Language Intervention and AAE-Speaking Children
Issues and Preliminary Data

Lesley Craig-Unkefer, EdD; Stephen Camarata, PhD

Purpose: Facilitating language development in children with specific language impairment (SLI) who are learning African American English (AAE) as their first dialect requires clinicians to consider grammatical, lexical, and cultural differences. The purpose of this article is to examine 2 intervention methods that have an extensive history of validation for general American English—imitation using discrete trials and conversational recast—for use with children who speak AAE. **Methods**: Participants in the preliminary study were 4 pre–school-aged AAE-speaking children, who were at-risk for language delays and who used AAE forms. A within-participants design was employed. **Results**: Both interventions were associated with growth in contrastive and noncontrastive target structure use. All children increased production of specific language targets that were not observed in baseline samples in AAE or general American English forms, and language scores on posttreatment assessments increased in all participants. **Discussion:** Considerations include individualizing interventions on the basis of level of support and understanding the relationship between language learning and culture. **Key words:** *African American English speakers*, *conversational recast*, *early childhood*, *imitation*, *intervention*, *language delays*

I T has long been known that dialectal variation and cultural differences should not be viewed as evidence of language impairment (Champion & Bloome, 1995; Mount-Weitz, 1996). If clinicians could gain a deeper understanding of dialectal variation, accurate diagnosis of language impairments could increase and service delivery for children who actually require intervention, including children who use African American English (AAE), would potentially be improved (e.g., Washington & Craig, 1994).

Author Affiliations: *Middle Tennessee State University, Murfreesboro (Dr Unkefer); and Vanderbilt University, Nashville, Tennessee (Dr Camarata).*

Corresponding Author: *Lesley Craig-Unkefer, EdD, Middle Tennessee State University, 1301 E. Main Street, Box 69, Murfreesboro, Tennessee 37132 (lunkefer@mtsu.edu).*

To reliably distinguish children who use AAE from children who use AAE and are also in need of intervention due to language disorder, guidance from American Speech-Language-Hearing Association (ASHA, 2005) is useful. ASHA defines *communication difference* as a variation of a symbol system that reflects regional, social, or cultural ethnic factors. A language disorder is impaired comprehension and/or expression in symbol systems *regardless of dialect*. Language disorder can include disruptions in the form of the language, the content of the language, or the function of the language in communication. To reduce misidentification of typically developing children who use AAE but are referred for speech–language services, competencies are set forth by ASHA for identifying features that further clarify disorders and differences. These competencies include recognition of AAE as a rule-governed linguistic system with unique rules and linguistic features with a focus on semantic and pragmatic intent. To determine whether a child qualifies for services on the basis of having a language or communication disorder, an assessment

protocol should include observation and non-traditional interviewing and language sampling in addition to formal tests (ASHA, 2003; Craig & Washington, 2002).

Some children speaking AAE, like those in all dialectal groups, can be expected to demonstrate language impairments that require intervention. Effective treatments should be identified that facilitate language growth within the dialect under consideration, but this does not mean that clinicians who are not native speakers of AAE must use only dialectal forms when interacting with a child within the intervention (see Burns, Velleman, Green, & Roeper, 2010). Many morphosyntactic variations allowed within AAE (e.g., zero third person singular, zero copula, and zero past-tense options) that differ from general American English (GAE) are used alternately in the dialect with forms that do not contrast with GAE. Thus, both GAE and AAE forms are present within the child's experience with adult speakers of AAE, although not in all contexts. On the other hand, clinicians should avoid targeting components in intervention that are likely not to be part of the child's experience. For example, intervention should avoid targeting development of certain phonological segments that are found in GAE but absent in AAE (at least until age 12 years), such as the voiced "th" [ð], or that are present in AAE, but not in GAE, such as the labial fricative for medial and final voiceless "th" [θ] (Pearson, Velleman, Bryant, & Charko, 2009; Velleman & Pearson, 2010).

Making appropriate intervention choices involves the coordination of multiple factors, including environmental and cultural considerations, as well as assessing the current level of functioning of the child within the child's dialect. Language interventions for pre–school-aged children who are learning GAE have been investigated (Camarata & Nelson 2006; Camarata, Nelson, & Camarata, 1994; see also McCauley & Fey, 2006), but less is known about these interventions when applied to children who are learning AAE and have associated cultural experiences.

Some of the intervention methods that have been investigated for GAE-speaking children who have a language delay come from an operant conditioning tradition (Skinner, 1957), using imitation with a focus on production (Connell & Stone, 1992; Fey, 1986; Kazdin, 2001). Others come from a social–interactionist tradition, using responsive-interaction methods (such as conversational recast) with a focus on clinician modeling of more advanced linguistic forms in response to a child's immature or incorrect forms (Camarata et al., 1994; Camarata & Nelson, 1992; Fey & Loeb, 2002; Nelson, 1989). Camarata et al. (1994) reported that generalized spontaneous use of grammatical targets occurred more efficiently under the responsive-interaction condition, and spontaneous use of target forms was more likely to occur if the training conditions more closely paralleled the generalization parameters of naturalistic contexts (see Camarata, 1996). In contrast, Camarata and Nelson (1992) reported that some targets, such as gerunds, might inherently be more amenable to imitation-based teaching.

Some studies include a combination or hybridized implementation of these strategies. For example, Leonard, Camarata, Paw owska, Brown, and Camarata (2008) combined modeling, recast, and focused stimulation in their study of intervention for grammatical targets in GAE-speaking children with specific language impairment (SLI). Broadly, these studies suggest main effects between treatment types but also potential individual differences based on the linguistic nature of the targets. It is possible that similar target-specific individual differences are an important aspect of intervention in culturally diverse populations wherein grammatical and syntactic forms may pattern similarly or differently than in GAE.

In addition, the data in Hart and Risley (1995) suggest cultural differences in parent–child interaction style that might have implications for choices of intervention methods. They noted that directives, which parallel didactic imitation-based intervention, were observed more frequently in lower income families, whereas extensions and expansions were more common in higher income families.

The latter interaction style parallels the procedures employed in recast intervention. Thus, it is an interesting and, as yet, unexplored question as to how effective each of these approaches may be in culturally diverse populations. Ultimately, it will be important to determine whether either or both of the procedures should be adapted to cultural nuances.

Although culture is an important parameter with regard to identification of language disorders, intervention methods such as conversational recast (Camarata et al., 1994) should be broadly applicable across culturally diverse populations. On the other hand, there is no research available to indicate that is the case. It is possible that cultural and linguistic background does have an impact on intervention approaches most likely to be effective for remediating language disorder. At this time, clinicians do not have data-driven, evidence-based information to address the issue of adapting language intervention techniques for diverse populations.

This study was designed to determine whether two different intervention approaches, conversational recast and imitation using a discrete trial format, would be differentially associated with growth in target-specific and broader language measures for children who use AAE and are at risk for language delays. These are two distinctive methods. The imitation strategy, using discrete trials, is clinician-directed and uses prompts, requests for imitation, and overt rewards. It may be more facilitative for children whose interactions include more direct communication models. Conversational recast is based on more interactive procedures, including responses to initiations, and models rather than direct requests for imitation (Camarata et al., 1994; Camarata & Nelson 2006). This approach is "child led" (Fey, 1986). Regardless of cultural background, an essential factor of a language intervention is to promote effective communication, as well as nonverbal behavior and pragmatics (van Keulen, Weddington, & DeBose, 1998). The conversational recast approach might be more likely to promote the communicative aspects of acquiring new language forms.

This exploratory study used a simultaneous treatment design, with both strategies (imitation and recast) implemented and counterbalanced across participants. The research questions for this study were as follows: (1) Is each intervention associated with growth in attempted or spontaneous target use? (2) Is the implementation of the conversational recast and the imitation strategies together associated with growth on standardized assessments from pre- to posttesting? and (3) Are these strategies potential intervention options for clinicians working with children who use AAE and are at risk for language delays?

It should be noted from the outset that the design of the study did not provide a direct test of intervention effects. Rather, one goal of the study was to provide preliminary data on whether the contrasting interventions could be faithfully delivered and whether there would be positive evidence of the intervention targets appearing within the intervention sessions or in standardized measures of language ability administered before and after both treatments were implemented. Outcomes of no examples of the targets being used spontaneously within the sessions (in the case of recast intervention) or inability to meet imitation criteria as prompts were faded (in the case of imitation intervention) or declining or stable performance on the standardized language tests would indicate that either or both interventions does not constitute a promising approach. On the other hand, positive evidence of targets appearing in intervention, ability to meet imitation criteria, and gains in test scores would suggest that either intervention (or both) might be worth investigating further (see Camarata, Yoder, & Camarata, 2006, for a discussion of evaluating growth and intervention effects).

METHODS

Participants

Four children between the ages of 3.0 years and 4.5 years were selected as participants. The children attended a Head Start Center in Chicago, Illinois. The center was located

in a predominately African American community. The center's student population was 95% African American. The children were from two different classrooms for children from 3 to 5 years old. There were five initial criteria for consideration as a participant in the study: (1) not currently receiving special education services of any kind, (2) between the ages of 36 months and 48 months, (3) of African American descent, (4) passed a hearing screening that was administered by the Head Start Staff as part of a yearly assessment, and (5) failed the language component of the Early Screening Instrument–Revised (Meisels, Marsden, Wiske, & Henderson, 1997). This assessment was used by all Head Start centers in the Chicago area to assess children's functioning in language, gross motor, behavior, and cognition. It is a screening measurement, in which the language components focus on verbal expression and verbal reasoning. The Head Start staff identified children in their classes who met the initial conditions, and the parents of those children were given the contact information for the first author. When parents contacted the first author, a meeting was arranged with the parents. The results of the initial assessments were discussed and permission to conduct further assessments was requested.

After permission was given, a second set of assessments was administered: The Preschool Language Scale–3 (PLS-3; Zimmerman, Steiner, & Pond, 1992), the Peabody Picture Vocabulary Test–III (PPVT-III; Dunn & Dunn, 1997), the Expressive Vocabulary Test (EVT; Williams, 1997), the Test for Auditory Comprehension of Language–3 (TACL-3; Carrow-Woolfolk, 1985), and the Leiter International Performance Scale–Revised (Leiter-R; Roid & Miller, 1995). These assessments were selected as meeting the following criteria: (1) the normative sample included African American children and (2) test development took the language dialect of the sample population into consideration. It should be noted, however, that simply including African American children in the normative sample and taking AAE forms into consideration do not guarantee that the test will necessarily be accurate for identifying language disorders in AAE. Rather, these tests simply provide data on overall performance relative to the entire normative sample, so their results should be viewed with some caution. In keeping with the definition of SLI (Tallal, Stark, & Mellits, 1985), children who scored at least 1.3 standard deviations below the mean on the receptive and expressive language tests and who were within 1 standard deviation below or above the standard score on the Leiter-R in cognitive ability were eligible for participation.

Because of the aforementioned concerns about standardized testing, for children to be included in the current study, there had to be converging evidence from the standard measures and from teacher and parent report that the children were indeed below expected levels of language development compared with other children with the same cultural–linguistic background. Five children met the initial five criteria and the criteria for SLI. Parents of the five children were contacted by the first author, and four agreed for their children to participate in the intervention phase of the study. The characteristics of the participants are presented in Table 1. The information in the table includes both the pre- and posttest scores of the children on the standardized measures as well.

Child interventionists

Two interventionists administered the pre- and posttest assessments with the exception of the Leiter-R (Roid & Miller, 1995), which was administered by a clinical psychologist. Interventionist 1 had a doctorate in special education. Interventionist 2 was a master's level student in special education. Both interventionists were female and had teaching experience with at-risk, pre–school-aged children and both had experience teaching children from culturally diverse backgrounds.

Setting and materials

The study was conducted in a small carpeted room at the Head Start center that was

Table 1. Participant characteristics

Participant	Age	Gender	Leiter[a] Full IQ	TACL-3[b] Pre/Post	PLS-3[c] Pre/Post	EVT[d] Pre/Post	PPVT[e] Pre/Post
Child 1	3.10	Male	85	79/100	73/86	62/107	68/89
Child 2	3.8	Male	95	68/85	66/72	81/100	67/86
Child 3	3.11	Female	87	89/104	81/90	71/99	72/97
Child 4	4.1	Male	108	104/111	74/93	111/115	91/109

[a]Full IQ Score for the Leiter (Roid & Miller, 1995).
[b]Standard Score for the Test for Auditory Comprehension of Language–3 (TACL-3;Carrow-Woolfolk, 1995).
[c]Standard Score for the Preschool Language Scale–3 (PLS-3; Zimmerman, Steiner, & Pond, 1992).
[d]Standard Score for the Expressive Vocabulary Test (EVT; Williams, 1997).
[e]Standard Score for the Peabody Picture Vocabulary Test–III (PPVT-III; Dunn & Dunn, 1997).

used for teacher conferences and therapy sessions. The room was 10 ft × 12 ft and had various instructional materials stored for teacher use. A small table and three chairs were in the room. Intervention activities were conducted either at the table or on the floor. Baseline and intervention sessions were conducted three to four times per week over a period of 7 months. All sessions were conducted with one interventionist and one child. Each session lasted approximately 10–15 min. The number of sessions for each of the strategies is provided in Figures 1–4. Play materials used in all sessions included dramatic play toys (e.g., kitchen, barnyard, amusement park, airport, and housekeeping) and manipulative toys (e.g., cars, blocks, trains). In addition, flash cards were used for the imitation component, but not for the conversational recast procedure.

Data collection procedures

A simultaneous treatment design was used (Kazdin, 1982). All participants received both treatments and the treatment order was randomly assigned. Two children (Child 1 and Child 2) received the conversational recast treatment first and then received the imitation treatment using the discrete trial format. The other two children (Child 3 and Child 4) received the imitation treatment first, using the discrete trial format, and subsequently

received the conversational recast treatment. The rationale for selecting this design was to implement each intervention strategy under different stimulus conditions (i.e., the individual targets of the participants varied by condition) so that the interventions could be balanced and also be purposefully varied (Kazdin, 1982). To reduce threats to external validity, specifically generalization across behavior change agents, neither of the interventionists provided both interventions to a single participant. For example, Interventionist 1 implemented the recast strategy to Child 1 and Interventionist 2 implemented the imitation strategy to Child 1. Both interventionists, however, implemented each treatment to different children, with interventionists and treatments both counterbalanced.

The study included three phases: baseline, Intervention 1, and Intervention 2. In all phases, the sessions were 10 min long. In the baseline phase, individual participants were brought to a room located in the center and presented with toys and asked to play. During these sessions, the interventionist did not directly elicit any language target forms from the child and did not deliver recasts to the child but did respond if the child initiated. These sessions were videotaped using a Panasonic PV-960 camcorder. Using the Systematic Analysis of Language Transcripts protocol (Miller & Chapman, 2006), all videotaped sessions were transcribed by an undergraduate student
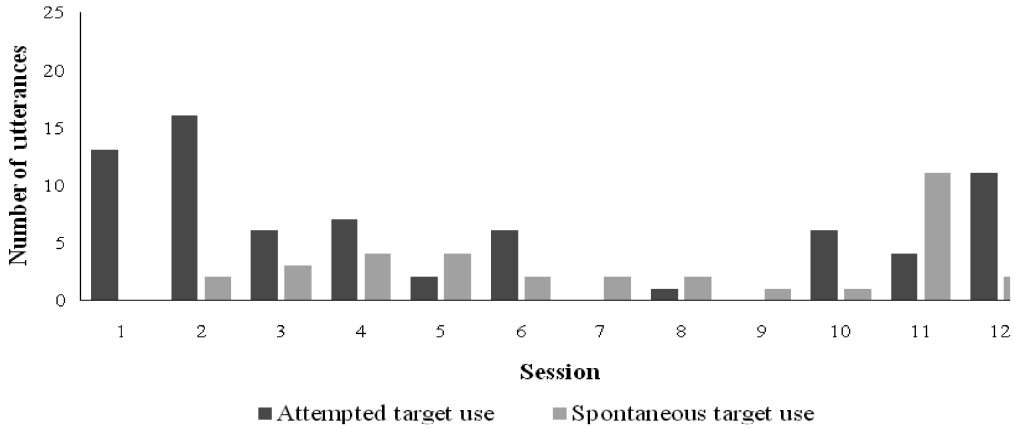
Child 1
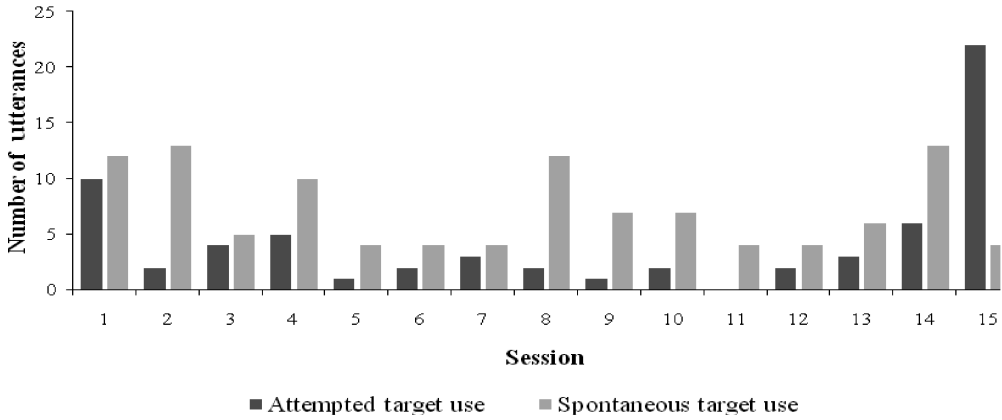
Child 2
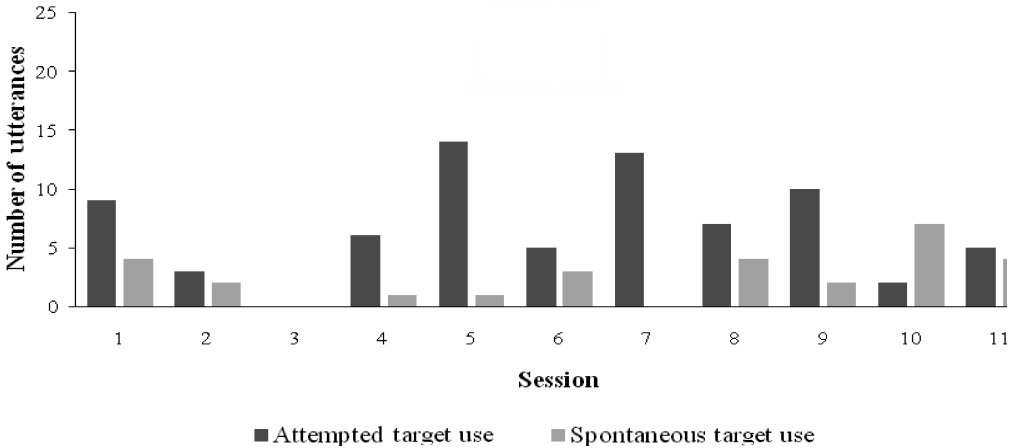
Figure 1. Spontaneous and attempted target use for Child 1 and Child 2 for the conversational recast strategy.

majoring in special education. The transcriptionist was blinded to the condition. The interventionist who conducted the session independently verified the transcription.

Target selection was based on the absence of forms in the child's baseline language samples. At least three 20-min language samples were collected for the baseline phase. There were three criteria for target selection. Two targets were selected for each child. Both targets must be (1) absent from any of the baseline sessions (i.e., they did not appear in either AAE or GAE form); (2) within ± one Brown's

Stage (Brown, 1973) from the child's expressive language performances as measured by mean length of utterance in the baseline samples; and (3) within one Brown's stage of each other. The specific language targets that were selected to meet these criteria for each participant are presented in Table 2. Each participant had one target per intervention strategy. In keeping with previous studies (e.g., Camarata et al., 1994), target inclusion was based on whether the form was absent in the multiple sampling conditions. More extensive probing for target knowledge was not completed.
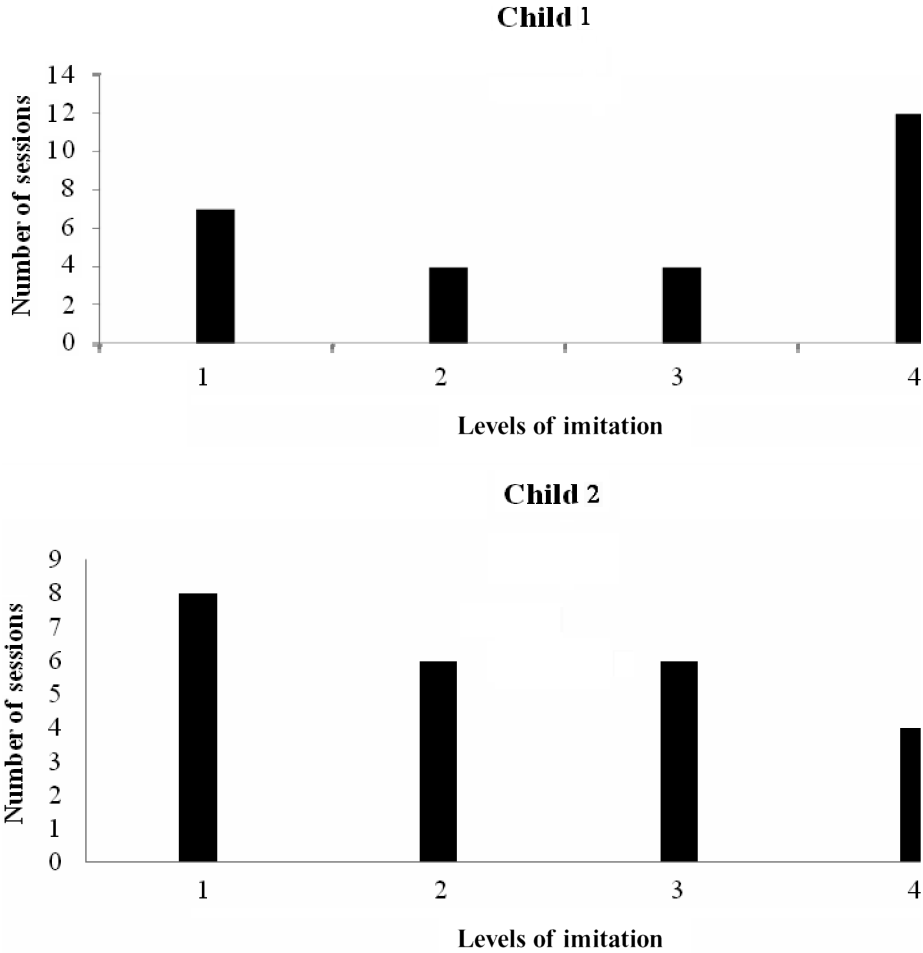
Child 3

Child 4
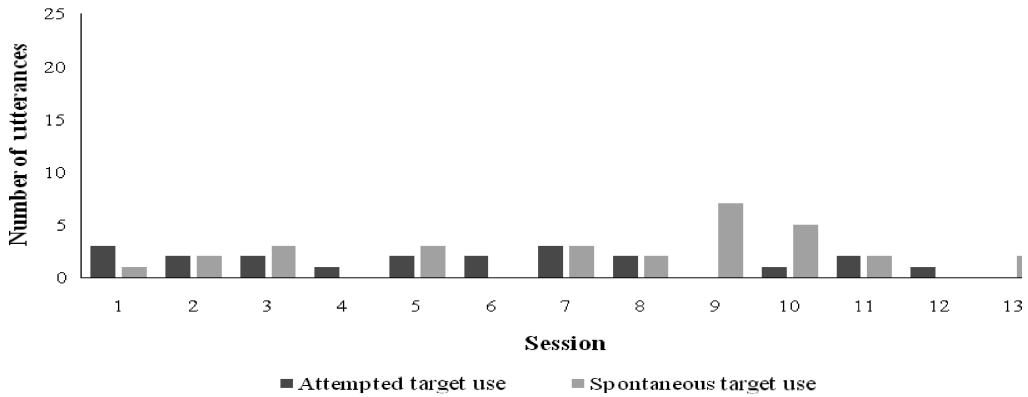
Figure 2. Spontaneous and attempted target use for Child 3 and Child 4 for the conversational recast strategy.

Target assignment per strategy was random to reduce selection bias of the targets. Targets that allowed AAE and GAE variations were selected. AAE forms were encouraged, and GAE forms were targeted in the imitation and recast sessions to evaluate whether increased use of grammatical morpheme marking would be specifically associated with the intervention approaches. There was no direct or indirect goal of changing AAE; rather, the intervention was designed to examine learning of the targets under each intervention. In no case was there a judgment that an AAE form was incorrect, and no negative feedback was given when a child used an AAE form.

It should be noted that Child 3 received a target (*and* as a conjunction) that was noncontrastive between AAE and GAE. The contrastive and noncontrastive forms are noted in the table (Craig, Thompson, Washington, & Potter, 2003). After targets were determined, the first intervention condition began. As in the baseline sessions, individual participants were brought to a room located in the center. Specific targets were then presented to the participants, with each participant having one specific target per strategy, imitation, or conversational recast. For example, the target for Child 1, using the imitation strategy, was third person present tense (regular and

Child 1

Child 2

Figure 3. Number of sessions required by Child 1 and Child 2 to reach criteria for each of the four levels of the imitation intervention (received first).

irregular forms: she *walks*, she *does* this; he *has* this), whereas the simple infinitive was the target for the conversational recast strategy (she wants *to go*).
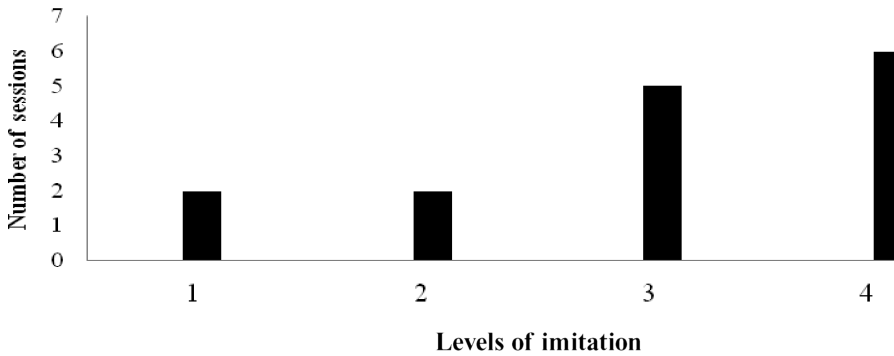
Description of imitation intervention

The procedures for the imitation strategy have been described in other sources (Connell, 1987; Connell & Stone, 1992). They included direct prompting for specific language goals in a discrete trials format (Alberto & Troutman, 2009; Gray & Ryan, 1973; based on Skinner, 1957). The interventionist presented the participant with a series of flashcards depicting actions that could be

expressed using the target forms that are summarized in Table 2. There were four levels of verbal promoting: Level 1—direct imitation, Level 2—delayed imitation, Level 3—further delayed imitation, and Level 4—elicited production. The rate of delivery of these prompts was determined by child production and responsivity with a minimum of 30 per session.
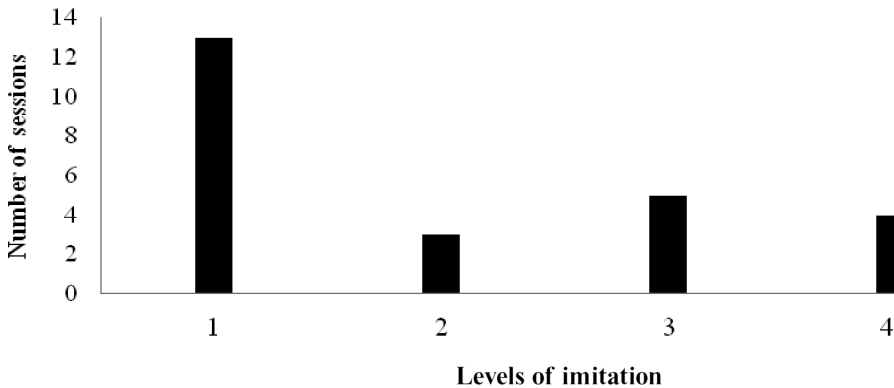
The interventionist began discrete trials intervention with each child at the first level of the continuum (direct imitation). After a participant achieved 90% or more correct responses, he or she proceeded to the next level. An example of the process of determining transition of levels is presented in

Child 3

Child 4

Figure 4. Number of sessions required by Child 3 and Child 4 to reach criteria for each of the four levels of the imitation intervention (received second).

Table 3. For each correct response that a child produced, a social reinforcer was delivered. If an incorrect response was given, the next card was presented. The participant remained at a given level until he or she achieved 90% or more correct responses. Although token reinforcement could be used if the target did not increase following delivery of social reinforcement, token reinforcement was not needed for any of the participants in this study. There were 30 picture cards that represented actions to promote the use of the individual targets of the participant. It was the number of sessions to reach criterion at each level that provided the outcome variable for the evaluation of this method for each child.

Description of conversational recast intervention

The procedure for conversational recast also has been described in other sources (Camarata et al., 1994; Camarata & Nelson, 1992, 2006). Briefly, it included no prompting or overt reinforcement but included

Table 2. Target assignment with examples

Participant	Imitation Strategy	Conversational Recast Strategy
Child 1 (recast strategy 1)	Irregular third person present tense[a] *Shelby has a card.*	Simple infinitive[a] *Shelby wanted to pour the water.*
Child 2 (recast strategy 1)	Simple infinitive[a] *Sophie wanted to go home.*	Irregular third person present tense[a] *Sophie has a card.*
Child 3 (imitation strategy 1)	Conjoined phrases[b] *Zachery ran and . . .*	Irregular third person present tense[a] *Zachery has a card.*
Child 4 (imitation strategy 1)	Irregular third person present tense[a] *Phoebe has a card.*	Auxiliary verbs[a] *Phoebe is going to the movie.*

Note. From "Phonological Features of Child African American English," by H. K. Craig, C. Thompson, J. A. Washington, and S. Potter, 2003, *Journal of Speech, Language, and Hearing Research, 46*, pp. 623–635.
[a]Contrastive form.
[b]Noncontrastive form.

Table 3. Description of the Four Levels of the Imitation Intervention

Direct imitation (Level 1): Interventionist presents target (You Say) and child responds.
  Interventionist: You say *He is running*.
  Child responds: *He is running*.
Delayed imitation (Level 2): Interventionist presents target and prompts for a response (you say that.)
  Interventionist: *He is running* You say that.
  Child: *He is running*.
Further delayed imitation (Level 3): Interventionist presents 2 options as a choice and then requests the child to identify each option.
  Interventionist: *He is running and he is jumping*. Tell me *running*. Now tell me *jumping*.
  Child points to correct image and responds *He is running*.
Elicited production (Level 4): Child cued nonverbally with card held up in expectation of response or child cued with "This one."
  Interventionists presents picture of boy jumping and says "This one."
  Child: *He is jumping*.

contingent expansions (recasts) of child initiations. Following a child's omission of the target, the interventionist would deliver a recast that incorporated the target in the reply. The sessions for this strategy were videotaped, and the same transcription process used for the baseline sessions was implemented. Table 4 provides an example of the recast strategy for simple infinitive, irregular third person, and auxiliary verbs. It was the spontaneous use of a targeted form after recasting in intervention

Table 4. Examples of recast strategy using targets of the participants

Simple infinitive
  Interventionist: *What do you do with the grill?*
  Child: *I like cook.*
  Interventionist: *You like to cook?*
  Child: *Yes, I like to cook burgers.*
Irregular third person
  Interventionist: *What is Barney doing?*
  Child: *He have it.*
  Interventionist: *Barney has a hot dog.*
  Child: *Barney has a hot dog to eat.*
Auxiliary/semiauxiliary verbs
  Child: *I play in playground.*
  Interventionist: *I am going to play in the playground.*
  Child: *I gonna play in the playground.*

sessions that provided the outcome variable for the evaluation of this method for each child.

Measures

Given the foci for the two intervention strategies, two code sets were developed. The first code set was used to judge fidelity of the treatments. That is, it was used to measure the rate of recast and imitation of the interventionist across all sessions. There were five codes: recast, direct imitation, delayed imitation, further delayed imitation, and elicited production. To ensure fidelity of each treatment, recasts should have appeared only in the recast intervention condition and not in the imitation condition. Conversely, direct imitation, delayed imitation, further delayed imitation, and elicited production should have appeared only in the imitation condition. A second code set used was to determine the use of language targets per individual participant in spontaneous contexts during the recast intervention. For both conditions, the individual language target codes were simple infinitive, third person singular, conjoined phrases, and auxiliary.

Reliability

Interobserver agreement

Interobserver agreement was calculated for the code sets for the conversational recast intervention condition. A sequential comparison of the coded data was made on a point-by-point basis for 25% of intervention sessions per treatment. Coding for reliability was determined by viewing the taped sessions. An agreement was scored if both coders identified the same behavior and a disagreement was scored if they differed on an identified behavior. Reliability was assessed using an exact agreement formula in which the total number of agreements was divided by the total number of agreements plus disagreements and multiplied by 100. Reliability was assessed separately for each category of child and interventionist behavior reported from the two sets of codes. Overall reliability was 89%. Re-

liability of child behaviors was 90%, and reliability for interventionist behaviors was 87%.

RESULTS

Two distinct interventions, conversational recast and imitation using a discrete trial format, were implemented to determine whether either was associated with growth in target use. None of these targets had been used in the baseline condition by the participants. In addition, language growth (positive, neutral, or negative) for pre- and postscores on vocabulary measures, EVT (Williams, 1997) and PPVT-III (ed; Dunn & Dunn, 1997), and for broader language measures, the PLS-3 (Zimmerman et al., 1992) and the TACL-3 (Carrow-Woolfolk, 1985), were examined.

Results for conversational recast intervention

Spontaneous and attempted use of previously absent language targets for each of the participants in the conversational recast strategy phase is presented in Figures 1 and 2. Attempted use of a target was coded if the child did not use the target when it could have been used; then the interventionist would restate or recast the statement of the child. Thus, target attempts indicated that the form was produced after a recast. Spontaneous use was coded; in the absence of any recasting by the interventionist. That is, a target was not counted as spontaneous if it was used immediately following a clinician production containing that form. The language targets for the conversational recast strategy are presented in Table 2. As noted, Child 1 and Child 2 (Figure 1) received the conversational recast intervention first, and Child 3 and Child 4 (Figure 2) received recast intervention second. Examples of recasting are shown in Table 4.

Child 1 had greater rates, on average, of spontaneous target use as compared to target attempts across sessions. Child 1 averaged five attempted uses of the target across sessions as compared to an average of eight spontaneous uses of the target. Like Child 1, Child 2 had greater spontaneous use of the target

than attempted use across sessions. The average spontaneous use of the target was 7 across sessions and average attempted target use was 2. With the exception of the final session, Child 3 showed greater attempted target use than spontaneous use. The average number of attempted target uses across sessions was 6. The average number of spontaneous target uses across sessions was 3. Child 4 used the target the least frequently, compared with the other participants, with the greatest number of spontaneous target uses occurring during session 9 when Child 4 used the target spontaneously seven times. Taken together, these results indicate that all four children exhibited spontaneous use of the targets under the recast strategy, but it was not evident from the visual inspection of the data that spontaneous use of the targets consistently increased over time. That is, there was positive growth (gain) in spontaneous target use from baseline (which was 0 target use), but there was no systematic incremental growth across time that could be associated with time in intervention.

Results of imitation intervention

The measure used for evaluating the imitation approach was the number of sessions

needed to reach criterion (Figures 3 and 4). The language targets for imitation were those presented in Table 2. Child 1, who received the imitation intervention second, required a total of 25 sessions to reach the final criterion. Child 1 remained in Level 4, elicited, production, for 12 sessions, which was more sessions than Child 1 needed to reach criteria at Levels 1, 2, and 3, and more sessions in Level 4 than any of the other participants. Child 2 needed a total of 23 sessions to reach the final criterion, with a natural progression of fewer sessions needed as fewer prompts were provided, with the least amount of sessions in Level 4. Child 3, who received the imitation intervention first, required the fewest sessions to reach the final criterion, with 15 total sessions and 6 sessions in Level 4. Finally, Child 4, who also received the imitation intervention first, required a total of 21 sessions to reach the final criterion, with 12 sessions in Level 1, direct imitation, but requiring only 3 sessions to reach criterion in Level 4.

The individual assessment scores for each of the participants for the PLS-3 (Zimmerman et al., 1992) are presented in Figure 5. Child 4 had the greatest gains from pre- to posttreatment with an initial score of 74 to a
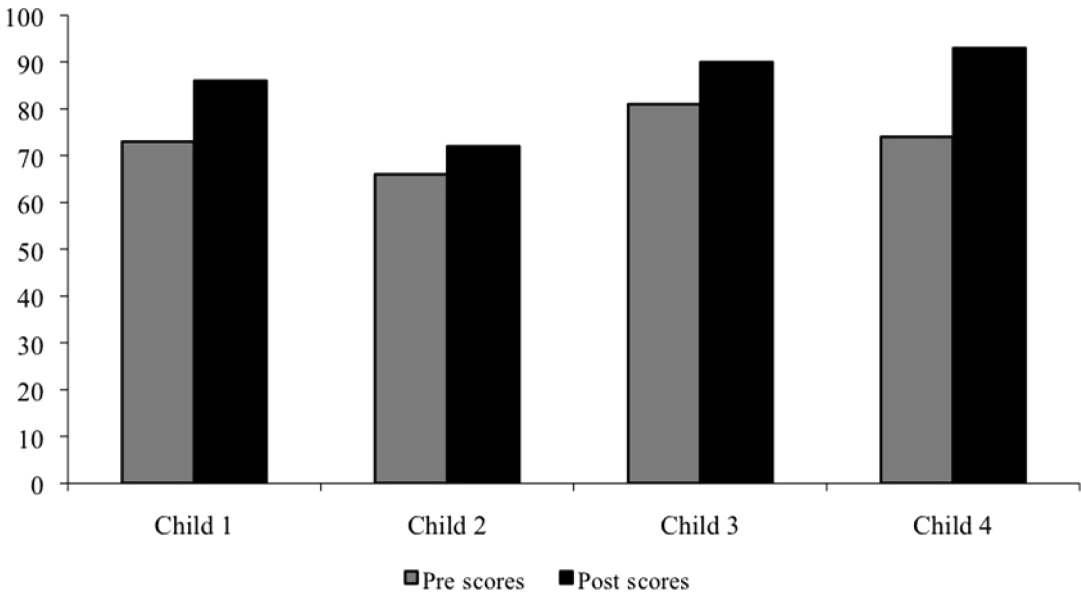
Figure 5. Pre- and posttreatment standard scores for the Preschool Language Scale -3.
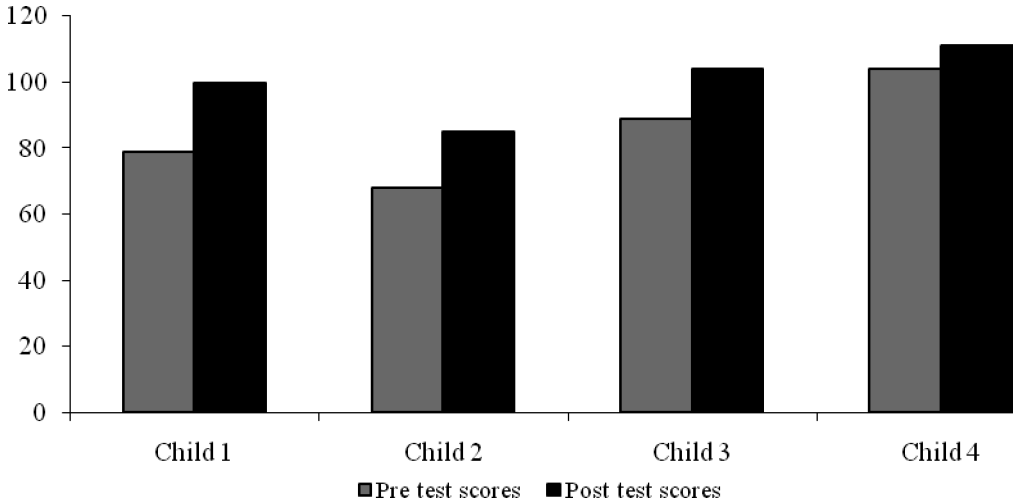
Figure 6. Pre- and post–Test for Auditory Comprehension of Language -3 scores.

posttreatment score of 93. There was positive growth in total standard score from pre- to posttreatment administration for all participants. The total standard score for the PLS-3 across participants increased an average of 12 points.

Pre- and posttreatment assessment scores for TACL-3 (Carrow-Woolfolk, 1995) indicated increases as well (see Figure 6). All participants had positive growth from pre- to post-treatment administration. Child 1 had the greatest gains, with a posttreatment score of 79 and a posttreatment score of 100. The mean gain across participants was 15 points.

The pre- and posttreatment scores for the EVTest (Williams, 1997) increased as well (see Figure 7). Child 3 had the greatest score change from a pretreatment score of 71 to a posttreatment score of 99. The average mean gain across participants was 24 points.

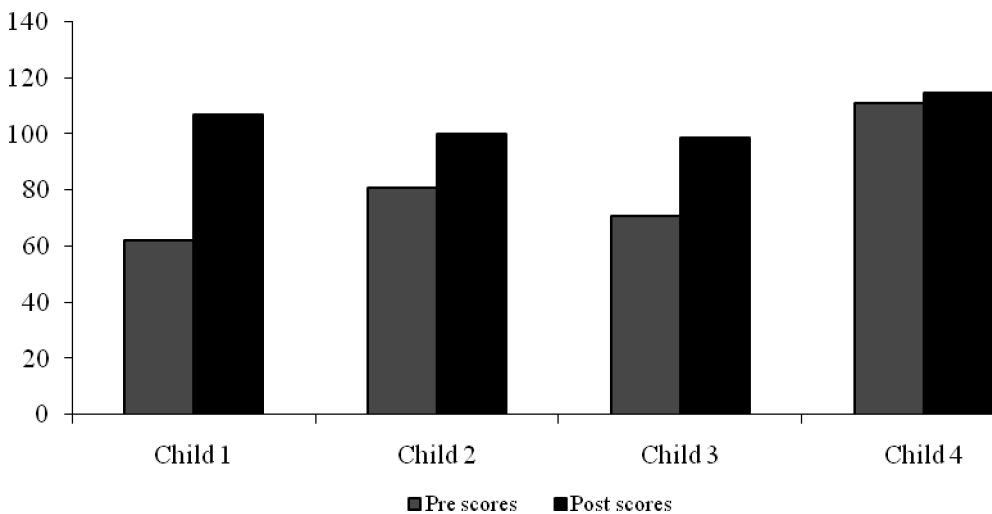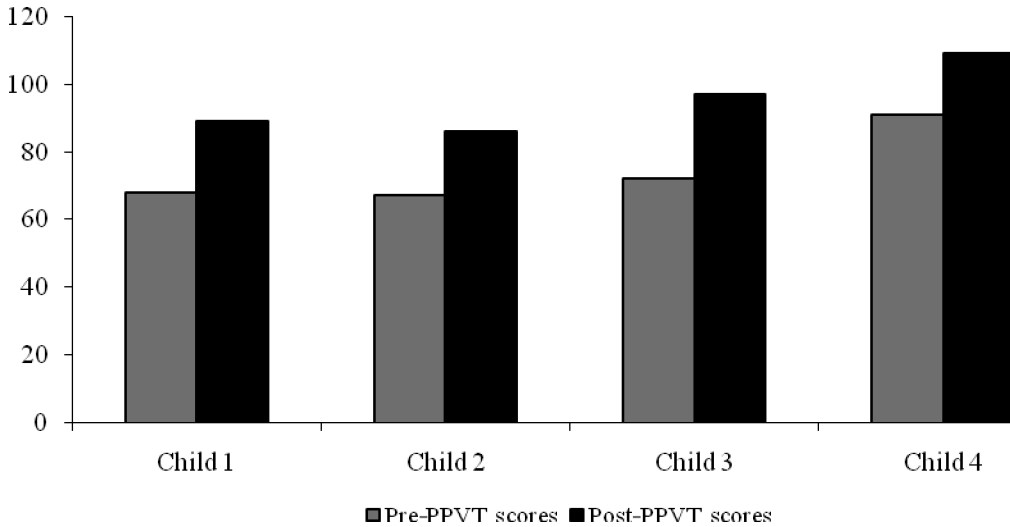The pre- and posttreatment test scores of the Peabody Picture Vocabulary (PPVT-III;

Figure 7. Pre- and postscores for expressive one word picture vocabulary test-revised (EOWPVT-R).

Figure 8. Pre- and posttreatment scores for the Peabody Picture Vocabulary Test-III.

Dunn & Dunn, 1997) increased (see Figure 8). Both Child 1 and Child 4 had a 21-point increase from pre- to posttreatment. The average gain across participants for the assessment was 21 points.

DISCUSSION

Against a broader need to determine whether intervention techniques should be adapted to cultural background, the purpose of this study was to determine whether two strategies, conversational recast or imitation using a discrete trial format, were potential options for children who use AAE and are at risk for language delays. Two language targets were identified for each participant on the basis of baseline samples that showed the forms to be absent in baseline language samples in either AAE or GAE forms. Interventions involved presentation of imitative models and recasts using GAE forms with explicitly marked morphology. Results indicated that both strategies were associated with growth in spontaneous use of individualized morphosyntactic targets that were not used by the participants during baseline sessions. However, there were individual differences in the responses to both treatments and possible order effects. In addition, scores on

multiple assessments increased across participants from baseline to intervention phases. In this case, as well, changes varied across individual participants, suggesting that individual differences might be an important factor in growth.

Use of targets increased in association with both intervention strategies, but individual differences were apparent. The positive target growth during imitation strategy was associated with the number of sessions for each level of support, direct prompting, needed to produce 90% or more correct responses. Direct prompting is one of the primary strategies of discrete trials interventions (Camarata et al., 1994). Child 3 and Child 4, who both received the imitation treatment first, required fewer sessions than Child 1 and Child 2, who both received the imitation treatment second, to reach criterion at the direct prompting level. This suggested a potential effect for prior treatment exposure. Because both Child 3 and Child 4 required less support to learn and use the targets in this manner, there is preliminary support for a possible order effect, supporting a recommendation to use more direct methods first, followed by a more social interactionist approach. There is also preliminary support for an individual differences effect. All children, with the exception of

Child 3, required 20 or more sessions to reach the final criterion in the imitation condition. The total number of sessions based on the level of support was variable, with Child 4 needing more support initially and then less support over time. This was similar to the pattern of Child 2. In contrast, Child 1 and Child 3 seemed to respond differently to this intervention, requiring more time to reach the 90% requirement when direct imitation support was faded. Because, Child 2 and 4 and Child 1 and 3 received the treatments in a different order, this suggests that an order effect is not the sole factor accounting for the observed differences in response patterns.

Importantly, these results may be interpreted in light of potential cultural factors. van Kleeck (1994) identified five areas of culture that underlie or dictate child–caregiver interaction. The five areas are primary or allowable partners, allowable settings, allowable topics, allowable interactant styles, and expectations for interaction. It may be interesting to discuss the two intervention strategies and the results as they relate to these five areas. Because both strategies were associated with producing targets that were not produced during the baseline session, the criteria of allowable partner, settings, and topics are implicit. The variation of the two strategies lies in the interactant styles and expectations for the interaction. The interaction style of the recast strategy is more indirect and conversational, whereas the imitation style is more direct and focused. Increased use of targets can be considered an indicator of style preference. There is some evidence that African American children may be more familiar with direct styles of communication (Cheatham, Armstrong, & Santos, 2009; Delpit, 2002; Hart & Risley, 1995), and so it may not be surprising that this approach was associated with higher levels of growth than was observed in GAE-speaking children by Camarata et al. (1994).

The second factor that is distinct between the two intervention strategies is expectation for the interaction. In the recast intervention, the expectation was to play with toys and talk about the activities that were occurring during play. Conversely, the expectation for the imitation phase was completing the task of reviewing and responding to a preset number of cards. The interventionist in the recast treatment had to engage the child in conversation that would increase the likelihood of the use of the targets for recasts, so this interaction was less scripted. During the training phase with imitation sessions, there was no conversation or active engagement between the interventionist and the participant. The training interaction was entirely scripted.

Responses of these four children to these two strategies can contribute to the understanding of the importance of the relationship between language learning and culture and how children acquire language in culturally appropriate ways. In addition, these preliminary analyses of responses for these two strategies by the four participants may assist in identifying new ways of distinguishing between language impairment and dialectic difference for children who use AAE (Seymour, Bland-Stewart, & Green, 1998). That is, children who become bidialectal more quickly in dynamic assessment activities, as these might be considered, could be viewed as having lower risks for language impairment. The effectiveness of the interventions could inform practitioners in determining appropriate classification and service delivery. After the intervention is implemented, determining the rate of acquisition will assist in making informed decisions about the need to intervene, but, moreover, to support the child and create opportunities for learning and demonstrate newly acquired linguistic competencies (Campbell, 1996). For example, if a child is prompted for a direct imitation and immediately produces the form, which then immediately generalizes to spontaneous language, it is more likely that the form was actually an indicator of dialect difference rather than disorder for that child. Similarly, if an attempted form is recast and then immediately and completely generalizes to spontaneous use, one would again logically question whether the form was an indicator of dialect difference rather

than language disorder. In this study, the incremental and, in some cases, inconsistent growth observed for all four children suggests that these participants were, in fact, having difficulty acquiring language, and that the forms were in fact at least somewhat problematic and not simply dialectal variants.

STUDY LIMITATIONS AND RECOMMENDATIONS FOR FUTURE STUDIES

All of the participants made gains beyond their expected (standard score) growth on all of the standardized assessments, suggesting that the combined approaches may have contributed at least partially to the gains. Perhaps the one-to-one interactions with an adult were enough to prepare the children to participate more effectively in the unfamiliar contexts of formal testing. The study was not designed, however, to detect whether the gains were attributable to one treatment more than the other, and there were no control participants to make it possible to know whether other components of the Head Start program or any other factors might have been responsible for the gains rather than the individual interventions.

Although the use of targets increased within intervention sessions compared to their complete absence during baseline observations, there were limitations that provide considerations for subsequent examination of these strategies. First, although the increased use of the targeted language skills in the intervention sessions, along with changes documented with the formal measures, were promising, these cannot be definitively attributed to either or both interventions, given the study's design. The inclusion of a no-treatment control group in future studies, as well as separate experimental groups using a clinical trial design, could clarify whether the individual intervention sessions contributed to gains on the language assessment measures. Also, the lack of either a generalization or maintenance phase makes it impossible to know with certainty whether the tar-

geted structures of either intervention were used spontaneously and maintained following a particular intervention. Future studies should incorporate a maintenance phase to determine whether target use remains beyond the intervention and to provide evidence of the sustainable effects of the interventions.

Relatedly, the variability of the targeted forms for the individual participants was unknown. Variability can arise from various linguistic processes, including optionality. But, as Burns and Marks (2008) note, "optionality is not well understood [in AAE]" (p. 21). In this case, the literature indicates that variability is indeed a process within AAE (see Seymour et al., 1998), and the targeted forms in the present study may have included substantial variability. Moreover, variability assessment, including optionality status within each targeted form within each child, would have yielded potentially useful information. As noted in the Methods section, all targets were completely absent in the preintervention assessments, but this does not preclude variability from other sources for these forms.

Another recommendation for future research would be to take multiple samples in different contexts to see whether the targets were used in other settings, specifically the classroom setting. Determining whether target use occurred in other settings would provide further evidence of strength of the strategies. In the current study, anecdotal notes were taken by the first author regarding the behavior of the students in the classroom. Over the duration of the study, teachers reported a positive change in behavior for two of the participants (Child 2 and Child 3). More systematic behavioral observational data would have provided additional evidence of the effect of these strategies on attention and social emotional development and whether language interactions in one-to-one sessions with adults might contribute to growth in these domains. Similarly, individual targets could be probed more extensively to determine their relative status in each child's linguistic inventory. Although

this study focused on productive use, probing comprehension of target forms may also be useful.

The processes of both intervention strategies used in this study incorporate developmentally appropriate activities, as recommended for child-focused interventions by the Division of Early Childhood of the Council for Exceptional Children (Sandall, McLean, & Smith, 2000). Play activities and imitation practices that are individualized for each child target meaningful outcomes for the child and build on the current skills of the child (Wolery, 2000). On the other hand, in-

dividual differences in these data and the general paucity of intervention studies focusing on culturally diverse populations suggest that additional studies focusing on cultural factors and intervention are needed. It is encouraging that changes in language target use were observed using both conversational recast and imitation using a discrete trial format within the AAE-speaking children with language disorders. Further investigations may shed light on whether cultural factors or individual differences make some intervention approaches particularly well suited for particular children.

REFERENCES

Alberto, P., & Troutman, A. (2009). *Applied behavior analysis for teachers*. Columbus, OH: Merrill.

American Speech-Language-Hearing Association. (2003). Technical report: American English dialects. *ASHA Supplement, 23*, 45–46.

American Speech-Language-Hearing Association. (2005). *Cultural differences in communication and learning styles*. Retrieved December 16, 2008, from http://www.asha.org/about/leadershipprojects/multicultural/readings/reading_2.htm.

Brown, R. (1973). A First Language. Cambridge, Mass: Harvard University Press.

Burns, F., & Marks, R. (2008). *Identify morphological impairment in young African-American English speakers: Phase 1.* Paper presented at the annual conference of the National Black Association for Speech, Language & Hearing, Washington, DC. Retrieved May 16, 2010, from http://www.ecommons.txstate.edu/cgi/viewcontent.cgi?article=1000&context.

Burns, F. A., Velleman, S. L., Green, L. J., & Roeper T. (2010). New branches from old roots: Experts respond to questions about African American English development and language intervention. *Topics in Language Disorders, 30*(3), 255–266.

Camarata, S. M. (1996). On the importance of integrating naturalistic language, social intervention, and speech-intelligibility training. In L. K. Koegel, R. L. Koegel, & G. Dunlap (Eds.), *Positive behavioral support: Including people with difficult behavior in the community* (pp. 333–352). Baltimore, MD: Paul H. Brookes.

Camarata, S., & Nelson, K. E. (1992). Treatment efficiency as a function of target selection in the remediation of child language disorders. *Clinical Linguistics and Phonetics, 6*, 167–178.

Camarata, S. M., & Nelson, K. E. (2006). Conversational recast intervention with preschool and older children. In R. McCauley & M. Fey (Eds.), *Treatment of lan-*

guage disorders in children (pp. 237–264). Baltimore, MD: Paul H. Brookes.

Camarata, S. M., Nelson, K. E., & Camarata, M. N. (1994). Comparison of conversational-recasting and imitative procedures for training grammatical structures in children with specific language impairment. *Journal of Speech and Hearing Research*, 37, 1414–1423.

Camarata, S., Yoder, P., & Camarata, M. (2006). Simultaneous treatment of grammatical and speech-comprehensibility deficits in children with Down syndrome. *Down Syndrome Research and Practice, 11,* 9–17.

Campbell, L. (1996). Issues in service delivery to African-American children. In A. Kamhi, K. E. Pollock, & J. L. Harris (Eds.), *Communication development and disorders in African American children: Research, assessment and intervention* (pp. 73–93). Baltimore, MD: Paul H. Brookes.

Carrow-Woolfolk, E. (1985). *Test for Auditory Comprehension of Language–Revised*. Allen, TX: DLM Teaching Resources.

Carrow-Woolfolk, E. (1995). *Oral and written language scales*. Circle Pines, MN: American Guidance Service.

Champion, T., & Bloome, D. (1995). Introduction to the special issues on Africanized English and education. *Linguistics and Education*, 7, 1–5.

Cheatham, G., Armstrong, J., & Santos, R. M. (2009). Y'all listenin?: Accessing children's dialects in preschool. *Young Exceptional Children, 12*, 2–14.

Connell, P. (1987). An effect of modeling and imitation teaching procedures on children with and without specific language impairment. *Journal of Speech and Hearing Research, 30,* 105–113.

Connell, P., & Stone, C. (1992). Morpheme learning of children with specific language impairment under controlled instructional conditions. *Journal of Speech and Hearing Research, 35,* 844–852.

Craig, H. K., Thompson, C., Washington, J. A., & Potter, S. (2003). Phonological features of child African American English. *Journal of Speech, Language, and Hearing Research, 46*, 623–635.

Craig, H. K., & Washington, J. A. (2002). Oral language expectations for African American preschoolers and kindergarteners. *American Journal of Speech-Language Pathology*, 11, 59–70.

Delpit, L. (2002). No kinda sense. In L. Delpit & J. K. Dowdy (Eds.), *The skin that we speak: Thoughts on language and culture in the classroom* (pp. 31–48). New York: New Press.

Dunn, L., & Dunn, L. (1997). *Peabody picture vocabulary III.* Circle Pines, MN: American Guidance Service.

Fey, M. E. (1986). *Language intervention with young children.* Austin, TX: Pro-Ed.

Fey, M., & Loeb, D. F. (2002). An evaluation of the facilitative effects of inverted yes–no questions on the acquisition of auxiliary verbs. *Journal of Speech, Language, and Hearing Research*, 45, 160–174.

Gray, B., & Ryan, B. (1973). *A language program for the nonlanguage child.* Champaign, IL: Research Press.

Hart, B., & Risley, T. (1995). *Meaningful differences.* Baltimore, MD: Paul H. Brookes.

Kazdin, A. E. (1982). *Single case research designs.* New York: Oxford University Press.

Kazdin, A. E. (2001). *Behavior modification* (6th ed.). Belmont, CA: Wadsworth.

Leonard, L., Camarata, S., Paw owska, M., Brown, B., & Camarata, M. (2008). The acquisition of tense and agreement morphemes by children with specific language impairment during intervention: Phase 3. *Journal of Speech, Language, and Hearing Research, 51*, 120–125.

McCauley, R., & Fey, M. (2006). *Treatment of language disorders in children.* Baltimore, MD: Paul H. Brookes.

Meisels, S. J., Marsden, D. B., Wiske, M. S., & Henderson, L. W. (1997). *Early Screening Inventory, Revised.* Ann Arbor, MI: Rebus.

Miller, J., & Chapman, R. (2006). *Systematic analysis of language transcripts.* Madison, WI: Language Analysis Laboratory.

Mount-Weitz, J. (1996). Vocabulary development and disorders in African American children. In A. Kamhi, K. E. Pollock, & J. L. Harris (Eds.), *Communication development and disorders in African American children: Research, assessment and intervention* (pp. 189–226). Baltimore, MD: Paul H. Brookes.

Nelson, K. E. (1989). Strategies for first language teaching. In M. Rice & R. Schiefelbusch (Eds.), *The teachability of language* (pp. 263–310). Baltimore, MD: Paul H. Brookes.

Pearson, B. Z., Velleman, S. L., Bryant, T. J., & Charko, T. (2009). Phonological milestones for African American English–speaking children learning mainstream American English as a second dialect. *Language, Speech, and Hearing Services in Schools*, 40, 229–244.

Roid, G. H., & Miller, L. J. (1995). *Leiter International Performance Scale–Revised.* Wood Dale, IL: Stoelting.

Sandall, S., McLean, M. E., & Smith, B. J. (2000). *DEC recommended practices in early intervention/early childhood special education.* Longmont, CO: Sopris West.

Seymour, H. N., Bland-Stewart, L., & Green, L. (1998). Difference versus deficit in child African American English. *Language, Speech, and Hearing Services in Schools*, 29, 96–108.

Skinner, B. F. (1957). *Verbal behavior.* New York, NY: Appleton Century-Crofts.

Tallal, P., Stark, R., & Mellits, E. D. (1985). Identification of language-impaired children on the basis of rapid perception and production skills. *Brain and Language*, 25, 314–322.

van Keulen, J. E., Weddington, G. T., & DeBose, C. E. (1998). *Speech, language, and learning and the African American child.* Boston, MA: Allyn and Bacon.

van Kleeck, A. (1994). Potential cultural bias in training parents as conversational partners with their children who have delays in language development. *American Journal of Speech-language Pathology*, 67–78.

Velleman, S. L., & Pearson, B. Z. (2010). Differentiating speech sound disorders from phonological dialect differences: Implications for assessment and intervention. *Topics in Language Disorders, 30*(3), 176–188.

Washington, J. A., & Craig, H. A. (1994). Dialectal forms during discourse of poor, urban, African American preschoolers. *Journal of Speech and Hearing Research*, 37, 816–823.

Williams, K. (1997). *Expressive Vocabulary Test.* Circle Pines, MN: American Guidance Service.

Wolery, M. (2000). Recommended practices in child-focused interventions. In S. Sandall, M. E. McLean, & B. J. Smith (Eds.), *DEC recommended practices in early intervention/early childhood special education* (pp. 29–37). Longmont, CO: Sopris West.

Zimmerman, I., Steiner, V., & Pond, R. (1992). *Preschool Language Scale–3.* San Antonio, TX: The Psychological Corporation.