Phonological delay or phonological impairment in autism: an intergroup comparison

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INTRODUCTION

Studies (Bartel et al., 1975; Cantwell et al., 1978) investigating language, cognition, and behavior in children with Autistic Spectrum Disorder (ASD) and children with Specific Language Impairment (SLI) suggested clear differences between these two groups. Kjellgren et al. (2001) showed that among the children with autism there was significant heterogeneity in language skills. Debate: children with ASD have the same language profile as children with SLI or these children present a delayed acquisition rather than a deviancy (Tager-Flusberg, 1981; Tager-Flusberg et al., 1990).

OBJECTIVES: to determine whether one aspect of atypical language development in ASD (i.e. phonology) is only characterized by a simple delay in development or if it also shows some similarity with structural language impairment found in children with SLI.

A group of English-speaking children that were acquiring French as a second language will be used as a 'standard' for a delayed acquisition compared to typical French speaking children.

PARTICIPANTS

3 groups of children tested: ASD-SL1 and L2 (L1 English, L2 French) Only participants with atypical development (on average scores below 2 SD) were considered:

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>Age range</th>
<th>Mean age (SD)</th>
<th>Length of exposure (SD)</th>
<th>Age of acquisition (SD)</th>
<th>Phonology Mean Z-score</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASD</td>
<td>17</td>
<td>6-4-12.9</td>
<td>8.9 (1.8)</td>
<td>9.6 (1.5)</td>
<td>9.6 (1.5)</td>
<td>-0.51</td>
</tr>
<tr>
<td>SL1</td>
<td>28</td>
<td>6-5-12.1</td>
<td>9.6 (2.9)</td>
<td>-</td>
<td>-</td>
<td>-0.71</td>
</tr>
<tr>
<td>L2</td>
<td>26</td>
<td>6-4-12.7</td>
<td>9.6 (1.9)</td>
<td>29 mo (1-18mo)</td>
<td>7.8 (1.9)</td>
<td>-2.65</td>
</tr>
</tbody>
</table>

Task

- Short-version of the Word Repetition Task (WR) from the BLO-3C (Khomsi et al., 2007) used to assess phonology by clinicians.
- Some unfamiliar words are used as non-words (e.g. 'moisissouette', 'harvestor', 'kiosk', 'reservoir', 'kiosk', 'reservoir', 'kiosk', 'reservoir').
- No explicit control of phonological complexity was used during test building.

NB WORDS

<table>
<thead>
<tr>
<th>Nb Words</th>
<th>Mean Nb phonemes</th>
<th>Mean Nb Syllables</th>
<th>IPC mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>32</td>
<td>6.9</td>
<td>2.7</td>
<td>6.8</td>
</tr>
</tbody>
</table>

MEASURES

- Score per item (SVI).
- Index of Phonological Complexity (IPC). IPC score is composed of 8 production-based indices calculated at the word-level. These indices reflect the relative complexity of the segmental and syllabic structure within a word.
- Errors according to phonological position (each phoneme is coded according to its position in the word produced and its position in the syllabic structure).

RESULTS

- Overall results show that children with SLI have significantly more difficulties repeating items, and that children with ASD perform like L2 children.
- Patterns of production are specific to each group.

CONCLUSIONS

- Productions of participants with pathology are more influenced by phonological complexity than length, as opposed to L2 children. Children with SLI and ASD are sensitive to consonants in syllabic final position. Syllabic complexity plays a role in their segmental deficit.
- Phonology is affected in children with ASD and the way it is affected is comparable to productions of children with SLI on many points.

REFERENCES

- Syllable structure - Rose (2000).
- Phonological diversity, statistical learning, and acquisition of phonology: Language and Speech. 46(2-3), 115-134.

Further information

About this study, the team and current projects:...