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Source: *Learning Disability Quarterly*, Summer 2010, Vol. 33, No. 3, SPELLING (Summer 2010), pp. 199-210

Published by: Sage Publications, Inc.

Stable URL: <http://www.jstor.com/stable/25701448>

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AFRICAN AMERICAN ENGLISH AND SPELLING: HOW DO SECOND GRADERS SPELL DIALECT-SENSITIVE FEATURES OF WORDS?

Nicole Patton-Terry and Carol Connor

Abstract. This study explored the spelling skills of African American second graders who produced African American English (AAE) features in speech. The children ($N = 92$), who varied in spoken AAE use and word reading skills, were asked to spell words that contained phonological and morphological dialect-sensitive (DS) features that can vary between AAE and print- and dialect-neutral (DN) orthographic patterns that do not. Analyses indicated that all children had more difficulty spelling DS than DN features, especially the regular past-tense inflection. Struggling readers had more difficulty spelling both features, after controlling for differences in AAE use. Children in both groups made few AAE-related errors. A significant, though weak, negative correlation was also found between AAE use and spelling of DS features. The findings indicate that linguistic variation should be considered in the differential diagnosis of spelling disorders among African American children.

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All beginning spellers are faced with the challenge of mapping their speech patterns to print. However, this challenge may be even greater for children whose speech patterns differ significantly from standard orthographic conventions. This study explored how a particular group of linguistically diverse beginning spellers negotiate these mismatches: Children who speak African American English (AAE). It may seem odd to include a study of spelling skills among children who speak AAE in a special issue of the *Learning Disability Quarterly*. We would argue that there are three very important reasons why researchers and professional educators interested in spelling achievement among individuals with learning disabilities should also be mindful of this population.

First, achievement gaps between African American and White children are well known, and these gaps cannot be explained solely by socioeconomic status (SES) or family or school differences (Jencks & Philips, 1998). Thus, the search continues for variables that might contribute to the apparent difficulty that many young African American children experience while learning to read and write. One possible factor may be language differences or, more specifically, dialect differences. Given accumulating evidence that oral language skills are critical for reading and writing achievement (e.g., Scarborough, 2001), it is important to explore how variation in spoken language may influence how children develop these skills.

Second, as classrooms in the United States become

more diverse linguistically, teachers will benefit from greater understanding of not only the linguistic structures that children bring to school but also of how their knowledge of these structures interacts with their literacy performance. AAE is the most widely known and thoroughly researched dialect of American English (Wolfram & Schilling-Estes, 2006), and it is estimated that most African American children enter school speaking AAE (Washington, 1996, 2001). Thus, AAE is a likely place to begin the search to understand how dialect variation might be related to literacy skills in general and spelling skill in particular.

Third, and perhaps most important, language differences must be considered in the differential diagnosis of learning disabilities, as well as remediation plans for instruction. Evidence from multiple sources indicates that African American children are misrepresented among children receiving special education services, and the learning disabilities category is not immune to incidences of over- and underrepresentation (Markowitz, Garcia, & Eichelberger, 1997; National Alliance of Black School Educators & IDEA Local Implementation by Local Administrators Project, 2002). Clinicians, school psychologists, and special education teachers must be knowledgeable not only of the language differences that children may bring to school, but also of how these differences may interact with the acquisition of specific literacy skills.

Differential diagnosis of a reading or writing disability is not made any easier by AAE, because many features of the dialect, when represented in print, are typical of children diagnosed with learning disabilities. For example, AAE allows for the variable omission of regular inflections. Therefore, typically developing children who speak AAE may omit inflections in speech (Washington & Craig, 2002) and in writing (Terry, 2006). Children with learning disabilities also often omit inflections in writing (Hauerwas & Walker, 2003; Windsor, Scott, & Street, 2000). Thus, it may be difficult to discern whether error patterns in a child's speech or print are due to learning difficulties, language differences, or both.

With these assertions in mind, we present a study of single-word spelling skills among second graders who varied in their spoken AAE production and reading achievement. First, we provide a discussion of AAE and review the literature on child AAE use and its association with literacy achievement, focusing specifically on studies of spelling performance.

AFRICAN AMERICAN ENGLISH

AAE is a rule-governed dialect of American English. Extensive sociolinguistic research has confirmed that AAE is not bad, incorrect, or disordered English.

Rather, it is a complex linguistic system whose rules for language form, content, and use differ from the characteristic of mainstream American English (MAE) dialects (Charity, 2008; Green, 2004). MAE dialects are typically used in more formal or mainstream language contexts, such as schools or workplaces, and often conform more closely to standard English orthography. AAE and MAE are often distinguished more by the frequency and contexts in which features occur than the absence or presence of specific features (Wolfram & Schilling-Estes, 2006). For instance, AAE, MAE, and Southern American English speakers all reduce the regular present progressive affix (e.g., *walkin'* in lieu of *walking*), but AAE and Southern American English speakers may do so more often. Some frequently cited phonological and morphological features of AAE are listed in Table 1. See Charity (2008) and Green (2002) for more extensive descriptions of specific AAE features.

African American English, Child Language Use, and Literacy Achievement

Research conducted within the last 15 years has provided a wealth of knowledge about AAE features produced by children, as well as the sociolinguistic constraints of their production. These investigations, usually conducted with typically developing preschool-through elementary-school-aged children, have shown that children's production of AAE forms varies by gender, age/grade, socioeconomic status (SES), discourse context, and region of the United States (e.g., Craig & Washington, 2004a, 2004b; Horton-Ikard & Miller, 2004; Pearson, Velleman, Bryant, & Charko, 2009; Washington & Craig, 1998; Washington, Craig, & Kushmaul, 1998).

Guided by these findings, researchers are demonstrating a renewed interest in unraveling the association between children's AAE use and their literacy achievement. Results from recent investigations indicate that children's AAE production is related significantly to their performance on various measures of literacy skills, including word reading, spelling, morphological and phonological awareness, and vocabulary (e.g., Charity, Scarborough, & Griffin, 2004; Connor & Craig, 2006; Craig, Thompson, Washington, & Potter, 2004; Kohler, Bahr, Silliman, Bryant, Apel, & Wilkinson, 2007; Terry 2006, in press; Terry, Connor, Thomas-Tate, & Love, 2010). Findings from these studies also indicate that the relationship between children's AAE use and literacy achievement is complex, developmental, and may vary by literacy task.

Two hypotheses that are related to this study have been proposed to explain these findings. According to the proponents of the first hypothesis, *linguistic mismatch*, linguistic differences between spoken AAE and

Table 1
Types of Child African American English

| Phonological Features | |
|--|--|
| Consonant cluster reduction | "fast" |
| Omission of phonemes in consonant clusters | /fæs/ for /fæst/ |
| *Postvocalic consonant reduction | "plate" |
| Omission of single consonant phonemes that follow vowel phonemes | /ple/ for /plet/ |
| *Devoicing final consonants | "salad" |
| Substitution of voiceless consonant phonemes for their voiced counterparts following a vowel phoneme | /sælit/ for /sælid/ |
| *Substitution of /θ, ð/ | "bath" or "this" |
| Variable substitution of /t, d, f, v/ for /θ, ð/ in pre-, inter-, and postvocalic word positions | /bæf/ for /bæθ / /dis/ for /ðis/ |
| Morphological Features | |
| Zero copula or auxiliary | "He ___ big." |
| Omission of forms of <i>to be</i> | |
| *Zero inflections | |
| Omission of regular inflections | "Yesterday she play__ with her friends." |
| Habitual <i>be</i> | |
| Habitual behaviors or states marked with <i>be</i> | "He always <u>be</u> mad at them." |

Note. * indicates types targeted in the spelling task.

written Standard English orthography are confusing to children and cause them to have less confidence in what appear to be simple, regular phoneme-grapheme correspondences because their speech patterns suggest that these correspondences vary or are irregular (Labov, 1995). In contrast, proponents of a relatively new hypothesis, termed *dialect awareness* (Charity et al., 2004), *dialect shifting* (Craig & Washington, 2004b), or *linguistic awareness/flexibility* (Terry et al., in press), suggest that greater metalinguistic knowledge of both mainstream and nonmainstream forms and the rela-

tionship between them is critical for AAE speakers' literacy acquisition, perhaps more so than speech-print mismatches. It is not clear which theory best accounts for the observed relationships between AAE use and literacy achievement; however, investigations of young AAE speakers' spelling skills would seem particularly informative. **Children's AAE Use and Spelling Achievement** Because English has a deep orthography, it is particularly difficult for most beginning spellers to master

because phoneme-grapheme correspondences are not always direct. The task of mapping speech onto print may be even more challenging for children who produce AAE forms more frequently in speech, perhaps because of mismatches between the dialect and the standard orthography, or perhaps because of students' lesser metalinguistic knowledge of standard forms. For example, in AAE, /fud/ may be pronounced as /fu/ or /fut/ or /fud/, which could lead to three possible spellings for the same word: [foo], [foot], or [food].¹

Few empirical studies have investigated the relationships between AAE use and conventional spelling development. In general, researchers have examined accuracy in spelling dialect-sensitive (DS) features (e.g., features that can be produced differently in MAE and AAE) among African American children. Even fewer studies have included AAE speakers who are beginning spellers.

The findings from earlier spelling investigations were inconsistent and hampered by a lack of information about child AAE production. In addition, many of these investigations did not explore children's spelling of features that do not differ in oral production between AAE and MAE; therefore, it is difficult to determine if students' spelling errors were indicative of poor spelling skill in general. Finally, when comparison groups were used, participants were usually not matched on reading or spelling achievement, so poor African American children who were already experiencing academic difficulties were usually compared to middle-income White children. These methodological limitations make it difficult to determine whether children's AAE use is related to their spelling achievement.

It would seem appropriate to explore the relationship between AAE use and spelling skill among beginning spellers in the letter-name and within-word stages of spelling development (a) because they have had less experience with standard orthography, (b) because they tend to rely more on their oral phonological knowledge to represent sounds, and (c) because they have had relatively less formal spelling instruction, which could also be related to their performance. In fact, researchers who have investigated spelling among children likely in these beginning stages of spelling development, all observed children's spelling approximations to reflect AAE linguistic structures (Kligman & Cronnell, 1974; Kligman, Cronnell, & Verna, 1972; Kohler et al., 2007; Sullivan, 1971; Terry, 2006).

Two recent investigations have examined spelling among AAE speakers who were likely in the letter-name or within-word stages of spelling development. For example, Terry (2006) investigated spelling skills among typically developing children in first through third grade. Children were asked to spell sentences with four

DS inflections, as well as several dialect-neutral (DN) orthographic patterns, such as [ch] and [ck], whose oral production does not differ between MAE and AAE. The findings showed that children who produced AAE features more frequently in speech were less accurate in spelling DS than DN features.

Kohler et al. (2007) examined nonword spelling skills among typically developing African American children in first and third grade who varied in spoken AAE production. Children were asked to spell nonwords with phonological DS features. The researchers found that third graders who produced AAE features more frequently in speech made more dialect-related errors in their spelling. They did not find the same correlation for first graders, who made more phonologically based spelling errors overall.

In sum, findings from these investigations suggest that it may be particularly important to consider dialect variation for beginning spellers. However, additional research is needed to better understand how children's AAE use is associated with their spelling.

Purpose of the Study

The main goal of this study was to examine how children in second grade who varied in their spoken AAE use and their reading achievement spelled words containing DS phonological and morphological features. Four specific AAE features were investigated: (a) regular past-tense inflection [ed], (b) postvocalic consonant reduction /t/ and /d/ in final position, (c) devoicing final consonant /d/, and (d) /θ, ð/ substitution. We chose these features because AAE speakers had difficulty spelling these forms in previous studies (Kligman & Cronnell, 1974; Kohler et al., 2007; Terry, 2006). In addition, evidence indicates that many beginning spellers have emerging but not fully proficient knowledge of how to spell both digraphs like [th] and grammatical inflections like [ed] (Nunes & Bryant, 2009; Nunes, Bryant, & Bindman, 1997; Treiman, 1993). However, typically developing spellers can master these spellings quite quickly, even as early as first grade, and without significant explicit instruction, whereas poor readers and spellers often continue to have difficulty with these forms (Nunes & Bryant, 2009; Nunes et al., 1997; Treiman, 1993).

We were particularly interested in exploring spelling in second graders because, as probable phonetic or within-word spellers, these students should have some knowledge of phoneme-grapheme correspondences in English. However, this knowledge would not be stable, and thus subject to interference from multiple sources, including perhaps spoken dialect differences. In addition, second grade is often a critical year for diagnosis of a learning disability. Thus, it seemed relevant to explore

spelling at a time when children's spelling errors, which may be due to dialect differences, might be misinterpreted as characteristics of a learning difficulty.

The following research questions were asked in relation to African American second graders:

1. How do good and poor readers who vary in their spoken production of AAE forms spell dialect-sensitive and dialect-neutral word parts? Are dialect-sensitive word parts more difficult to spell than dialect-neutral word parts? Are specific dialect-sensitive word parts more difficult to spell than others?
2. Do good and poor readers differ in their ability to spell these word parts?
3. What is the relationship between variation in AAE use and spelling proficiency?

METHODS AND MATERIALS

Participants

The study included 92 children (54.3% female; mean age 98.5 months, $SD = 6.6$) in second grade, all of whom were participating in a larger, randomized control field study on literacy instruction in the southeastern region of the United States. The sample in the present study included only African American children who were native American English speakers and who produced at least one AAE feature during a language sampling task. None of the children were receiving special education services. Children attended one of seven schools in a single public school district. Published district reports show that the percentage of children who qualified to participate in federal free and reduced-price lunch programs at these schools ranged from 6% to 84%; however, this percentage was greater than 33% at all but one school.

The schools used similar spelling curricula, with formal literacy instruction for approximately 120 minutes a day beginning in the first grade. Based on formal video-taped classroom observation conducted in the fall, winter, and spring (Connor et al., 2010), students generally spent about 3 minutes per day on encoding and spelling as a class and 18 minutes/day in small groups (9 minutes with teacher and 9 minutes individually or with peers). Instruction typically included explicit instruction, worksheets focused on specific orthographic patterns, dictation practice, and word study activities (e.g., word sorts).

Measures

Language sample. Children's spoken production of AAE forms was measured using the Diagnostic Evaluation of Language Variation-Screening Test (DELV-S; Seymour, Roeper, & de Villiers, 2003a). On Part One of this measure, children are asked to describe or respond to questions about pictures. Children's

responses are scored for the presence of nonmainstream American English dialect features. For example, when asked to repeat verbatim the statement "She is brushing her teeth," their pronunciation of the word *teeth* is assessed. Children's responses are scored for the frequency of MAE (e.g., *teeth*) and NMAE (e.g., "teef") features produced. Importantly, the DELV-S does not identify the specific dialect a child speaks. Rather, with test norms, it allows the frequency with which children produce MAE and nonmainstream forms to be used to classify them as speaking with strong, some, or no variation from MAE. Although it cannot determine whether or not a child speaks AAE, the test was standardized with a national sample of African American children, and the items "were constructed to maximize the probability that AAE-speaking children will respond in a predicted AAE fashion" (Seymour, Roeper, & de Villiers, 2003b, p. 35).

Oral vocabulary and word reading. Because a standardized measure of spelling achievement was not available, children's performance on standardized measures of word reading and expressive vocabulary skills were included as indicators of children's overall literacy achievement because they are well correlated with children's spelling skill (Caravolas, Hulme, & Snowling, 2001; Ehri, 2000; Templeton, 2004). Children were given two subtests of the Woodcock-Johnson Tests of Achievement-Third Edition (WJ3; Woodcock, McGrew, & Mather, 2001). Oral expressive vocabulary was measured with the Picture Vocabulary subtest, on which children were asked to identify pictures of objects. Word reading was measured with the Letter Word Identification subtest, on which children were asked to name letters and read single words.

Single-word dictation task. Spelling accuracy for the targeted AAE features was examined with a 30-item dictation task in traditional spelling test format (see Appendix). The examiner stated the word, said a sentence using the word, and finally stated the word again, while children wrote the word. Targeted words, but not individual features, were emphasized during dictation and presented with MAE pronunciations. The dictation task included 10 [ed], 10 [th], 5 [d], and 5 [t] items. The target words were chosen because they demonstrated the following characteristics: They consisted of one or two syllables; they included orthographic features that would be expected to be emergent in typically developing within-word spellers but that they had not reached mastery proficiency with (e.g., inflections, digraphs, blends, long vowel patterns); they were present in the oral and written vocabulary of typically developing primary-grade children; and they contained the targeted dialect-sensitive features (i.e., the feature is pronounced differently in AAE and MAE).

Spelling of dialect-neutral patterns. Spelling accuracy was also scored for 20 DN orthographic patterns that occurred in words on the dictation task (see Appendix). These features included single prevocalic consonants, such as /k/, /t/, and /r/, and consonant digraphs, such as [wh], [wr], and [ck]. Unlike the DS features, spoken production of these features is the same in AAE and MAE and served as control spelling features.

Procedures

Trained research staff, speaking MAE, administered all tasks to children during the spring of the academic year in a quiet school setting. The WJ3 and DELV-S were administered individually in a standardized format, according to test manuals. The dictation task was administered in groups in children's classrooms.

Determining reading achievement groups. Children who achieved standard scores within the average range on the Letter-Word Identification subtest of the WJ3 (i.e., 85 or above) were included in the group of good or typically achieving readers ($n = 78$). Children who achieved standard scores below 85 were included in the group of poor or struggling readers in the sample for analysis ($n = 14$).

Computing percentage of AAE use. Children's performance on the DELV-S was used to compute a continuous variable to be included in the analyses. This variable was the percentage of times children's spoken production varied from MAE (hereafter referred to as dialect variation, DVAR). DVAR was computed by dividing the number of items that varied from MAE (i.e., the raw score in column A) by the total number of scorable items (i.e., the raw scores in columns A+ B), and multiplying by 100. The computation did not include items that could not be judged to be MAE or nonmainstream (i.e., raw scores in column C). DVAR has been used in other investigations of children's non-mainstream American English use (Terry, in press; Terry et al., 2010).

Analysis of the dictation task. Only spellings of the targeted DS and DN features, not the entire word, were scored. Children's representations of each feature were scored for the percentage spelled correctly. In addition, incorrect spellings of AAE features were classified as (a) AAE-related spelling error, (b) non-AAE-related spelling error, or (c) other (e.g., no response). AAE-related errors included spellings that could be directly linked to the AAE feature in question. For example, omitting the /t/ sound in the spelling of [plate] (e.g., [pla]) would indicate postvocalic consonant reduction, whereas representing /θ/ in [mouth] with [f] would be indicative of /θ/ substitution, representing the /d/ in [grade] with [t] would be indicative of devoicing final consonant, and

omitting [ed] in [rubbed] would be indicative of omission of inflections. Meanwhile, non-AAE-related errors included those that did not appear to be linked to spoken dialect differences (e.g., representing the [ed] in kissed with [ing] or /t/ in write with [p]). The percentages for each error type were computed.

Interrater reliability was evaluated for the dictation task. Responses from 20% of the participants were randomly chosen to be coded independently by a second rater who was familiar with the method of analysis and the phonological and morphosyntactic features of AAE. There was 100% agreement for children's spellings of AAE features and DN patterns.

RESULTS

Since the sample sizes for the two reading groups were very different, several preliminary analyses were conducted to ensure that the analytical methods were appropriate. A primary concern was violation of the homogeneity of variance assumption for ANOVA analyses. Therefore, Levene's test was conducted for each outcome measure in the following analyses. In all but a few cases examining error patterns in spelling, the tests were not significant, so typical ANOVA analyses were used. However, when Levene's test was significant, Welch's ANOVA was used to protect against Type I error.

A significant group difference was found for DVAR, $F(1, 90) = 6.54, p < .05, \eta^2 = .07$. Though a small effect, struggling readers produced more AAE features than typically achieving readers. Because DVAR has been found to be associated with literacy skills (Terry, in press; Terry et al., 2010), it was included as a covariate in the primary ANOVA analyses. Tables 2 and 3 provide a summary of the groups' performance and correlations between measures.

Spelling of Dialect-Sensitive vs. Dialect-Neutral Features

Before examining group differences in spelling specific DS features, it was important to determine if DS features were more difficult for this group of AAE speakers to spell than DN features. Although children may perform differently by reading group or by type of DS feature, perhaps representing these phonological and morphological features in themselves is particularly difficult because their spoken production differs from the written representation.

Therefore, correct spelling on the dictation task was analyzed in a 2 x 2 mixed-model ANCOVA with the type of spelling pattern (DS vs. DN feature) as the within-subject repeated measure and reading group as the between-group factors. Main effects were found for both spelling pattern, $F(1,89) = 19.05, p < .000, \eta^2 = .18$, and reading group, $F(1,89) = 30.92, p < .000, \eta^2 = .26$.

As shown in Figure 1, while struggling readers were less accurate spellers than typically achieving readers, children in both groups had more difficulty spelling DS features than DN features.

Spelling Dialect-Sensitive Features

Visual examination of the means (see Table 2) suggests that some DS features may have been more difficult for children to spell than others, in particular [ed]. Thus, significant differences were found in spelling accuracy (e.g., correct spelling) between the [th] and [ed] items, $t(91) = 9.66, p = .000, \eta^2 = .38$; the [th] and

[t,d] items, $t(91) = 2.69, p = .01, \eta^2 = .10$; and the [ed] and [t,d] items, $t(91) = -7.27, p = .000, \eta^2 = -.28$, with small effect sizes. Overall, children had the most difficulty spelling [ed] items, followed by [t,d] and [th] items.

A series of ANCOVAs, controlling for DVAR, revealed that the reading groups differed in spelling accuracy of the following features: [th]: $F(1,90) = 48.96, p < .000, \eta^2 = .35$; [ed]: $F(1,90) = 18.88, p < .000, \eta^2 = .17$; and [t,d]: $F(1,90) = 16.94, p < .000, \eta^2 = .16$. In each instance, typically achieving readers who spoke AAE were more pro-

Table 2
Mean Descriptive Statistics for Percentage Dialect Variation (DVAR), Word Reading, Vocabulary, and Spelling by Reading Achievement Group (Standard Deviations in Parentheses)

| | Struggling Readers | Typically Achieving Readers |
|---|--------------------|-----------------------------|
| N | 14 | 78 |
| DVAR (%)* | 49.35 (29.07) | 31.19 (23.60) |
| WJ3 Letter Word Identification *** (standard score) | 79.14 (3.57) | 106.29 (8.96) |
| WJ3 Picture Vocabulary ** (standard score) | 86.90 (8.06) | 96.10 (9.16) |
| Correct Spelling of Dialect-Sensitive Items *** (percentage, out of 30) | 31.67 (20.99) | 67.09 (21.11) |
| TH Items (10) | | |
| Correct*** | 34.29 (25.03) | 77.44 (20.54) |
| AAE Error | 13.57 (15.50) | 2.82 (5.56) |
| Non-AAE Error*** | 52.14 (18.47) | 19.74 (18.37) |
| ED Items (10) | | |
| Correct*** | 21.43 (17.48) | 53.72 (26.73) |
| AAE Error* | 40.71 (24.95) | 14.87 (17.19) |
| Non-AAE Error | 37.86 (19.68) | 30.26 (21.68) |
| Final /t, d/ Items (10) | | |
| Correct*** | 39.29 (26.15) | 70.13 (25.76) |
| AAE Error | 3.57 (8.42) | 0.64 (2.47) |
| Non-AAE Error*** | 57.14 (25.25) | 29.23 (25.52) |
| Correct Spelling of Dialect-Neutral Items *** (percentage, out of 20) | 77.86 (10.32) | 91.22 (8.57) |

Note. Asterisks indicate that a significant difference was found between group means. For the spelling measures, a significant difference was found between group means after controlling for significant difference in DVAR (* $p < .05$, ** $p < .01$, *** $p < .001$).

Table 3
Correlations Between Percentage of Dialect Variation (DVAR) and Reading and Spelling Measures

| | 1 | 2 | 3 | 4 | 5 |
|-----------------------------------|--------|-------|-------|-------|---|
| 1. DVAR (%) | – | | | | |
| 2. WJ3 Letter Word Identification | -.38** | – | | | |
| 3. WJ3 Picture Vocabulary | -.34** | .63** | – | | |
| 4. Correct Spelling of DS Items | -.21* | .73** | .50** | – | |
| 5. Correct Spelling of DN Items | -.13 | .59** | .41** | .80** | – |

* $p < .05$, ** $p < .01$.

ficient at spelling DS features than struggling readers who spoke AAE.

Error analyses revealed that the reading groups also differed significantly in the kind of spelling errors they produced. For AAE errors, Welch’s ANOVA was significant for [th], $F(1,90) = 13.61$, $p < .05$, and [ed]: $F(1,90) = 15.29$, $p < .001$. For non-AAE errors, ANCOVAs, controlling for DVAR, were significant for [th], $F(1,90) = 36.85$, $p < .000$, $\eta^2 = .29$; and [t,d], $F(1,90) = 14.24$, $p < .000$, $\eta^2 = .14$. For non-AAE errors on [ed] items, Welch’s ANOVA was also significant, $F(1,90) = 15.29$, $p < .05$. Struggling readers made more AAE-related and non-AAE-related errors on DS items than typically achieving readers.

Relations Between DVAR and Spelling Accuracy

A significant, negative correlation was found between DVAR and children’s accuracy in spelling DS features; however, the strength of this association was weak. DVAR was not associated with children’s performance on the DN items. Meanwhile, correct spelling of DS and DN items was significantly associated with children’s word reading and vocabulary skills. The strength of these associations was moderate ($r = .41 - .73$). Interestingly, negative significant correlations were also found between DVAR and word reading, and expressive vocabulary.

DISCUSSION

This study examined how African American children in second grade who spoke AAE spelled phonological and morphological parts of words that can be pro-

nounced differently in MAE and AAE. Because student achievement was confounded in many previous studies, the children in our sample were separated into two groups based upon reading achievement.

Overall, the results confirm and extend findings from previous studies with second graders. As observed in Kligman and Cronnell (1974) and Sullivan (1971), second graders who spoke AAE were significantly less accurate at spelling word parts that are spoken differently in AAE and MAE, and [ed] was more difficult for children to spell than [th] and final [t, d]. All children, regardless of reading ability, seemed to have particular difficulty spelling [ed] items. This is not surprising for second graders, who are usually still trying to master this inflection (Nunes et al., 1997).

The results also show that struggling readers had much more difficulty spelling DS features than typically achieving readers, making more AAE-related and non-AAE related errors on DS items. However, surprisingly, children in both groups made relatively few AAE-related errors, especially on [th] and [t, d] items. In general, when children in both groups misspelled phonological DS word parts, their spelling approximations did not reflect dialect differences between AAE and MAE. Finally, children’s spoken AAE use was associated significantly and negatively with the ability to spell DS word parts correctly, as well as their word reading skills. However, this correlation was weak.

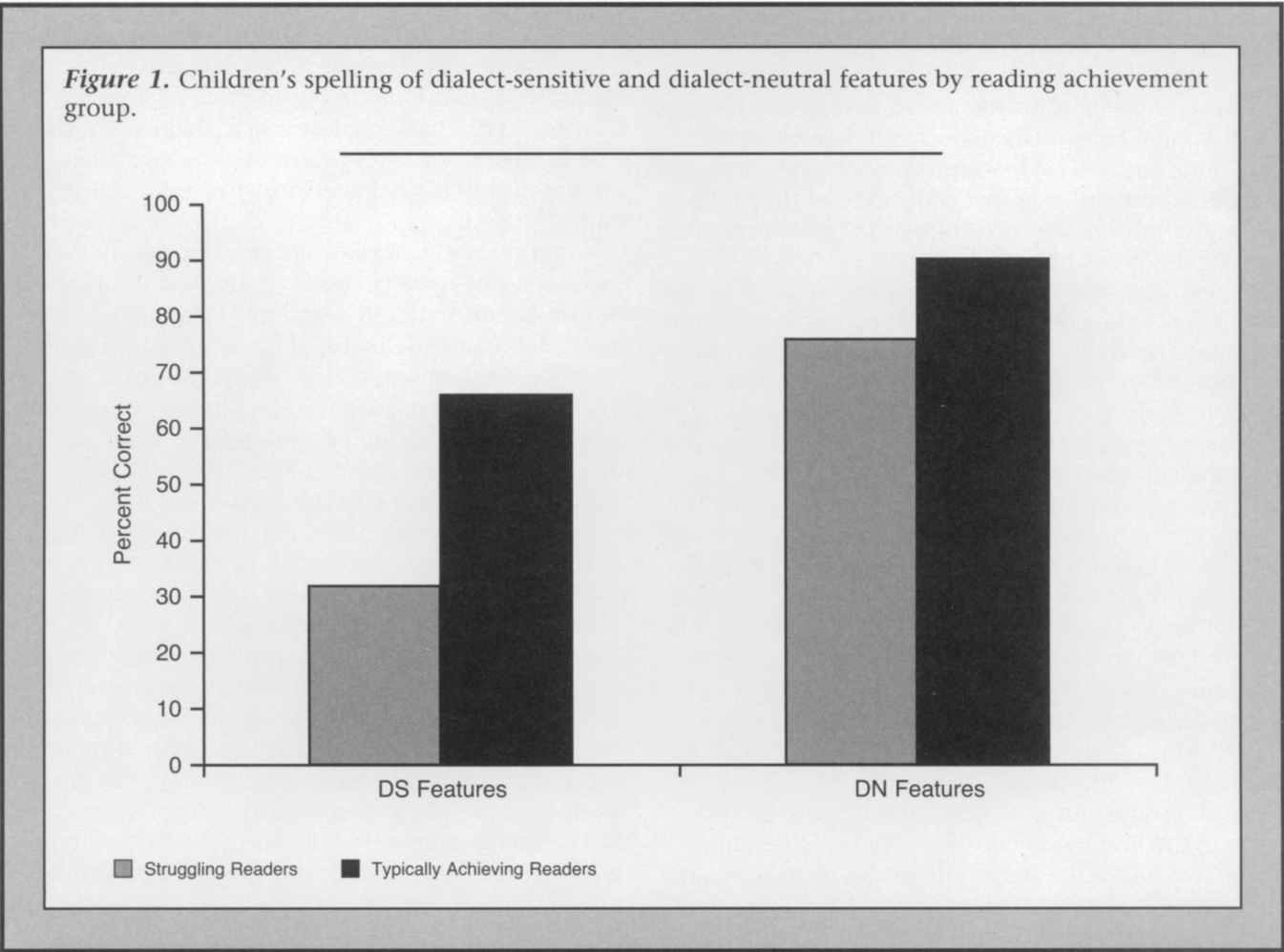
Taken together, two important conclusions about the spelling skills of African American second graders who speak AAE seem to be supported by the findings. First,

in accordance with previous investigations, spoken dialect differences appear to be related to the ability to spell DS word parts, and morphological features may be more difficult to spell than phonological features. Thus, spelling errors produced by AAE speakers in second grade may reflect differences between their spoken dialect and the orthography, especially for children who produce AAE forms frequently in speech.

The second important conclusion is that spoken AAE use may not be as important to variation in spelling skills as other literacy skills, such as word reading skills. Among the second graders in our study, better readers were better spellers. In fact, the typically achieving readers were very accurate spellers, particularly for phonological DS features, and their spelling errors were usually unrelated to spoken dialect differences. Though the effects seemed much more pronounced for children who were struggling with word reading, even among these children, non-AAE-related errors were more common than AAE-related errors.

This conclusion may appear to be in conflict with conclusions drawn from previous investigations, where AAE speakers seemed to have great difficulty spelling DS features. However, we suggest that our results help to clarify previous findings. First, in many of these studies, the participants were either known to have poor literacy achievement or to be at risk for academic difficulty because of poverty (Kligman & Cronnell, 1974; Sullivan, 1971). Even in more recent investigations, although the authors took steps to ensure that the participants were typically achieving, often the results indicated that children who produced more AAE forms in speech had poorer overall literacy achievement (Kohler et al., 2007; Terry, 2006). Moreover, in those studies, children were separated into high- and low-AAE-speaking groups in order to compare performance based on spoken AAE production rather than reading or spelling achievement.

Therefore, perhaps findings from those investigations are akin to those observed for the struggling readers in



this study, who also seemed to have greater difficulty with DS word parts. Thus, it is plausible that for children who already have difficulty learning how to spell, spoken dialect differences make the task of spelling DS features of words even more challenging. However, our results suggest that even for these children, their performance reflects a general difficulty with spelling that is not restricted to DS features or spoken dialect differences.

Though promising, these findings and their interpretation are tempered by methodological limitations. One reason for caution is the small number of participants in the struggling readers group ($N = 14$). Though extensive preanalyses were undertaken to ensure the analytical approach, the power of the results is limited by the unequal sample sizes.

Second, as mentioned, a standardized measure of spelling achievement would be a useful addition to the design. Although the word reading measure used was associated strongly with the dictation task, it only allows for inference about the children's spelling ability. Therefore, it is possible that some children in the typically achieving readers group were poor spellers.

Third, the nature and quality of the spelling instruction the participants received was not evaluated extensively. Children's performance was likely influenced by the type of spelling instruction they received, perhaps more substantially than dialect variation (Foorman et al., 2006). Further, evidence was not available on many sociolinguistic variables that could explain the findings, including information on children's SES, parents' education, and home literacy practices.

In addition, the findings may have differed by the scoring procedure used on the spelling task. The scoring system used in this study focused on how children spelled specific features (not entire words) and what types of errors they made when spelling these features. Thus, children's spellings were scored primarily as correct or incorrect. Conversely, Kohler et al. (2007) implemented a continuum-based scoring system, where children's spellings of DS nonwords were scored based on how closely their approximation of the entire nonword conformed to the target word's phonological and orthographic features. Although the authors note that this system may have been less sensitive to first graders' inclusion of AAE features in spelling, it may be appropriate for children in second grade, and may reveal more about AAE speakers' overall phonological and orthographic knowledge.

In addition to these limitations, alternative explanations of the findings are possible. For instance, children may have found the inflection harder to spell because inflections are more difficult for most second graders to spell than single final consonants or common digraphs

like [th], regardless of spoken dialect differences (Nunes et al., 2007). Conversely, the weak effects observed for the phonological features, particularly among the typically achieving readers, may have been due to the fact that the words were too easy for the children to spell. Although children in this study rarely evidenced devoicing single final consonants in spelling (e.g., spelling final [d] with [t]), Treiman (2004) found that African American college students who spoke AAE did so while spelling words on a dictation task. Perhaps these second graders would have had more difficulty with the phonological DS features if the words had been more challenging.

Implications for Diagnosis and Remediation of Learning Disabilities

The results of this study highlight the importance of considering linguistic variation both in the assessment and instruction of spelling skills, especially among African American children who speak AAE. The typically achieving children in this study shared a specific behavior that has been observed among students with learning disabilities: variable omission of inflected endings on written tasks (Hauerwas & Walker, 2003; Windsor et al., 2000). Because typically achieving African American children who speak AAE may exhibit skill profiles that look similar to those of students with learning disabilities, clinicians and teachers must take care to ensure that errors based on language differences are not misinterpreted as errors based on learning difficulties.

When evaluating a student's performance on spelling measures, one must be aware of AAE features that may be present in children's writing. While standardized assessments provide useful global and even diagnostic information, items should be analyzed for DS and DN features. Such task-analysis procedures are important steps in the diagnostic process because they can help determine whether children's errors are indicative of dialect differences or a learning disability.

In addition, should a student be diagnosed with a learning disability, educators may need to alter their spelling instruction for DS features. For instance, students may need more explicit practice with DS orthographic patterns to achieve spelling mastery. Further, while it is not clear whether articulation practice is appropriate for children who speak nonmainstream dialects, teachers should be aware of production differences when providing instruction. For instance, if a student who was asked to spell [bath] wrote [baf], instructing the student to enunciate the word may prove problematic. Alternatively, scaffolding instruction from the student's orthographic knowledge instead of speech production may be a useful strategy.

In sum, the findings from this study indicate that young children's spelling performance is related to spoken dialect differences in the production of phonological and morphological forms. While many recent investigations have focused on reading skills, the results of this study emphasize the importance of exploring spelling skills as well. Spelling, perhaps even more so than reading, provides a revealing representation of children's knowledge of speech and print interactions and may be even more helpful in demystifying the relations between dialect variation and literacy acquisition and performance.

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APPENDIX

Targeted Words on Spelling Task

| | |
|-------------------|---------------------|
| 1. rubbed | 16. laughed |
| 2. braid | 17. fruit |
| 3. <u>kissed</u> | 18. stopped |
| 4. <u>white</u> | 19. slide |
| 5. <u>smelled</u> | 20. smiled |
| 6. glad | 21. <u>bath</u> |
| 7. <u>shade</u> | 22. <u>think</u> |
| 8. <u>kicked</u> | 23. <u>teeth</u> |
| 9. plate | 24. <u>thursday</u> |
| 10. <u>hugged</u> | 25. <u>math</u> |
| 11. treat | 26. <u>mouth</u> |
| 12. <u>called</u> | 27. <u>thank</u> |
| 13. <u>write</u> | 28. <u>thumb</u> |
| 14. dropped | 29. <u>third</u> |
| 15. grade | 30. <u>tooth</u> |

Note. Dialect-sensitive (DS) features are bolded. Dialect-neutral (DN) items are underlined.

NOTES

¹Throughout text, phonemes are denoted with / /; graphemes and other orthographic patterns to be spelled are denoted with [].

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