86</td>
<td>0.79</td>
</tr>
<tr>
<td>LI (N=6)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B1</td>
<td>234</td>
<td>0.41</td>
<td>0.18</td>
</tr>
<tr>
<td>B3</td>
<td>220</td>
<td>0.82</td>
<td>0.73</td>
</tr>
<tr>
<td>B5</td>
<td>218</td>
<td>0.91</td>
<td>0.86</td>
</tr>
<tr>
<td>B6</td>
<td>242</td>
<td>0.98</td>
<td>1.00</td>
</tr>
<tr>
<td>G4</td>
<td>214</td>
<td>0.91</td>
<td>0.86</td>
</tr>
<tr>
<td>G5</td>
<td>236</td>
<td>0.99</td>
<td>1.00</td>
</tr>
</tbody>
</table>

* Converted MCAS scaled score based on PARCC scaled score achieved

MCAS/PARCC Scores and Average Rate of Overt -s Marking across all Tasks

The first correlation was calculated to examine the relationship between overt -s marked frequency rates averaged across all three experimental tasks and MCAS scaled scores for all participants. The Spearman’s Rho analysis resulted in a moderate (defined as: $0.30 \leq r_s \leq 0.49$) positive, but statistically non-significant, correlation between percent of overt -s marking averaged across all three experimental tasks and MCAS scaled scores, $r_s(11) = .451$, $p = .122$. Hence, increased frequency of overt marking averaged over the three experimental tasks was moderately correlated with an increase in MCAS scores. This correlation is visually represented in Figure 4.15 below and suggests that, not only does there appear to be a positive correlation between overt -s overall and MCAS scores, but also a positive correlation between language status (clinical group) and MCAS score, with the exception of Participants B1 and G6. Participants B1 and G6 were identified as AAE speakers who demonstrate some and strong variation from MAE,
respectively. In addition, there was evidence of greater variability of frequency rates among the LI group participants than among the frequency rates for the TD group participants.

![Correlation between Overt -s Marking across Tasks and MCAS Scores](image)

Figure 4.15: Correlation between Overt -s Marking across Tasks and MCAS Scores

Participants B1 and G6 also presented as outliers relative to the remaining participants, resulting in a curvilinear relationship on the scatterplot. Even though Participant B1 produced the lowest frequency of overt verbal -s marking, his MCAS score was within the range of the three highest MCAS scores achieved by all of the LI participants. In addition, although G6 displayed the lowest frequency of overt marking when averaged across tasks for the TD group, G6 achieved the highest MCAS score of not only the TD group, but of all participants in the study regardless of language status (clinical group).
Following more detailed examination of the data for Participant G6, it is not clear whether or not this participant’s achievement of the highest MCAS score could be attributed to other mitigating factors. Participant G6 was one of the two study participants who completed the PARCC or MCAS testing in the most recent of the three years represented by this group’s participants in 2015. Even though MCAS scoring definitions were consistent for all three examination years represented in this study, the three tests had different reading and writing probes. In addition, as noted previously, G6 was the only participant to complete the PARCC test in lieu of the MCAS. Therefore, her corresponding MCAS score had to be calculated using a concordance table provided by the DESE of Massachusetts on their testing website.

In order to examine whether or not there was a correlation between the participants’ overt –s marked frequency rates averaged across all three experimental tasks and scaled MCAS scores based on clinical group, the Spearman’s Rho test of correlations was repeated using a split group analysis. The effects of the outliers were minimized by the use of Spearman’s Rho, which one uses to analyze the data after converting the scores into ranks. However, the influence of G6’s high PARCC score (adjusted to convert it to a scaled MCAS score), despite her demonstrating the lowest frequency of overt marking of verbal -s for all TD participants, results in a weak negative correlation between the variables, \( r_s (6) = -.154, p = .742 (\alpha = .05; \text{two-tailed}) \). In comparing the LI group participants’ average frequency rate for overt verbal –s marking across tasks and MCAS ELA scaled scores, there was evidence of a moderate but statistically non-significant positive correlation between the two variables; \( r_s (5) = .406, p = .425 (\alpha = .05, \text{two-tailed}) \).
MCAS/PARCC Scores and Average Rate of Overt –s Marking for Writing Tasks

Secondly, using the Spearman’s Rho test, correlational statistics were calculated between the frequency of overt verbal -s marking, averaging the responses for the two writing tasks only, and the MCAS scores (first for the clinical groups combined and then with the files split by group). Results of the combined group correlations revealed a moderate but statistically non-significant positive correlation between the two variables, \( r_s (11) = .419, p = .154 (\alpha \leq .05, \text{two-tailed}) \).

However, with the split by clinical group as depicted in Figures 4.16 and 4.17, the results were substantially different. Unlike the correlational relationship found for the three task averaged frequency rate, the TD group alone in this instance demonstrated a weak negative correlation between the two variables, \( r_s (6) = -.154, p = .742 (\alpha \leq .05, \text{two-tailed}) \). It is believed that the results of this correlation were most likely influenced by G6’s high MCAS score paired with her lowest frequency of overt verbal marking on the two writing tasks in the TD group. The correlation for the LI group remained similar to the correlation achieved with the combined clinical groups, which again was a moderate but statistically non-significant positive correlation, \( r_s (5) = .441, p = .381 (\alpha = .05, \text{two-tailed}) \).
Figure 4.16: TD Group - Correlation between Frequency Rates for Overt -s Marking Averaged over Writing Tasks and MCAS Scaled Scores

Figure 4.17: LI Group - Correlation between Frequency Rates for Overt -s Marking Averaged over Writing Tasks and MCAS Scaled Scores
**Linguistic Contexts for Zero Marked Verbal –s**

Visual inspection of the participants’ responses to the narrative prompt for the first two experimental tasks, Spoken Responses and Written Responses, reveals some interesting observations with regard to zero marking. Table 4.11 includes the participants who used zero verbal –s marking in the Spoken Responses task and/or the Written Responses task.

Table 4.11: Instances of Zero Verbal -s Marking for Experimental Narrative Tasks

<table>
<thead>
<tr>
<th>Participant Code</th>
<th>Clinical Group</th>
<th>Dialect variation category</th>
<th>Response Mode (Spoken, Written, Both)</th>
<th>Instances per Opportunity</th>
</tr>
</thead>
<tbody>
<tr>
<td>B1</td>
<td>LI</td>
<td>Some</td>
<td>Both</td>
<td>1/9 - Spoken 5/6 - Written</td>
</tr>
<tr>
<td>B2</td>
<td>TD</td>
<td>Minimal</td>
<td>Written</td>
<td>1/11</td>
</tr>
<tr>
<td>B3</td>
<td>LI</td>
<td>Minimal</td>
<td>Written</td>
<td>1/12</td>
</tr>
<tr>
<td>B6</td>
<td>LI</td>
<td>Some</td>
<td>Spoken</td>
<td>1/16</td>
</tr>
<tr>
<td>B7</td>
<td>TD</td>
<td>MAE</td>
<td>Written</td>
<td>1/10</td>
</tr>
<tr>
<td>G4</td>
<td>LI</td>
<td>Minimal</td>
<td>Written</td>
<td>3/11</td>
</tr>
<tr>
<td>G5</td>
<td>LI</td>
<td>Minimal</td>
<td>Spoken</td>
<td>1/31</td>
</tr>
<tr>
<td>G6</td>
<td>TD</td>
<td>Strong</td>
<td>Written</td>
<td>3/9</td>
</tr>
</tbody>
</table>

This analysis did not include the data from participants’ overt verbal –s marking for the fill-in-the-blank Cloze Sentence task. The Cloze Sentence task had greater restrictions with regard to what verbs could be used in the responses when compared to the more generative Spoken and Written Responses tasks. In general, it was obvious from reviewing the data provided in Table 4.10 that most of the participants’ responses consisted of only one instance of zero verbal –s marking with the exceptions of the responses of B1 (written), G4 (written) and G6 (written). Because the participants that produced multiple instances of zero verbal –s marking included a combination of TD group and LI group participants, it did not appear that language competence was the
primary factor. However, the participants who produced more than one instance of zero marking, did so on the Written Responses task.

Further examination of instances where zero marking occurred revealed the following patterns. Participant B1 demonstrated zero verbal -s marking for all of his written responses with the exception of “dose” for “does” in a compound sentence (i.e., “The girlDos [does] looking out the window and look at her.”). Participant G4 zero marked verbal -s for one instance of “want” and two instances of “like” while she overtly marked four additional instances of “likes,” two additional instances of “wants” and one use of the word “smells.” Participant G6 only demonstrated zero verbal -s for three of her four sentences that included the verb “like” (i.e., “Poppy like to play the hamonica [sic],” “The girl like Bana[na] otemeal [sic],” “The girl like to color at the coloring table”). However, she used overt verbal -s for the sentence, “The girl likes to get chased by the hose.” In her remaining five sentences, she used overt marking of verbal –s for the verbs “helps,” “doesn’t,” “makes,” “wants,” and “takes.” It appeared that the participants in this study who zero-marked verbal -s with any frequency in their written responses, did so when using the verbs “want” (3 of 13 zero verbal -s responses) and “like” (4 of 13 zero verbal -s responses) more than any other verbs. The other verbs that were produced in the written responses with zero verbal -s by more than one participant consisted of verbs that ended with /s/ or an /s/ cluster (i.e., B1 – “taste”, B2 – “chase”, B7 – “taste”; representing 3 of 13 zero verbal -s responses combined). Sentences produced by the participants who demonstrated both overt and zero marking of verbal -s in their responses to the spoken and written experimental tasks can be found in Appendix G.
Unintelligible/Illegible Productions

In reviewing each participant’s verbal output for the Spoken Responses task, Participant B4, from the TD group, presented with a rapid rate of speaking; however, all of his productions were intelligible. Of the six participants in the LI group, three of the members – Participants B5, B6 and G4 – produced responses that required the PI to repeatedly ask for clarification, or there were numerous restarts and fillers in their productions. For the Written Responses task, there were no instances of illegible sentences written by any of the members of the TD group. For the LI group, all sentences were reasonably legible; however, Participant B1 only wrote five sentences despite repeated coaxing and prompting by the PI. Therefore, the task was discontinued prematurely, and this was the only instance of need for discontinuation of tasks for any of the study participants.

Overall, there were no instances of unintelligible or illegible responses by any of the members of the TD group. However three of the six participants in the LI group demonstrated challenges with intelligibility of their spoken productions, primarily because of their frequent use of restarts and/or fillers (e.g., um, mm, hmm) and a fourth member of the LI group demonstrated substantial stress and difficulty with producing the written responses, and successfully only wrote five of the required 10 sentences.
CHAPTER 5

DISCUSSION

There were two overarching purposes for conducting this study. The first purpose was to further investigate the role of overtly marked (or zero-marked) third person verbal -s use in habitual contexts by bidialectal, variable AAE speakers at the fourth grade level when presented with a combination of one spoken and two written, experimental tasks. The second overarching purpose was to examine this contrastive pattern in the context of inter-dialect shifting between spoken and written modalities as a viable piece of contextual analysis information that could be used to identify and/or validate suspected language deficit in African American students who are bidialectal/variable AAE speakers. In the event that a significant discrepancy in shifting frequency was noted between the TD and LI participants in this study, it was speculated that the persistence of zero verbal -s marking across modalities (i.e., spoken to written) would indicate a limitation in linguistic awareness that would be consistent with the characteristics of specific language impairment in MAE speaking children. It was hoped that the information from this study would assist SLPs with identifying and/or validating the presence of language impairment in bi-dialectical AAE-MAE speaking students comparable to those in the current study’s samples through dynamic assessment within the educational setting.

However, before preceding to the specific research questions and discussion of their results, the first section of this chapter will discuss the results of preliminary correlational analyses completed to detect any relationships between clinical language
status (i.e., TD versus LI) and three factors/variables that have been noted to be evident in prior empirical studies on MAE-speaking children diagnosed with language impairment for the variable AAE-speaking children in this study.

**Preliminary Correlation Results**

This portion of the discussion focuses on the results of preliminary analyses used to determine whether there were correlational relationships between the variables of receptive vocabulary (based on the participants’ PPVT-4 standard scores), and of NDW/C-unit (Mean Number of Different Words per Communication unit) and MLC-Uw (Mean Length of C-units in words) for the Written Responses Task, as they each related to the participants’ groupings – clinical group membership and dialect variation group membership.

**Receptive Vocabulary and Group Membership**

The first of these correlational analyses was completed to assess the relationship between the participants’ mean PPVT-4 standard scores and clinical group membership. The results indicated a moderate correlation, reflecting the finding that the mean rank was higher for the TD group than for the LI group. In fact, the majority of the LI group participants scored at or below the mean standard score, while the majority of the TD group participants achieved standard scores that were between the mean standard score of 100 and +1 SD of the mean. These results were somewhat varied from those expected initially. The PI had hypothesized that the majority of the members of the LI group would achieve standard scores that were at least one standard deviation below the mean because of their identified language delays. However, the current study’s results were
consistent with the Dunn and Dunn (2007) PPVT-4 validity studies. Dunn and Dunn compared a sample of language disordered children aged 8- to 12-years old to a non-clinical reference group children in the same age range. The mean standard score for the child sample group that was diagnosed as language disordered was also in the average range (mean = 89.7, \(SD = 13.2\)), but further from the test normative mean of 100 than the means of the non-clinical groups, which were in the low average range.

Interestingly, for the current study, there was also a tendency for the participants who demonstrated strong variation from AAE to achieve standard scores in the range between -1SD of the mean and the mean (i.e., standard scores between 85 and 100). This result was not expected and seemed to suggest that not only do fourth graders with language impairment generally score lower on the PPVT-4, but it is possible that children who demonstrate strong variation from MAE may be at risk of achieving PPVT-4 scores that are somewhat lower than those of their peers who demonstrate less intense variation from MAE, regardless of language impairment.

However, the lower PPVT-4 scores may also correlate with diminished proficiency in dialect shifting for certain types of language tasks (e.g., transition from structured spoken to structured written tasks). This possibility is supported by previous studies. For example, Edwards and her colleagues (Edwards et al., 2014) found a statistically significant positive correlation between vocabulary and dialect awareness in her four to eight year-old, AAE-speaking subjects. The children were asked to discriminate between a red cartoon monster and a blue cartoon monster that spoke using MAE or AAE dialect, respectively. In this study “the children with larger vocabularies performed better on their dialect awareness task” (p. 1889), and the researchers reported
their results “suggest that children with larger vocabularies will be better able to figure out the parameters of dialect shifting” (p. 1889).

**NDW/C-units and Group Membership**

Correlational analysis between numbers of NDW/C-units for the written responses task and clinical group membership was examined. The participants in the LI group produced fewer numbers of different words (NDW) per communication unit than the participants in the TD group in their written responses. These results were consistent with previous findings by Redmond (2004) and Williams et al. (2013) in each of their studies on NDW in spoken and written language samples of elementary-aged students. These researchers also found that children with language impairment produced fewer NDW in their writing than typically developing children (Redmond, 2004; Williams, Larkin, & Blaggan, 2013).

In addition to completing a correlational analysis based on the variable of clinical group, the relationship between the participants’ dialect variation category/groups (i.e., primarily MAE, minimal variation from MAE, some variation from MAE, strong variation from MAE) and the dialect groups’ mean NDW/C-unit was examined visually using a scatterplot. In reviewing the scatterplot, it was evident that the participants in the LI group who were categorized as having “some” to “strong” variation from MAE (based on responses on the DELV-ST given at intake) had lower NDW/C-unit counts when compared to the participants categorized as speakers with “minimal” variation from MAE at intake. In the TD group, there was only one participant, G6, with “strong variation” from MAE. Participant G6 also displayed relatively lower NDW/C-unit counts in relationship to almost all of the remaining TD participants. The exception was
Participant G3, categorized as a speaker with minimal variation from MAE, who produced the lowest NDW/C-unit count in the TD group. Interestingly, two of the participants, B7 and B8, who had been categorized as “primarily MAE speakers”, produced only slighter greater NDW/C-unit counts than Participant G6 and fewer than the three remaining TD group participants who were categorized as speakers who demonstrated “minimal variation from MAE”.

**MLC-U<sub>w</sub> and Group Membership**

Finally, a correlational analysis between the variables of mean length of communication units based on number of words (i.e., MLC-U<sub>w</sub>) for the Written Responses task and clinical language group was calculated. The results were similar to those of the correlational analysis between the NDW/C-unit and the clinical language group variables. Similar to those results, there was a moderate correlation between clinical language group membership and MLC-U<sub>w</sub>, in favor of the participants in the TD group who produced longer communication units than the LI group participants for the Written Responses task. This finding is in agreement with prior studies that have identified school-aged MAE speakers with language impairment as presenting with shorter written sentences than comparable MAE speakers who are typically developing (Fey, Catts, Proctor-Williams, Tomblin, & Zhang, 2004; Scott & Windsor, 2000). In the Scott and Windsor (2000) study of the narrative and expository writing, they compared the writing samples of chronologically age-matched (CA) typically developing and language learning impaired (LLD) 9- to 12-year old students, as well as language-age matched (LA) 7- to 10-year old peers. Scott and Windsor reported that “the mean for the
CA group for words/T-unit\(^7\) was significantly higher than the corresponding means for the LA and LLD groups” (p. 333).

In addition, based on visual inspection of a scatterplot depicting the two variables of MLC-\(U_w\) on the Written Response task and dialect category, the LI group participants who were categorized as speakers with “some” or “strong” variation from MAE exhibited shorter MLC-\(U_w\) counts for sentences when compared to the sentences produced by the LI participants who were categorized as speakers with “minimal” variation from MAE. In the same scatterplot, it is evident that among the TD group participants, the two participants categorized as “primarily MAE” speakers and the one participant categorized as speaking with “strong variation” produced the three lowest MLC-\(U_w\) counts for the TD group, with the two primarily MAE speakers having the two lowest counts (i.e., 7.00 words and 6.50 words). Consistent with the results of the correlation analysis for the NDW/C-unit and dialect variation category, it is plausible that the primarily MAE speaking participants in this study’s TD group sought to produce the most concise, and hence the shortest, sentences for the Written Responses task.

**Overt Verbal -s Marking by Group: Research Questions, Findings and Responses**

Overall, there were four specific research questions that guided the design and implementation of this study. The first three questions addressed how the members of the two clinical language groups (i.e., TD, LI) performed on the three experimental tasks (i.e., Spoken Responses task, Written Responses task, Cloze Sentences task) with regard to their uses of overt verbal –s marking when comparing between and within clinical

\(^7\) T-units and C-units are comparable measures of independent clauses for spoken and written utterances.
language groups. The last question investigated whether there was a significant correlational relationship between the frequency rates of overt verbal –s marking for the experimental writing tasks exhibited by each participant and the participants’ performance on their statewide academic exam taken in third grade. The discussions regarding this study’s results will be presented following each of the four research questions.

Although low numbers of verbal –s contexts and small numbers of participants in each clinical group made it difficult to evaluate the effects of the three language modality variables, there was evidence of their influence on the participants’ marking of verbal -s. The influence was demonstrated by statistical analyses, as well as by visual inspection of the two groups’ data.

**Research Question #1**

Did the experimental protocol designed to focus on habitual aspects of third person verbal -s use effectively identify inter-dialect shifting for TD and LI fourth graders who are variable speakers of AAE?

- Null hypothesis: Administration of the experimental protocol was not effective in detecting shifting between overt- and zero-marking of third person verbal -s in either the TD or LI fourth grade groups that include speakers of AAE.

- Alternate hypothesis: Administration of the experimental protocol was effective in detecting shifting between overt- and zero-marking of third person verbal -s in either the TD or LI fourth grade groups that include speakers of AAE.
This question was designed to probe whether the experimental tasks used were sufficiently effective in eliciting inter-dialect shifting of verbal -s marking by comparing its use in spoken versus written modalities.

The results for this question should be prefaced by the following information. For the current study, the DELV-Screener classified all but one of the TD group members as MAE speakers. However, this classification did not acknowledge the contrastive patterns of AAE use by most of the TD participants in their initial interviews and informal conversations. Therefore, to account for the variability of those participants AAE use, the PI reclassified the TD students who presented with “minimal” or possibly residual AAE-pattern usage to variable AAE speakers with “minimal variation from MAE.” In addition, even though the PI categorized all of the LI participants that were determined by results on the DELV to be MAE speakers as speakers with “minimal variation from MAE”, the overlap between morpho-syntactic patterns evidenced by AAE speakers, as well as by MAE speakers with diagnosed language impairment, such as zero or absent verbal –s, should be considered. All of this is not to dispute the results of the DELV dialect screener. In fact, the students determined by the results of DELV-screener to be MAE-speakers did indeed present as predominantly MAE speakers when interviewed by the PI, even in the home environment, with very minimal evidence of AAE patterns.

**Quantitative Data**

For the TD group, even though there were slight decreases in the mean frequency rates for each participant’s overt verbal –s use when comparing the Spoken Responses task productions to those used in each of the writing tasks (i.e., Spoken Response [SR]
task mean = 1.00, sd = 0.000; Written Response [WR] task mean = 0.936, sd = 0.95; Cloze Sentence [CS] task mean = 0.950, sd = 0.71), because of the relatively consistent rates of overt marking within each task for the TD group, all of the median ranks for the corresponding frequency rates were the same ($Mdn = 0.000$). Therefore, all of the comparisons between experimental tasks (i.e., WR-to-SR, CS-to-SR, and CS-to-WR) yielded no significant median rank differences for frequency rate of overt verbal -s marking ($Mdn\Diff = 0.000; \ns$) for the TD group.

For the LI group, there was greater inconsistency in overt marking for the Spoken Responses task, as well as for the two writing tasks (i.e., mean frequency rates: SR task mean = 0.964, sd = 0.45; WR task mean = 0.802, sd = 0.33; CS task mean = 0.742, sd = 0.33). In other words, not all of the members of the LI group demonstrated overt marking frequency rates of 100% for the Spoken Responses task, contrary to what was observed by the TD group participants. In addition, as a whole, the LI group members overtly marked verbal -s less frequently on the WR and CS tasks than the members of the TD group. As a result, the corresponding median ranks for the LI group’s mean frequency rates were more variable than those for the TD group – SR task median rank = 0.985, WR median rank = 0.958, and CS median rank = 0.864. Despite this difference between the language groups, the quantitative analyses results for the LI group were similar to those for the TD group in that none of the median rank differences for frequency rate of overt -s marking by the LI group members were statistically significant when comparing each of the three experimental tasks to each other (i.e., WR-to-SR $Mdn\Diff = -0.042$; CS-to-SR $Mdn\Diff = -0.136$; and CS-to-WR $Mdn\Diff = 0.000$).
However, on further inspection, it was noted that the $z$-scores for the median rank differences were identical when comparing the frequency rates of overt –s marking for the Spoken Responses with the frequency rates for each of the writing tasks (i.e., Spoken Responses to Written Responses, Spoken Responses to Cloze Sentences). In addition, median differences between the two writing tasks were less significant (i.e., Written Language to Cloze Sentences) for each of the clinical language groups. For the TD group, although the median rank differences were 0.000 for all three comparisons, the corresponding $z$-scores for the Written Responses-to-Spoken Responses and Cloze Sentences-to-Spoken Responses were both -1.604, $p$-value = .109 ($\alpha \leq 0.05$; two tailed), while the Writing Responses-to-Cloze Sentences comparison yielded a noticeably lower $z$-score (= 0.816, $p$-value = .414; $\alpha \leq 0.05$, two tailed).

For the LI group the pattern was similar. Even though the median rank differences varied for all three pairs of task comparisons (i.e., Written-to-Spoken Responses = -0.042, Cloze Sentences-to-Spoken Response = -0.136, Cloze Sentences-to-Written Responses = 0.000), the $z$-scores reflected even greater discrepancies between the frequency of overt verbal –s use when comparing the Spoken Responses to each of the two writing tasks comparisons, as opposed to the comparison between each of the two writing tasks (i.e., Written Response-to-Spoken Response: $z$-score = -1.214, $p = .225$, and Cloze Sentence-to-Spoken Response: $z$-score = -1.214, $p = .225$; but Cloze Sentence-Written Response: $z$-score = -0.552, $p = .581$).

Regardless of this clear pattern of differences, the results of the statistical analyses of median rank differences in frequencies rates for overt marking between each of the three pairs of tasks comparisons (i.e., Spoken Responses to Written Response, Spoken
Responses to Cloze Sentences Responses, and Written Responses to Cloze Sentences Responses) did not indicate statistically significant differences for either the TD group or the LI group participants between tasks. Therefore, it was not possible to reject the null hypothesis for the first research question. There was not sufficient evidence to determine that the three experimental tasks were distinct enough from each other to detect shifting between overt- and zero-marking of third person verbal -s by either the TD or LI fourth grade AAE-speaking group members.

Qualitative Observations Discussion

Despite the lack of quantitative evidence necessary to reject the null hypothesis for this research question, qualitatively there were observable differences between overt and zero verbal -s use by the participants based on experimental task, particularly for the TD group members. All seven of the TD participants demonstrated 100% overt marking of verbal -s for the Spoken Responses task. However, four of the seven (57% of) TD participants demonstrated decreased rate of marking for one or both of the written tasks (Written Response and/or Cloze Sentence Response tasks). Therefore, it may be possible to infer that the presentation of one or the other of the writing tasks resulted in a change, or inter-dialectal shift, when compared to the participants’ performance on the Spoken Responses task. Specifically, three of the seven (43%) demonstrated a decreased rate of overt marking on the Written Responses task. In addition, three of the seven (43%) demonstrated a decreased rate of marking on the Cloze Sentence task.

Contrary to the observations of the TD group members, the evidence of inter-dialect shifting was not as obvious for the members of the LI group. The participants in the LI group did not demonstrate consistency of overt verbal -s marking for the spoken
task or for either of the two writing tasks. One trait seen in children with language impairment is the variability in their use of grammatical forms. Therefore, the inconsistency of overt verbal –s marking by the members of the LI group may have been more reflective of their predisposition to general inconsistency in learning of grammatical forms as opposed to the effectiveness of the experimental protocol for eliciting inter-dialect shifting.

**Additional Comments**

The PI initially anticipated that because the Spoken Responses task was a relatively informal task in comparison to the Written Responses and Cloze Sentences tasks, the frequency rates for overt marking on the Spoken Responses task would be substantially different from the frequency rates for the writing tasks. However, it is possible that, contrary to the PI’s initial assumption, the participants in this study perceived the Spoken Responses task to be a school-based type of task. As a result they may have interpreted that it required responses similar to those they would provide in a school setting; in effect, an explicit expectation for MAE use, just like the writing tasks. In summary, the participants in this study seemed to view all three of the experimental tasks as school-like activities, all with explicit expectation for MAE use.

In addition, it was surprising to observe that the TD group participants’ responses for the three experimental tasks did not adhere to the direction of shifting that was originally hypothesized based on prior studies that examined dialect shifting between speaking and writing modalities. For the current study, the TD group participants demonstrated the highest frequency rate of MAE pattern use (overtly-marked third person
singular verbal –s) for the Spoken Responses task with equal or lower frequency rates of overt marking for the Written Responses and Cloze Sentences tasks.

The current study’s result is in contrast to prior research (e.g., Craig, Zhang, Hensel, & Quinn, 2009; Fogel & Ehri, 2000; Horton-Ikard & Pittman, 2010), where it was found that children who are AAE speakers are more likely to demonstrate intra- and/or inter-dialect shifting to more frequent use of MAE-consistent patterns in their written language tasks. It has been hypothesized that the direction of shifting from AAE for spoken language tasks to MAE for writing tasks was because AAE speakers are more likely to respond to writing tasks based on explicit expectation for school-based MAE use, whereas with spoken language tasks, the AAE speakers were less likely to make the connection that there was a need for dialect shifting to MAE, suggesting the expectation for shifting to MAE would be more implicit for speaking tasks.

One plausible explanation for this difference is that because the majority of TD members in the current study demonstrated minimal or variable AAE use overall, as third to fourth grade students, they were more like to produce MAE consistent patterns in testing situations even where spoken responses were prompted. Another explanation for the difference between the results of prior research studies and those of the current study may be due to type of spoken language task employed. Even though the Spoken Responses task for the current study elicited verbal output, prior studies have used spontaneous or child-directed spoken language. As a result, it is speculated that because the Spoken Responses probe was used to elicit descriptive details about a narrative story (similar to the type of task that may be requested in a school setting) for the current study, the participants were more likely to have the expectation that MAE use was required,
hence having a more explicit expectation for MAE use than originally hypothesized. In fact, prior studies have demonstrated that a child who is an AAE speaker may perceive the need to use MAE in some types of language tasks but not so much so in other types of task. For example, Craig and Washington (2004) reported that the AAE-speaking children in their study were observed to produce more AAE-features during semi-structured picture description tasks than in other types of tasks (e.g., oral reading of SAE texts, production of spontaneous written samples).

The only TD participant who demonstrated less than 90% overt verbal –s use on each of the writing tasks was Participant G6 who presented with overt verbal –s frequency counts of 75% and 83% on the Written Responses and Cloze Sentence tasks, respectively. Given Participant G6’s greater density of AAE pattern usage in comparison to the other TD participants, it is possible that the writing tasks created a greater cognitive load (refer to Terry, Hendrick, Evangelou, & Smith, 2010; Renn & Terry, 2009) than the Spoken Responses task with regard to maintaining the expected MAE pattern. In other words, it is possible that because Participant G6 showed a greater likelihood of producing zero verbal –s marking, even on the dialect screener (in 2 of 4 targets), as a bidialectal speaker, Participant G6 may have had more difficulty maintaining consistency for the less familiar production of overt verbal –s in the presence of the additional motor component of writing.

**Research Question #2**

Did the fourth grade AAE-speakers in the LI and TD groups demonstrate comparable rates of shifting between overt-marking and zero-marking of verbal -s when comparing their responses for the spoken vs. the written vs. the cloze sentence tasks?
• Null hypothesis: There were no discrepancies in the frequency rates of overt- and zero-marking of verbal -s seen between the speakers in the LI group and those in the TD group when comparing their responses for the spoken vs. the written vs. the cloze sentence tasks.

• Alternate hypothesis: There were discrepancies in the frequency rates of overt- and zero-marking of verbal -s seen between the speakers in the LI group and those in the TD group when comparing their responses for the spoken vs. the written vs. the cloze sentence tasks.

This question addressed the issue of whether the experimental task set could be used to distinguish the inter-dialect shifting skills of typically developing fourth graders from the skills of language impaired fourth graders.

**Quantitative Data**

When the PI compared the mean ranks of overt verbal –s marking of the TD and the LI groups for each of the three experimental tasks, statistically significant results were found for the Spoken Responses task. As reported in the previous section, all of the members of the TD group overtly marked the verbal –s on the Spoken Responses task. However, the LI group participants demonstrated a range of overt marking frequency rates. The differences in frequency rates for the two groups resulted in a significantly higher mean rank of the overt marking for the TD group when compared to the mean rank for the LI group. The difference in mean ranks for the frequency rates of overt marking by the TD group members (mean rank = 8.50) was significantly higher than the mean ranks for the LI group frequency rates (mean rank = 5.25) and was determined to be statistically significant (U = 10.500, z = 10.500, p = .042 [α ≤ 0.05]; sig). The LI
group demonstrated a greater frequency rate for use of zero marking for the third person singular verb environment than the TD group. However, the results were not significant when comparing groups for the Written Responses task – TD (mean rank = 4.43) and LI (mean rank = 6.50), U = 18.000, z = -.466, p = .641, ns; or for the Cloze Sentence task – TD (mean rank = 7.86) and LI (mean rank = 6.00); U = 15.000, z = -.932, p = .351; ns.

Overall, the participants in the LI group demonstrated greater variability in their rates of overt verbal –s marking for the Spoken Responses task, as well as for the writing based tasks, when compared to the range of overt marking rates seen for TD group members. The lack of consistency with overtly (or zero) marking of verbal –s for any of the three experimental tasks would be in line with the predisposed factor of inconsistent use of age level grammatical skills that is a characteristic of language impairment for MAE speakers as well. It is also possible that they were demonstrating emerging use of the overt verbal –s marking secondary to their persistent language deficits. However, unlike the TD group participants, when the PI compared the LI group’s frequency rates for overt verbal –s marking on each of the two writing language tasks to their frequency rates for overt verbal –s marking on the Spoken Responses task, there was not a consistent pattern of increased or decreased inter-dialect shifting from AAE to MAE.

Therefore, the theory that an increased cognitive load had an effect on their changes in verbal –s marking did not seem to apply as the overwhelming factor for LI group. But rather, the LI group dynamics suggested random patterns of marking between all three tasks including for the writing tasks. In other words, there was not clear evidence that the act of writing their responses was any more challenging than speaking them for two of the six LI participants. However, it may add credence to the theory that,
as a group, the bidialectal AAE-speaking children with evidence of language impairment in this study demonstrated decreased linguistic flexibility in comparison to their TD peers. This was evident based on the LI group participants’ lack of consistency in dialect shifting to overt verbal –s marking for any of the language modalities, in contrast to the TD group participants’ performance on the Spoken Responses task.

Because there was a statistically significant difference in mean frequency ranks of overt marking found between the two clinical language groups for at least one of the experimental tasks (i.e., the Spoken Responses task) it is possible to reject the null hypothesis for this research question and accept the alternative. There were discrepancies in the frequency rates of overt- and zero-marking of verbal –s seen between the speakers in the LI group and those in the TD group when comparing their responses for the spoken vs. the written vs. the cloze sentence tasks.

**Qualitative Observations Discussion**

Based on the data gathered and analyzed in this study, it appeared that this type of dynamic assessment could be used to detect inter-dialect shifting differences between TD and LI students at the fourth grade level even if there is only minimal or residual evidence of the African American child being a bidialectal AAE-MAE speaker. As a whole, the children in the LI group demonstrated less frequent and less consistent shifting to overt verbal –s marking on the writing tasks (i.e., Written Responses task, Cloze Sentences task) than the TD group participants.

In one way the results of this study are similar to those from previous studies (e.g., Cleveland & Oetting, 2013; Craig & Washington, 2004; Jackson & Pearson, 2010; Seymour, Bland-Stewart, & Green, 1998) in that the current study did not find
statistically significant differences between TD and LI bidialectal AAE speakers with regard to each group’s frequency of overt marking for verbal -s on the writing tasks. However, there was a statistically significant difference between the two groups’ overt marking rates for verbal -s on the Spoken Response task. The TD participants overtly marked verbal -s 100% of the time when there was opportunity, while the LI groups’ frequency of marking ranged from 87.5% to 100% of opportunities. These results suggest that with the current study sample groups, the PI was more likely to find less than 100% consistency in overt verbal –s marking in the context of the Spoken Responses experimental task if the third- to fourth-grade student also demonstrated language impairment, regardless of their degree of AAE dialect use. Conversely, the PI was more likely to observe 100% consistency in overt verbal –s marking if the third- to fourth-grade student presented with typically developing language skills, regardless of the degree to which they used AAE dialect patterns.

However, the results seen here do not negate the need for initial comprehensive speech and language testing, including a language sample and standardized measures, such as those that test for skills not affected by use of AAE-dialect (i.e., non-contrastive skills). However, the triad of experimental tasks presented in this study may be viable as a form of dynamic assessment that can be used to supplement standardized or criterion-referenced screening tools (e.g., the DELV screener) for AA students who may present with even residual patterns of AAE dialect in their spontaneous or elicited spoken language. In addition, the analyses completed using the results from the experimental task triad may be considered for use as a baseline for response-to-instruction to determine whether explicit general education instruction that targets explicit dialect shifting to
produce more consistent MAE use in written language may be effective, which is when the cognitive load is presumed to be greater than in spoken language alone.

**Research Question #3**

Did the category of AAE use (as measured by variation from MAE) assigned to each participant correlate with the frequency of shifting demonstrated by the participants within the TD and LI groups?

- Null hypothesis: There was no correlation between category of variation from MAE dialect use (i.e., strong and some vs. minimal and MAE) and frequency of shifting between overt- and zero-marking of verbal -s for the participants in the TD and LI groups.

- Alternate hypothesis: There was a correlation between category of variation from MAE dialect use and frequency of shifting between overt- and zero-marking of verbal -s for the participants in the TD and LI groups.

**Quantitative Data**

This research question addressed whether the degree of AAE use (or variation from MAE use) correlated with frequency of shifting for either the TD group participants or the LI group participants. The question was challenging to answer statistically because there were unequal groups and limited numbers of participants who were identified as consistent or predominantly AAE speakers (i.e., there was only one of the seven participants in the TD group, and three of the six participants in the LI group).

**Qualitative Observations Discussion**

Despite the inequity between the clinical language groups by dialect variation, visual inspection of the data revealed that the sole member of the TD group who
presented with strong variation from MAE, Participant G6, demonstrated the lowest frequency of overt verbal -s marking for the group on the writing tasks only (frequency rate of marking = .75 and .83 on the Written Responses and Cloze Sentence tasks, respectively). However, Participant G6 consistently produced the third person singular verbs with overt –s marking for the Spoken Responses task. She displayed differences in frequency rate for overt marking of 0.25 (or 25%) between the Spoken Responses and the Written Responses tasks and 0.17 (or 17%) difference in frequency rate of overt marking between the Spoken Responses and the Cloze Sentences tasks. These differences were greater than any of the differences noted between the Spoken Responses task and either of the two writing task for any of the remainder of the TD group members, all of whose degree of language variation was categorized as “minimal variation from MAE” or “MAE.”

The focus of visual analyses was then turned to the performances of the LI group members who demonstrated either some or strong variance from MAE. In this group Participant B5, who was identified as displaying “strong variation from MAE,” was consistent with overt marking of verbal -s on the Spoken and Written Responses tasks, but was inconsistent in overtly marking verbal –s on the Cloze Sentences task (frequency rate = .727 [or nearly 73% of opportunities for overt marking]). Another LI group member, Participant B1, who presented with “some variation from MAE,” demonstrated an extremely low rate of overt marking for verbal -s for both of the writing tasks (frequency rates of .167 and .181 for the Written Responses and Cloze Sentences tasks, respectively) with a higher frequency rate of overt marking on the Spoken Responses task (frequency rate = .875). This led the investigator to conclude that the predominant factor
that contributed to decreased rate of overt marking by the participants in the LI group was most likely their language impairment rather than the degree of AAE dialect density.

Additional review of the raw data confirmed that there was a visible discrepancy at the group level between the TD participants’ and the LI participants’ consistency of overt marking for third person singular verbal -s on the Spoken Language task. The frequency rates for overt marking ranged from .876 to 1.00 instances of overt third person singular marking per opportunity for the LI group while all of the TD group participants marked verbal –s at a frequency rate of 1.00 instances per opportunity, or 100% of the time.

As a result, the PI concluded that in this study, all participants in the LI group demonstrated less consistent production of overt verbal -s across the three modalities of communication when compared to the TD participants whether they presented with “minimal” or “strong” variation from MAE.

**Research Question #4**

Did the frequency rate of overt verbal -s marking correlate with the ELA scaled scores achieved by the study participants on the ELA portion of their third-grade Massachusetts Comprehensive Assessment System (MCAS) exam?

- Null hypothesis: There was no correlation between the participants’ frequency of overt verbal –s marking and their third grade ELA MCAS scores.
- Alternate hypothesis: There was a correlation between the participants’ frequency rate of overt verbal –s marking and their third grade ELA MCAS scores.

Based on the information documented in the literature review for this study, one of the questions that has been posed is whether the persistent Black-White achievement
gap for statewide high-stakes testing, such as the MCAS exam, is due in part to the effects of some AA children’s use of nonmainstream dialect. It was not possible to address this question directly in the current study. There were not adequate numbers of both robust AAE-speaking and dominant MAE-speaking African American children available, especially for the TD group, to examine any statistically significant differences between their group performances on the Massachusetts statewide achievement test. However, one of the AAE-contrastive grammatical patterns identified in prior studies is zero-marked verbal –s for habitual contexts, and it was the marker examined in the current study. So, the verbal –s marking variable was used to determine any correlational relationships that may be evident between it and the participants’ scaled scores received on the ELA component of their third grade MCAS exams.

**Quantitative Data**

This analysis was completed in two parts. The first part of the analysis was completed by averaging the frequency rates of overt verbal –s marking across all three experimental tasks for each of the 11 study participants and correlating those scores with the participants’ MCAS scores (including Participant G6’s PARCC exam score that was converted to an MCAS score). The second correlational analysis was done between the mean frequency rates of the overt verbal –s marking averaged across the two writing tasks and the MCAS scaled scores, but by clinical language group.

The first correlational analysis resulted in a moderate (defined as: 0.30 ≤ r ≤ 0.49) positive, but statistically non-significant, correlation between frequency rates of overt –s marking averaged across all three experimental tasks and MCAS scaled scores, $r_s(11) =$
.451, \( p = .122 \). Hence, increased frequency of overt marking averaged over the three experimental tasks was moderately correlated with higher MCAS scaled scores.

Based on the results of the first correlational analysis, there was at least a moderate correlation between the frequency rate of overt verbal –s marking and the MCAS scores of the participants in this study regardless of their clinical language distinction (i.e., TD, LI). Therefore, when considering all of the study participants, it is possible to reject the null hypothesis that stated there was no correlation between the frequency rates of overt verbal –s marking and the participants’ MCAS scaled scores, and to accept the alternative hypothesis that stated there was a moderate positive correlation between the two variables.

The second correlational analysis was first completed for the two clinical language groups combined and their frequency rates for overt verbal –s marking averaged across the responses for the two writing tasks only. This portion of the analysis also resulted in a moderate but statistically non-significant positive correlation between the two variables, \( r_s (11) = .419, \ p = .154 \ (\alpha \leq 0.05, \text{two-tailed}) \).

However, after separating the two clinical language groups and correlating their frequency rates of overt verbal –s marking averaged across the two writing tasks only, the results were substantially different. Unlike the correlational relationship found for the combined group, when looking at the TD group alone, they demonstrated a weak negative correlation between the two variables, \( r_s (6) = -.154, \ p = .742 \ (\alpha \leq 0.05, \text{two-tailed}) \). This result generally indicates little to no correlation between lower overt verbal –s frequency rates observed on the experimental writing tasks based on the verbs produced by the TD group participants only. It is believed that the results of this
correlation were most likely influenced by G6’s high MCAS score paired with her lowest frequency of overt verbal marking on the two writing tasks in the TD group.

The correlation for the LI group remained similar to the correlation achieved with the combined clinical groups, which again was a moderate but statistically non-significant positive correlation, \( r_s(5) = .441, p = .381 \) (\( \alpha = .05 \), two-tailed). Therefore, it is possible to reject the null hypothesis for the LI group, but not for the TD group in this study.

**Qualitative Observations Discussion**

Although statistical results indicated a weak negative correlation between MCAS ELA scaled score and frequency rate of verbal -s used by the TD AAE-speakers based on this limited sample, the only TD AAE-speaker, Participant G6, received the highest MCAS score. However, these data should be interpreted with caution, as this sole TD participant who was determined to have strong variation from AAE was also the only participant to take the PARCC test (Common Core), rather than the MCAS. Therefore, the MCAS scaled score for Participant G6 was derived from the conversion chart provided by the Massachusetts DESE on their website (Massachusetts Department of Elementary and Secondary Education, 2015). At this time, the study participants’ school district is split within and between the individual schools’ decisions to administer MCAS versus PARCC testing to their students. If Common Core becomes the exclusive basis for high-stakes achievement testing in Massachusetts and other states, it would be interesting to replicate this study and look at how AA students who are determined to be typically-developing bidialectal MAE-AAE speakers compare to AA students who present as MAE-only speakers, as well as to their White MAE-speaking counterparts.
Implications

There are several major implications based on the findings in this study. First, the results of the current study indicated that AAE-speakers, even variable AAE-speakers, may produce written sentences that reflect subject-verb agreement patterns that are not consistent with MAE. This finding is in line with the results of Horton-Ikard and Pittman (2010), who found that more than half of 10th grade struggling writers who were AAE-speakers demonstrated subject-verb agreement errors that were consistent with typical (non-obligatory) AAE patterns. “According to our data, more than 50% of these students [adolescents] continue to employ the variable use of subject–verb agreement and copula/auxiliary absence” and “…the same number of students who used subject–verb agreement and copula or auxiliary omission during their oral production also used these features during their written production” (p. 196). With this finding, the authors stated that their adolescent participants produced greater diversity and greater numbers of AAE features in their oral samples as well as in their written samples. Therefore, they suggested that there be an explicit teaching component for AAE-speakers to assist with shifting to MAE conventions in their written products.

Unlike Horton-Ikard and Pittman (2010) and others (e.g., Ivy & Masterson, 2011), one of the findings of the current study was that the AAE-speaking third- to fourth-grade students who were typically developing and who demonstrated consistent production of overt verbal –s marking for the third person singular verb in their spoken language did not demonstrate consistency in use of this marker for their structured writing tasks. The
writing tasks for the current study were designed to be similar to those evident in school-based activities, including high-stakes standardized testing.

In addition to age discrepancy between the current study participants and the participants in the Horton-Ikard and Pittman study, there were two other influences that may have accounted for the differences in consistency of spoken and written patterns used by the participants in the two studies. The first was that the prompt used for the current study may have been perceived to be more formal than the prompt used in the Horton-Ikard and Pittman study of AAE-speaking adolescents. Secondly, as suggested earlier, zero marking of third person verbal -s may, in fact, be a more variable pattern for participants who live in Western Massachusetts, even for Participant G6 who was classified as using “strong variation from MAE,” but demonstrated only 50% zero marking of verbal -s (specifically two of four prompts) on the AAE screener of the DELV-ST. In contrast, zero marking of third person verbal -s was more the rule than the exception for the adolescent participants from Florida in Horton-Ikard and Pittman’s study (2010).

The second major implication for the current study was that despite the 100% consistency of overt marking of third person verbal -s on the Spoken Responses tasks for the TD third- to fourth-grade group, the consistency rate of overt marking was variable in their writing. This discrepancy, although not statistically significant, suggests that even though students at the third- to fourth-grade level demonstrate the ability to effectively shift to the MAE pattern for spoken tasks, this is not necessarily an indication of proficiency in its use for writing tasks. As a result, explicit instruction that explains the need to consistently mark the verb may be needed, perhaps in the final editing stages of
writing. Clearly, teachers cannot assume consistent use of overt marking in written contexts merely based on their students’ spoken proficiency in shifting to the MAE overt marking pattern.

In addition, although the bidialectal AAE speakers in this study did not demonstrate statistically significant differences in frequency rates for overt marking of verbal -s in the writing tasks based on their language status (TD vs. LI), follow-up research could focus on a comprehensive assessment of the students’ use of multiple AAE patterns in structured writing samples, with a comparison to their structured spoken (oral) samples. This might be helpful in illuminating any difficulty that third- to fourth-grade students may have with shifting to the school expected patterns. The gathering of both spoken and written samples to examine a greater number of dialect tokens could lead to the development and implementation of general education Response to Instruction (RtI) programming that could begin with awareness/discrepancy lessons to assist the students with recognizing the differences between contrastive AAE and MAE patterns in a non-judgmental fashion. This would be the first step in teaching students to self-monitor for any AAE patterns they use in their writing as part of their developing skills in guided editing of their written work (Fogel & Ehri, 2000; Horton-Ikard & Pittman, 2010; Rickford, 2005; Sweetland, 2006; Wheeler, 2006; Wheeler & Swords, 2006; Whitney, 2005).

The third major implication is based on the lack of statistical differences observed between the participants in the TD group versus those in the LI group with respect to frequency of overt verbal -s marking on the experimental writing tasks. This result was consistent with findings in prior studies that examined the spoken output of younger
children, indicating that there is not statistically salient evidence to suggest that using frequencies of overt marking is a reliable strategy in and of itself for distinguishing the presence or absence of language impairment in AAE speakers (Bland-Stewart, Elie, & Townsend, 2013; Cleveland & Oetting, 2013; Craig & Washington, 2004; Jackson & Pearson, 2010; Seymour, Bland-Stewart, & Green, 1998; Seymour H., 2004; de Villiers & Johnson, 2007).

However, there was a noticeable lack of shifting to the MAE pattern of overt marking for third person verbal –s in all of the language modalities targeted in the current study by one child, Participant B1, who was included in the language impaired group. Participant B1 also demonstrated at least some variation from MAE in the screening process. Participant B1’s frequency of overt marking was low even in comparison to the Participant G6 from the TD group, who was identified as speaking with AAE dialect that “strongly varied” from MAE. Participant B1’s minimal overt marking in the writing contexts was consistent with the findings by other researchers (Craig & Washington, 2004; Jackson & Pearson, 2010; Van Hofwegen & Wolfram, 2010) who suggested that when there is a significant lack of dialect shifting from AAE patterns to MAE, including third person verbal -s, by children in the fourth grade, this should be considered a risk factor for language impairment, and warrants further assessment.

Although Participant B1 demonstrated a relatively high rate of overt verbal -s marking (frequency rate of 0.875 marking per opportunity) for the spoken response task, he had the lowest rate of overt marking for the LI group overall. In addition, his third person singular verb productions reflected a dramatically lower frequency rate of overt marking for both of the writing tasks (i.e., frequency rate of 0.167 marking per
opportunity for the Written Response task and 0.182 overt marking per opportunity for the Cloze Sentence task). Given the apparent variability of marking for the sample of students in this study, B1’s responses reflected a very limited rate of overt marking in the written modality (in less than 20% of opportunities). Overall, these results validate the need for not only assessment of third- and fourth-grade children’s spoken skills, but also of their writing skills for variable or bidialectal AAE speakers, specifically to verify their recognition of AAE versus MAE morphosyntactic and/or phonological pattern differences in their written language output.

The fourth implication to consider is whether the pattern of zero marking of third person verbal –s is in fact a major contrastive pattern indigenous to child AAE-speakers in the geographical region sampled in this study, as it has been delineated to be for child AAE speakers in other parts of the country or in other types of community settings (Cleveland & Oetting, 2013; Craig & Washington, 2006; Green L. J., 2011; Wolfram, 2007). Even though the majority of the participants in this study exhibited at least one phonological and three morphosyntactic patterns that have been identified as constrastive AAE patterns, all seven of the participants in the TD group presented with an overt marking rate of 1.00 (or 100%) for all verbal -s marking opportunities in their spoken samples.

It must also be taken in to consideration that for the current study, there was no historical information regarding the participants’ first dialect use or its density of use in their preschool years, which is when some of the highest rates of first dialect use are evident for AAE speakers. Given the evidence available, the principal investigator used listener judgment and extensive experience to identify the TD participants as bidialectal,
even though the majority of the participants presented with a relatively low rate of dialect density as third- to fourth-graders. One suggestion for the dialect verification of the participants in any follow up studies would be to collect language samples of the students while interacting with friends or peers. As in the longitudinal study by Van Hofwegen and Wolfram (2010), the addition of friends/peers who are also observed to be AAE speakers might provide the level of informality that would elicit greater frequency and diversity of AAE patterns from the target participants, even though AAE use has been observed to be at one of its lowest points at the fourth grade level.

The fifth implication, as has been noted in prior studies (Fogel & Ehri, 2000; Horton-Ikard & Pittman, 2010; Ivy & Masterson, 2011; Van Hofwegen & Wolfram, 2010), is that the PI expected that there would be a higher rate of zero verbal -s marking for the spoken responses task with a lower frequency rate of overt marking for the Written Responses task and the Cloze Sentences task. However, the results actually reflected the opposite pattern with higher rates of overt marking for the spoken task than for the written tasks, for the majority of the participants, particularly those in the TD group. The reversal of the expected pattern was attributed to two possible factors.

The first factor may have been the investigator’s underestimation of the level of formality perceived by the participants for the Spoken Responses task. In order to achieve a relatively informal atmosphere, the testing was done in each child’s home or a setting within their home community with at least one parent present, and the principal investigator was an African American bidialectal speaker of MAE and AAE. However, the task itself was based on a printed book with a prompt that was very similar to the type of prompt given in school testing situations. In fact, the prompt was based on an actual
prompt and question used on the 2004 MCAS test for ELA. Therefore, even though the participants in the current study would not have been exposed to this prompt on their own MCAS testing, it was very likely that the participants perceived this experimental task as a formal school task rather than an informal activity.

The second factor to be considered was the possibility that the writing tasks resulted in an additional cognitive load that required an additional language processing step. In the case of the Written Responses task that was based on the narrative text, most of the participants needed to be redirected at least once to ensure their written responses were worded to reflect activities, feelings and/or experiences that were habitual (i.e., that the activities, feelings and/or experiences occurred every time the little girl in the story visits with her grandmother and grandfather). This redirection may have resulted in a shift in each participant’s focus toward how to formulate the written responses so that they fit the parameters given, rather than focusing on the word structure needed for the third person verb in each and every sentence. For the fill-in-the-blank sentences, although the participants were also given a picture cue for each sentence to assist with deciding on an appropriate verb, they were not told exactly which verb to use. They were given the verbal reminder to insert their responses in a way that indicated the action was of an habitual nature (i.e., something that happened all of the time). The combination of the picture and the incomplete sentence, in addition to the need to choose the appropriate verb for the blank space, may also have introduced an added cognitive load.

J. M. Terry and his colleagues (2010) examined the morphological and phonological mismatches between four to six AAE word/phrase structures when compared to corresponding MAE structures, including third person verbal -s, as well as
the possible effects of increased cognitive load on their second grade, AAE first students when they were asked to solve language-based mathematical problems (i.e., word problems). Although the participants in his study did not demonstrate overt marking of third person verbal -s as a general pattern in their spoken language, the researchers found that the participants achieved significantly lower scores on a standardized mathematics test with word problems that included use of overtly marked third person verbal –s. They then controlled for other possible factors, such as math calculation skill, intellectual capability, and working memory skills. The authors concluded that the need to interpret word problems that included third person verbal -s, which was not inherent in their participants’ first dialect, and then complete the math portion, placed an added cognitive load on their partipants.

Although the current study did not require the participants to process distinctly different paths of reasoning (verbal and mathematical), they were required to formulate language responses in two different modalities, namely spoken and written (which introduced motor skills into the work output), which could have conceivably increased the cognitive load similar to that seen in the study by Terry and his colleagues.

The final implication for this study is in regard to the diagnostic value of its results. The results of the current study are consistent with one of the conclusions presented by Cleveland and Oetting (2013) based on the results of their study. They concluded that the rate of overt verbal –s marking may be a useful assessment measure in communities of AAE child speakers where TD children overtly mark verbal –s with greater frequency (perhaps > 50%). In addition, the authors proposed that calculating the rate of overt marking may be a helpful diagnostic measure for determining strengths and
weakness related to the child’s speaking, reading and writing systems. Without historical evidence about the current participants’ density of AAE use prior to Grade 1 (after which many AAE speaking children start to show a drop in AAE pattern use) or normative data on overt marking of verbal –s for AA children before Grade 1 in this Western Massachusetts community, it cannot be emphatically stated whether the participants in this study demonstrated, or would have demonstrated, significantly higher frequencies of zero marking of verbal -s in their spoken language when they were younger. However, overt marking of overt third person verbal –s appeared to be obligatory at the third- to fourth-grade level for the Spoken Responses task completed by all of the bidialectal, TD group participants (which was clearly greater than the 50% suggested by Cleveland and Oetting) and half of those in the LI group. Therefore, when assessing the language skills of variable AAE-speaking students who are part of the communities with demographics similar to those where the current study was completed, we should consider examining how consistent they are with overtly marking verbal –s across language modalities (e.g., structured speaking and writing tasks), in conjunction with other dynamic assessment strategies, when attempting to verify suspected language impairment in bidialectal speakers of AAE at the third- to fourth-grade level.

**Study Limitations**

Although this study included a small sample size, it afforded the principal investigator the opportunity to examine the results both by group and by individual participant. It included the ability to more thoroughly study the responses of each participant through qualitative analyses, such as visual comparisons of data. However,
the limited sample size presented a major challenge to the ability to generalize the outcomes to other populations. A second limitation of the study was the lack of consistency when counterbalancing the requirements (spoken vs. written) of the book-based tasks between groups. This inconsistency could have resulted in a significant study design flaw had there been greater evidence of its effect on the participants’ responses.

Another limitation that could be addressed in future studies was in regard to the amount of informal spoken language data gathered. Greater numbers of informal spoken language samples would have resulted in more frequent opportunities to observe types (i.e., varieties) and tokens (i.e., frequencies) of contrastive morpho-syntactic patterns used within the contexts of potential MAE use, and to gain an overall dialect density measurement based on informally elicited spoken language samples from each of the participants. Although the PI attempted to engage some of the participants in informal dialogue, this was not systematically done for all participants. In addition, there may have been a different frequency rate of overt verbal -s marking had the text used to elicit the Spoken and Written Responses been recorded for presentation using consistent AAE dialect. This procedure may have been effective in diminishing the participants’ view of the Spoken Response task as having an explicit expectation for MAE use.

An additional factor to consider is that this study included participants from an urban community in western Massachusetts where the African American child population is perhaps substantially less dense (< 25%) than in other larger urban settings. As a result, it was relatively challenging to recruit large numbers of both typically developing and language impaired participants. It was also observed by this PI that cold contacts, even when conducted via the participants’ schools, were not the most effective means of
recruiting families to participate when compared to more informal word of mouth within this community.

This final comment is in regard to any future studies that may examine correlations between non-mainstream dialect use and high stakes testing outcomes for AA school children. If there continues to be a steady increase in school districts that are implementing Common Core based national academic testing rather than tests that are state specific, this may afford the fields of linguistics and speech-language pathology the opportunity to study relationships between density of dialect use and performance on academic achievement testing on a more consistent basis nationwide, as well as to examine any differences in gaps that have been observed with statewide testing.
APPENDICES

APPENDIX A

TABLE OF INDEPENDENT AND DEPENDENT VARIABLES

<table>
<thead>
<tr>
<th>VARIABLES</th>
<th>FORMS OF MEASUREMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Independent</strong></td>
<td></td>
</tr>
<tr>
<td>MCAS ELA Exam Results</td>
<td>Continuous/Interval - Scaled Score</td>
</tr>
<tr>
<td>PARCC Exam Results</td>
<td>Continuous/Interval - Scaled Score</td>
</tr>
<tr>
<td>Receptive Vocabulary (PPVT-4)</td>
<td>Continuous/Interval - Standard Score</td>
</tr>
<tr>
<td>Dialect Variation (DELV-ST)</td>
<td>Nominal - Categorical (“strong variation from MAE”, “some variation from MAE”, “MAE”) based on raw scores &amp; age</td>
</tr>
<tr>
<td>Risk for Language Impairment (DELV-ST)</td>
<td>Nominal - Categorical (“lowest risk for disorder”, “low to medium risk for disorder”, “medium to high risk for disorder”, “highest risk for disorder”) based on raw scores &amp; age</td>
</tr>
<tr>
<td>Number of Different Words (NDW)</td>
<td>Continuous/Ratio – Total count for each novel word used</td>
</tr>
<tr>
<td>Mean Length of Communication Unit in Words (MLC-U_w)</td>
<td>Continuous/Ratio – Total word count per independent clause</td>
</tr>
<tr>
<td>Clinical language group</td>
<td>Nominal – Categorical (Typical Development, Language Impairment)</td>
</tr>
<tr>
<td><strong>Dependent</strong></td>
<td></td>
</tr>
<tr>
<td>Frequency Rate of overt verbal –s marking for Spoken Responses task</td>
<td>Continuous/Ratio – percent of overt verbal –s markings per opportunity</td>
</tr>
<tr>
<td>Frequency Rate of overt verbal –s marking for Written Responses task</td>
<td>Continuous/Ratio – percent of overt verbal –s markings per opportunity</td>
</tr>
<tr>
<td>Frequency Rate of overt verbal –s marking for Cloze Sentences task</td>
<td>Continuous/Ratio – percent of markings per opportunity</td>
</tr>
</tbody>
</table>
APPENDIX B

STUDY RECRUITMENT FLYER

FORTH GRADE STUDENTS NEEDED

FOR

SPOKEN AND WRITTEN LANGUAGE STUDY

AFRICAN-AMERICAN STUDENTS WITH OR WITHOUT LANGUAGE DISABILITIES

- Parent/Guardian Consent Required
- One Intake and Two Testing Sessions
- 1 to 2 Hours Each Session
- Setting flexible - At your home, Student’s afterschool program, Other
- $5 Gift Card at end of intake.
  Children’s book valued at $5-$8 at end of first session, and
  $10 in Gift Card at end of second session

For further information please contact:
Jacklyn Felton, MA, CCC-SLP
Doctoral Candidate
(413) 530-2046
imason@comdis.umass.edu

Mary Andrianopoulos, PhD
Faculty Sponsor
mva@comdis.umass.edu
APPENDIX C
HELLO, GOODBYE WINDOW SCRIPT

Teacher [instructions]: “I have a book here called, The Hello, Goodbye Window. You will read the book along with a recording of it being read aloud. After you hear and read the book, you will be asked to answer the following question –

Based on the story, using complete sentences, tell me (write) ten (10) things that make visiting Nanna and Poppy’s house special to the little girl, to Nanna and/or to Poppy.

When answering the question, you can look at the help guide [graphic organizer] on this paper. As you can see, you can talk about what the little girl, Nanna or Poppy see at the house, smell at the house, hear at the house, feel at the house, eat or taste at the house, think about at the house, do and want at the house.

After telling me with your words what ten (10) things are special, I'll have you write your answers on your paper.

But remember I want you to tell me your answers first.

Do you have any questions before we start the story?”

[Teacher – Keep a running tally of the child’s sentences; you can use your copy of the graphic organizer as a guide]
ALLOWABLE PROMPTS:

- If the child has any questions about the text, tell them: “I will be happy to help you with any questions you have or to reread any parts of the book you don’t remember, but you will need to come up with your own answers.”

- If the child does not provide at least 10 sentences, prompt with, “Tell me more, use the help guide – for examples what does the little girl smell, hear, think, etc. or what about Poppy, what about Nanna”; as needed

- If child asks how to spell word, spell the word exactly how the child says the word (e.g., e-a-t for “eat”, e-a-t-s for “eats”, etc.)

- IMPORTANT: If child uses past tense verb forms, re-prompt with: “Remember, we are talking about what is special each and every time the little girl visits her grandparents, not what was special.”

NON-ALLOWABLE prompts

- Do not write for the child or verbally model any sentences for the child

- Do not say, “You can/could say…” , “You can/could talk about…”, “Maybe you can/could write about how…” or anything other leading statements, only use the prompts and cues outlined above
APPENDIX D
GRAPHIC ORGANIZER

Why special?

See
Say
Smell
Want
Hear
Do
Feel
Think
Taste

Paper for writing is attached
APPENDIX E

CLOZE SENTENCES TASK

Directions: Please fill in the blanks with an action word or phrase (verb or verb phrase) for the sentences written below.

PRACTICE:

The girl always gets sick to her stomach because she ____________ too much.

The boy’s trying to get in the choir so he ____________ every day.

My mom can’t sleep because the baby ____________ all the time.

TASK SENTENCES:

1. Jayden can go outside after he ____________ his dinner.

2. Quentin ____________ basketball at the Boys’ Club on Thursdays.
3. The girl will win the race if she __________ faster.

4. Every time the cat’s scared, it __________ up the tree.

5. Jordan might get a reading award if she __________ more books.

6. I’ll be angry if my dog __________ at the moon tonight.

7. Isaiah should study every day if he __________ to get an A+.

8. Every September, my mom __________ me a new pair of sneakers.
9. My dad’s car is broken so he _____________ to work every day.

10. The pig will stay cool if it _____________ around in the mud.

11. My mom’s mad because my sister _____________ on the phone 24-7.

12. She has to wake up early all week long, so Dasani _____________ late every Saturday.

*In this document, pictures are smaller and sentences are closer together than those on the original document; original pictures were in color
APPENDIX F

AAE FEATURE TYPES AND EXAMPLES OF FEATURE USE

(Based on *Oetting and McDonald, 2001; Craig & Washington, 2004; 2006*)

(Clark, 2006, pp. 84-85)

<table>
<thead>
<tr>
<th>Feature</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ain’t</td>
<td>He ain’t mad</td>
</tr>
<tr>
<td>Appositive pronoun case</td>
<td>I ate but the other kids they didn’t</td>
</tr>
<tr>
<td>Aspectual <em>be</em></td>
<td>It be too early in the morning.</td>
</tr>
<tr>
<td>Completive done</td>
<td>He done lost his mind</td>
</tr>
<tr>
<td>Demonstrative</td>
<td>She broke them bottles</td>
</tr>
<tr>
<td>Double copula/auxiliary/modal</td>
<td>My momma might would say yes if I’m good</td>
</tr>
<tr>
<td>Existential <em>it</em></td>
<td>It be a lot of people at her house.</td>
</tr>
<tr>
<td>Fintna/Sposta/Bouta</td>
<td>We fitna go. I’m spousta run fast. I’m bouta go.</td>
</tr>
<tr>
<td>Indefinite article</td>
<td>It’s a apple.</td>
</tr>
<tr>
<td>multiple marking</td>
<td>That hurted me</td>
</tr>
<tr>
<td>Multiple negation</td>
<td>We don’t need no help.</td>
</tr>
<tr>
<td>Omission of infinitive to</td>
<td>My dad come pick me up.</td>
</tr>
<tr>
<td>Preterite Had</td>
<td>She had hit him first.</td>
</tr>
<tr>
<td>Regularized reflexive pronoun</td>
<td>He did it to hisself.</td>
</tr>
<tr>
<td>SV agreement with be</td>
<td>We was too busy.</td>
</tr>
<tr>
<td>Structure</td>
<td>Example</td>
</tr>
<tr>
<td>---------------------------------</td>
<td>----------------</td>
</tr>
<tr>
<td>SV agreement with don’t</td>
<td>He don’t care.</td>
</tr>
<tr>
<td>Stressed been</td>
<td>He been working at Target.</td>
</tr>
<tr>
<td>Undifferentiated pronoun</td>
<td>Me and him are cousins.</td>
</tr>
<tr>
<td>Zero article</td>
<td>We baked cake.</td>
</tr>
<tr>
<td>Zero be</td>
<td>They too big.</td>
</tr>
<tr>
<td>Zero ing</td>
<td>It go be a fun place. [my addition: It gon be a fun place.]</td>
</tr>
<tr>
<td>Zero irregular past</td>
<td>You mean you haven’t ate.</td>
</tr>
<tr>
<td>Zero irregular third present</td>
<td>He do it all the time.</td>
</tr>
<tr>
<td>Zero modal/auxiliary</td>
<td>She might been in the house.</td>
</tr>
<tr>
<td>Zero of</td>
<td>I can do all the cooking now.</td>
</tr>
<tr>
<td>Zero plural</td>
<td>I wrote they name.</td>
</tr>
<tr>
<td>Zero possessive</td>
<td>I go with my cousin and my cousin brother.</td>
</tr>
<tr>
<td>Zero preposition</td>
<td>Look how many names you have.</td>
</tr>
<tr>
<td>Zero regular past</td>
<td>I miss one.</td>
</tr>
<tr>
<td>Zero regular third present</td>
<td>I got one sister that live with me.</td>
</tr>
</tbody>
</table>

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## APPENDIX G

### SENTENCES WITH ZERO & OVERT VERBAL -S IN WRITTEN RESPONSES

<table>
<thead>
<tr>
<th>Code</th>
<th>Zero-marked verbal -s</th>
<th>Overtly-marked verbal -s</th>
</tr>
</thead>
</table>
| B1   | # 1: Poppy see out the window  
  # 2: The girl smell Nanna and Poppy  
  # 3: The girl Taste oatmeal with rasins.  
  # 4: The girl want to _Nanna and Poppy home.  
  # 5: …and look[s] at her. | # 5: The girl Dos [does] looking out the window… |
| B2   | # 7: When it is is hot poppy chase her around with the hose. | # 1: The girl loved to see the hello goodbye window so she went their often (non-target context).  
  # 2: The girl loved seeing Poppy play the harmonica in different._ (non-target context).  
  # 3: When the girl gets dressed she helps nanna and she does this alot too.  
  # 4: She rides her bike alot.  
  # 5: She always collects sticks and acorns a lot too.  
  # 6: The girl tends to kick the ball around.  
  # 8: The queen of england comes sometimes to have tea w [i.e., with] nanna.  
  # 9: The girls parents stop with her by the window everytime she leaves.  
  #10: Before the girl goes to bed her and nanna watch the stars.  
  #11: She watches the stars. |
| B3   | # 8: When the girl grows up she want __ a hello good bye window. | # 1: The girl feels happy and sad when she leaves.  
  # 2: poppy always plays the hermonicka.  
  # 3: Poppy always makes breckfist.  
  # 4: The girl always finds all of the raisns and banana[s] in the oatmeal.  
  # 5: Poppy sprays her with the house [hose] when it is hot.  
  # 6: The girl always makes funniy faces at Nana and Poppy.  
  # 7: The girl blows kisses through the window.  
  # 9: The girl never goes in the garden. The tiger.  
  #10: Nanna and the girl look a the stars. (non-target context)  
  #11: Nanna looks at the stars. |
| B7   | # 2: The girl taste her oatmeal… | # 1: the girl looks through the Hello goodbye window.  
  # 2: …and she eats it with a spoon.  
  # 3: Poppy chases the girl with the hose while she says, stop it poppy stop it.  
  # 4: She wants a house with a Hello goodbye window.  
  # 5: Poppy plays the hermonica.  
  # 6: Nana hates when the dog meses [messes] with the garden.  
  # 7: The girl takes a nap when she’s tired.  
  # 8: All three of them look at the stars. (non-target context) |
<table>
<thead>
<tr>
<th>Code</th>
<th>Zero-marked verbal -s</th>
<th>Overtly-marked verbal -s</th>
</tr>
</thead>
</table>
| G4   | # 2: Papa want to stay in his pajamas and run around like a monkey. 
# 3: Nanna like to see people make silly faces. 
# 8: The girl like to watch Papa. | # 1: Nanna wants to look out the window. 
# 4: The girl likes to watch the starts before she gose [goes] to bed. 
# 5: The girl smells breackfeast. 
# 6: Papa wants to Do SomeThing. 
# 7: The girl likes to Color Draw. 
# 9: Papa likes to play with his hermonich [harmonica]. 
#10: The girl likes the hello goodBye window. |
| G6   | # 4: Poppy like to play the hamonica. 
# 8: The girl like Bana[na] otomeal. 
# 9: The girl like to color at the coloring table. | # 1: The litte girl helps in the gardin. 
# 2: The girl likes to get chased by the hose. 
# 3: Nana doesn’t like the dog doging stuff in the gardin. 
# 5: The _ makes funny faces in the window. 
# 6: The girl is sad to go home (non-target context). 
# 7: Nana said the hello goodbye window is magic (non-target context). 
#10: The girl wants to get a hello good bye window. 
#11: The girl takes naps when she is sleepy. |
BIBLIOGRAPHY


