Relationships among non-mainstream American English, vocabulary size, and lexical processing in preschool-aged children

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BACKGROUND

Rationale
- Children who speak Nonmainstream American English (NMAE) are at risk of being misdiagnosed with a speech and/or language disorder at higher rates.
- Many studies have examined the use of NMAE, but have found conflicting results regarding how dialect use can influence later academic success.
- Some of these conflicting results may be because NMAE means different things in preschool-age and school-age children.
- Preschool-age children: High dialect use = Good learner of native dialect.
- School-age children: High dialect use = Poor dialect shifter.

Purpose of this study
To investigate the relationship among dialect density, expressive vocabulary, and lexical processing speed in preschool-age children who speak African American English (AAE).

Research Questions
1. What is the relationship among dialect density, vocabulary size, lexical processing efficiency, and age?
2. Can measures of dialect density be differentiated from measures of language development in preschool children?

METHODS

Participants
- 32 African American preschoolers (14 boys, 18 girls) from Madison, Wisconsin.
- Aged 2.14 – 5.11
- Typically developing per parental report; none receiving special education services at time of testing.
- Each child passed a bilateral hearing screening.

Table 1. Demographic information for participants.

<table>
<thead>
<tr>
<th>Age</th>
<th>Maternal Education</th>
<th>Total Family Income</th>
<th>EVT-2 Standard Score</th>
<th>PPVT-4 Standard Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>21-46 months</td>
<td>48-09</td>
<td>2.84 (1.32)</td>
<td>1.214 (0.5)</td>
<td>93 (10)</td>
</tr>
<tr>
<td>46-94 months</td>
<td>28-69</td>
<td>1-4 Range: 1-3</td>
<td>Range: 67-119</td>
<td>Range: 70-131</td>
</tr>
</tbody>
</table>

6-step scale for education:
- 1 = less than high school degree
- 2 = Ged
- 3 = high school degree
- 4 = some college
- 5 = college degree
- 6 = post graduate degree

5-step scale for family income:
- 1 = below $20,000/year
- 2 = $21,000 to $40,000/year
- 3 = $41,000 to $60,000/year
- 4 = $61,000 to $100,000/year
- 5 = above $100,000/year

Stimuli for LWL task
- Words: Stimulus words chosen based on age of acquisition and pictureability.
- All target words paired with semantic, phonological, and unrelated foils.
- Target words and all phrases (find the, to see the, isn’t this fun, etc.) recorded in African American English (AAE).
- Stimuli presented in children’s native dialect of AAE.

Eye Tracking Procedure and Analysis
- Target, Semantic Foil, Phonological Foil, and Unrelated Foil.
- Identified four areas of interest (AOIs) and coded targets to look at phonological, semantic, and unrelated foils.
- Time range analyzed = 250 ms to 1750 ms.
- Accuracy: looking duration to the target relative to the total duration of interest (1500 ms).

Language Sampling Procedure and Analysis
- Collected during adult-child discourse with an African American female examiner speaking AAE during free play context.
- Last 50 utterances transcribed orthographically and analyzed for total number of words, morphosyntactic and phonological AAE features.
- Morphosyntactic density, phonological dialect density, and overall dialect density calculated (number of dialect features/total number of words).

Statistical Analysis
- Regression analyses used to examine relationship among dialect density, vocabulary size, and lexical processing efficiency.

Eye Tracking Results
- Average (across all trials and subjects) looks to target over time for the target pictures the three foils.
- Baseline (before word onset at 0 ms), looks for all four image types were about 25%. No one image was more interesting than the others.
- Around 250 ms, children began looking at the target word.
- As time goes on, overall, children spent more time looking to the target word rather than the foils.

DIALECT DENSITY RESULTS

Relationship between DD and age
- Significant negative correlation between age and overall dialect density, age and morphological dialect density, and age and “non-age sensitive” measure of dialect density.
- No significant correlation between age and phonological dialect density.

DISCUSSION

Conclusions/Clinical Implications:
- Limitations of study:
  - Language samples were short (only 50 utterances).
  - Receptive and expressive vocabulary evaluated, but no measures of receptive or expressive syntax.
  - Can we even measure dialect density in preschool-aged children?
    - At this age, it is difficult to differentiate between language development and dialect use.
    - Vocabulary size and lexical processing efficiency were related to each other, but neither was related to dialect density.
    - Once age was taken into account, dialect density was not a significant predictor for any variables of interest.
    - Although most of the children in this study would not be considered language impaired, many children scored below average on vocabulary when compared to their peers.
    - As vocabulary size increased, children processed even highly familiar words more accurately.
    - Processing familiar words less accurately puts these children at a disadvantage for language acquisition and general learning.
    - Therapy should focus on improving vocabulary, rather than modifying the use of dialect features, which will help to improve lexical processing efficiency overall.
    - Future Directions:
      - Calculate MLU % obligatory use of morphological dialect features.

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