Examining aspects of code-switching ability in children who speak African American English

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INTRODUCTION

- Nationally representative standardized assessments have shown a persistent achievement gap between African American and European American students (e.g., Lee et al., 2007; NCES 2009-455).
- Many African American students initially learn to speak African American English (AAE), a dialect of English that differs from the dialect of instruction, Standard American English (SAE).
- Both dialects of English are systematic and rule governed (e.g., Labov, 1966).
- There are morphosyntactic and phonological differences between AAE and SAE that may impact comprehension for young AAE-speaking children when they listen to SAE (e.g., Beyer & Kam, 2006, 2009; Johnson, 2005; de Villiers & Johnson, 2007).

Purpose of this study:

- To evaluate whether AAE-speaking young children can appropriately categorize AAE and SAE.
- To evaluate whether phonological and morphological differences between AAE and SAE impact comprehension of SAE in AAE-speaking children.
- To examine relationships among performance on these two experimental tasks and other individual differences, such as age and vocabulary size.

Importance of this study:

- 33% of AAE-speaking children do not spontaneously learn to code-switch by the end of 2nd grade.
- These children are at high risk for academic failure.
- The experimental tasks measure skills relevant to code-switching, so we are interested in what individual differences might predict performance on these tasks.

METHODS

Participant Characteristics: Means (SDs in parentheses)	
Number of boys, girls	15, 18
Age (months)	72 (16); range: 48 – 102
Race	African American or biracial
Socioeconomic status	32 low, 1 mid (parent interview)
Hearing Screening	All passed
PPVT-4 standard score	92 (11)
EVT-2 standard score	92 (8)
TACL-3 standard score (EPS subtest)	9 (2)

Acknowledgements

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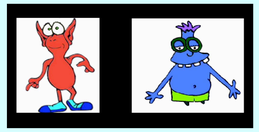
Experiment 1: Dialect categorization

Stimuli:

- Visual: 6 red and 6 blue monsters

Figure 1. Example of monster stimuli.



- Auditory:
  - Voices: 6 SAE-speaking and 6 AAE-speaking young women.
  - All speakers read 2 children's books: *A Snowy Day* and *A Letter to Amy.*
  - Auditory stimuli were edited into 1-2 sentence segments, paired with monsters (1 red and 1 blue per speaker) and animated to "speak" the story.

Procedure:

1. Training Phase:

- A red monster and a blue monster were presented on a touch screen: all red monsters spoke AAE and all blue monsters spoke SAE (or vice versa).
- The monsters both repeated a story segment, one at a time.
- Child's task after each monster spoke: "Touch the monster that just talked." Because the monsters were animated, it was clear which monster was talking.
- 3 AAE and 3 SAE voice/monster dyads were presented.

2. Practice Phase	3. Test Phase
Visual setup: Same as training (red monster and blue monster presented on screen)	
No animation. Story segment presented in either SAE or AAE	
Child's task after hearing story segment: "Touch the monster that talked."	
Feedback	No feedback
Same story as training	New story
Same voice/monster dyads as training	3 new, unfamiliar voice/monster dyads introduced (50% of trials)

Experiment 2: Comprehension of SAE

Word-level experiment

Stimuli:

- Pictureable words that were familiar to children in two categories:
  1. MM (monomorphemic) words: Ambiguous in AAE because final consonant clusters are reduced (e.g., *goal* vs. *gold*).
  2. Singular vs. plurals (e.g., *cat* vs. *cats*)
- Auditory stimuli: Recordings by a young adult female speaker of SAE.
- Visual stimuli: Color photographs of objects

Procedure:

1. Familiarization: Children listened to the picture-names and repeated each one as they looked at the pictures.
2. Identification: Children were asked to touch the correct picture.

Figure 2. Sample Trial: "Show me gold, please."

Sentence-level experiment (adapted from Johnson, 2005):

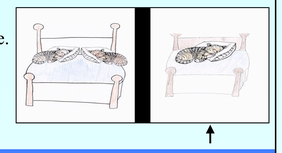
Stimuli:

- Two sets of singular and plural sentences:
  - Present progressive (PP):
    The cat is sleeping on the bed vs. *The cats are sleeping on the bed.*
  - Third person singular (3PS):
    The cat sleeps on the bed vs. *The cats sleep on the bed.*
- Auditory stimuli: Recordings by a young adult female speaker of SAE.
- Visual stimuli: Line drawings of sentences (provided by Johnson & de Villiers)

Procedure:

- PP and 3PS sentences presented in separate blocks. Order of blocks was counter-balanced.
- Children saw a pair of pictures (singular vs. plural subject) on a touch screen and heard one of two sentences.
- Children were asked to touch the correct picture.

Figure 3. Sample Trial: "Every day, the cat sleeps on the bed."



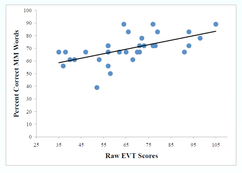
RESULTS

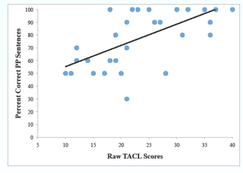
Experiment	Dependent Variables	Mean (SD)
1: Dialect categorization	% correct	66 (19)
2a: Word comprehension	% correct on singular/plurals	69 (24)
	% correct on final consonant cluster/singleton	69 (11)
2b: Sentence comprehension	% correct on PP	77 (22)
	% correct on 3PS	52 (14)

Correlations with participant characteristics

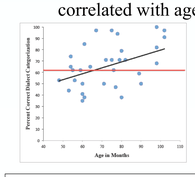
- Language scores:
  - After partialling out age, EVT-2 raw scores were still a significant predictor of both word comprehension measures and of PP sentence comprehension.
  - After partialling out age, TACL-3 sentence comprehension raw scores were still a significant predictor of PP sentence comprehension and word comprehension for the cluster/singleton contrast.

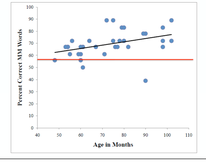
Figures 4-5. Comprehension of MM words as a function of EVT raw scores (left); comprehension of PP sentences as a function of TACL raw scores (right).

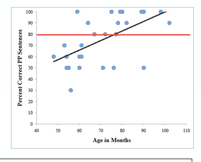




- Age:
  - All dependent variables except for percent correct of 3PS sentences were correlated with age.



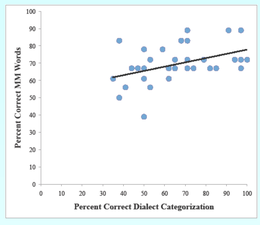


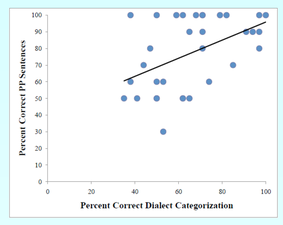


Figures 6-8. Dialect comprehension (left), MM word comprehension (center) and PP sentence comprehension (right) as a function of age. Points above the red line are significantly better than chance.

Correlations across experimental measures

- Percent correct on the dialect categorization task was correlated with some of the comprehension measures.
  - Comprehension of singular vs. plural nouns
  - Comprehension of words ending in consonant clusters vs. singletons.
  - Comprehension of present progressive sentences.
- Comprehension of third person singular was not correlated with any experimental measures
- Comprehension of present progressive sentences was also correlated with comprehension of singular vs. plural nouns.





Figures 9 and 10. Comprehension of MM words (left) and PP sentences (right) as a function of dialect categorization.

DISCUSSION

Summary and Discussion

- The language skills of the children in this study seemed to be representative of those of children from low-SES families more generally.
  - For example, Washington & Craig (1999) reported a mean of 91 on the PPVT-III for a similar group of children.
- The correlations of most of the experimental tasks with age suggest that these are valid tasks for this group of children.
  - The absence of a correlation with age for the 3PS task is consistent with Johnson (2005) and de Villiers & Johnson (2007).
- The correlations between some of the language measures and some of the experimental tasks support the claim that better language learners are more able to code-switch.
- However, dialect categorization was not correlated with any language measures, suggesting that some aspects of code-switching are not directly related to language, at least to the language skills that we measured.
- The fact that dialect categorization and SAE comprehension were correlated suggests that both tasks may be measuring abilities related to code-switching.

Limitations and Future Directions

- Small number of 7- and 8-year-olds (data collection is in progress).
- Language samples to measure dialect density not yet analyzed.
- Small number of items on the sentence comprehension tasks.
- Code-switching in bilingual children has been shown to be related to executive functioning. We have not yet analyzed the relationship between children's task-shifting ability and our experimental measures.