INTRODUCTION

In addition to having reading difficulties, research has shown that children with dyslexia also have word-finding problems (Snowling, Wagtendon & Strafford, 1988; Wolf & Segal, 1992). Word-finding problems are defined by German (2000) as an inability to retrieve a word when the child knows the concept or meaning.

Some researchers suggest a general processing deficit is at the heart of word-finding problems. In a review by Mescher and Dockrell (2006), they discuss a range of cognitive-based deficits, including perception, memory, and speed of processing, may be at the core of the problems found in children with dyslexia.

Alternatively, some researchers have found evidence of a phonological processing deficit to explain the characteristics of dyslexia. This model suggests there may be insufficient storage and retrieval of phonological information. Failure to access phonological aspects of the original target word may result in semantic or phonological substitutions. However, a higher rate of semantic errors has been found in previous research (McGregor, 1997).

Therefore, it is of interest to examine the presence of semantic errors as well as the semantic subcategories (e.g., superordinate, coordinate, subordinate). Analyzing the subcategories of semantic errors may provide better understanding of the nature of the word-finding problems.

PURPOSE

The purpose of this pilot study is to evaluate the presence and type of word-finding errors in children with dyslexia, with specific emphasis on semantics. This study differs from previous studies because it compared children with dyslexia to a reading-level matched group, in addition to an age-matched group.

Specifically, this study examines the following issues:

1. Do children with dyslexia make more word-finding errors than children matched for age and children matched for reading level?
2. What word-finding error types distinguish children with dyslexia from children matched for age and children matched for reading level?
3. Within these error types, are there specific semantic errors that further discriminate the groups?

METHODS

Participants

- 30 children in 2nd through 4th grades were recruited from a suburban public school district. The following groups each comprised of 10 participants:
  - **Dyslexic Group (DYS):**
    - A determination of dyslexia was confirmed by a review of school records and testing, which included an evaluation by an assessment specialist that revealed significant deficits in phonological processing and decoding.
  - **Age Match Group (AM):**
    - Children who are the same age as the children with dyslexia; no history of reading problems
  - **Reading-Level Matched Group (RM):**
    - Children at least one year younger than the group with dyslexia but have equivalent grade-level reading skills; matched on the Burns-Rice Informal Reading Inventory administered by classroom teachers

- All children had a standard score of 90 or above on the nonverbal portion of the Kaufman Brief Intelligence Test (K-BIT).
- No reports of disorders of attention, hearing loss, autism spectrum disorders, or learning English as a second language.

**Characteristics of the Participants**

<table>
<thead>
<tr>
<th></th>
<th>DYS (N = 10)</th>
<th>AM (N = 10)</th>
<th>RM (N = 10)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age</strong></td>
<td>9.4 (SD = 0.9)</td>
<td>9.2 (SD = 1.1)</td>
<td>8.6 (SD = 1.6)</td>
</tr>
<tr>
<td>R-R Reading Level</td>
<td>2.5 (SD = 1)</td>
<td>3.5 (SD = 1)</td>
<td>2.5 (SD = 1)</td>
</tr>
<tr>
<td>K-BIT Nonverbal IQ</td>
<td>107 (SD = 9)</td>
<td>110 (SD = 11)</td>
<td>112 (SD = 14)</td>
</tr>
<tr>
<td>TWF-2 Quotient</td>
<td>80 (SD = 9)</td>
<td>112 (SD = 11)</td>
<td>105 (SD = 9)</td>
</tr>
</tbody>
</table>

* p < .0001

Procedures

- The Test of Word Finding Second Edition (TWF-2; German, 2000) was used to analyze word-finding performance.
- Responses were coded as semantic or phonological, or no-response based on criteria outlined in the TWF-2 manual and test protocol. The responses were further coded according the type of semantic and phonological error, as defined by the TWF-2 manual. Researchers were blind to group membership when coding the error types.

RESULTS

Data were analyzed using analysis of variance with Tukey post-hoc corrections to make comparisons between groups. The analyses revealed the following results:

- **On the Test of Word-Finding-2, children in the age-match and reading-level match groups performed significantly better than children in the dyslexia group, F (2, 27) = 13.46, p < .0001.**
- **Children in the dyslexia group made significantly more semantic errors than children matched for age and reading level, F (2, 27) = 12.826, p < .0001.** The reading-level matched group and the group with dyslexia made significantly more phonological errors than the age-matched group, F (2, 27) = 3.72, p < .03. However, the mean number of errors for each group was extremely low.

**Types of Specific Semantic Errors**

<table>
<thead>
<tr>
<th></th>
<th>Coordinate</th>
<th>Subordinate</th>
<th>Functional</th>
<th>Circumlocation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dyslexic</td>
<td>12</td>
<td>10</td>
<td>11</td>
<td>9</td>
</tr>
<tr>
<td>Age Match</td>
<td>12</td>
<td>8</td>
<td>6</td>
<td>10</td>
</tr>
<tr>
<td>Reading Match</td>
<td>15</td>
<td>6</td>
<td>10</td>
<td>12</td>
</tr>
</tbody>
</table>

**CONCLUSIONS**

This pilot study examined the presence of word-finding errors in children with dyslexia, when compared to same-age and reading-level matched peers. The study revealed these findings:

- Children with dyslexia made more word-finding errors than children in both of the comparison groups.
- Children with dyslexia made more semantic errors than both comparison groups.
- In terms of semantics, children with dyslexia made more coordinate, subordinate, functional, and circumlocution errors than both comparison groups.

These findings provide some support for the notion that difficulty accessing the appropriate phonological information results in semantic substitutions.

The data show a trend indicating difficulty in discriminating between word classes, as seen in the group differences for semantic subcategories. Our preliminary results suggest there is more ease in accessing certain levels of words than others. This informs us about semantic organization as well as approaches to intervention.

A limitation of the study is the small sample size, which makes it difficult to reveal similarities or differences between groups. Additionally, further assessment of other skills such as memory and speed of processing is necessary to give alternative explanations for the findings.

In terms of intervention, these findings support the use of a dual-focused approach, which involves teaching word meanings along with retrieval strategies. These may include metalinguistic and mnemonic cueing, segmenting, and rehearsing strategies (German, 2002).

SELECTED REFERENCES


ACKNOWLEDGEMENTS

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