

READING DISABILITY AND PHONEMIC AWARENESS

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Background

A substantial body of evidence has fostered the belief that phonemic awareness is necessary for reading acquisition (Al Otaiba & Fuchs, 2002). Most normal readers develop phonemic awareness without direct instruction (Adams, 1990). Disabled readers, *i.e.*, those with a specific disability in reading relative to their age and intelligence, fail to develop phonemic awareness or develop it incompletely, even with direct instruction. Thus, the majority of interventions for reading disabled children focus on remediation of supposed deficits in phonemic awareness (Ehri et al., 2001).

Cossu et al. (1993) provided evidence that children with Down syndrome were able to read adequately despite the inability to demonstrate phonemic awareness. However, these studies were conducted with Italian-speaking children, and Italian spelling is largely phonetic; that is, with only a few exceptions, a single letter or cluster of letters represents the same sound, and each sound occurring in the language has only a single written representation. Italian vowels have a single, unchanged value, unlike English. These factors make reading acquisition in Italian simpler than in English and perhaps less dependent upon intact phonemic awareness. Furthermore, Cossu, et al.'s methods of assessing phonemic awareness, which consisted of phoneme counting, phoneme deletion, oral spelling and sound blending, were criticized as heavily dependent upon conceptual abilities and word knowledge rather than phonemic awareness alone (Byrne, 1993).

Objective

Two studies were conducted: 1) to determine if Down syndrome children with adequate reading ability had phonemic awareness, and 2) to determine if learning disabled children could be found who had adequate reading but poor phonemic awareness or poor reading and adequate phonemic awareness.

Methods

Study 1: A replication of Cossu's work in English-speaking children.

This study compared the performance of children with Down syndrome and normal children on a set of tasks employed to assess phonemic awareness and reading skills. The study aimed to determine whether there exists a group of children who have acquired reading skills despite phonemic awareness deficits.

The subjects of the study, 15 school-aged children (ages 8-15), were recruited from parent groups and in response to a newspaper ad based on parent reports of reading skills.

Group 1: Composed of Down syndrome children without adequate reading skills. (Down Poor).

Group 2: Composed of Down syndrome children with adequate reading skills. (Down Accelerated).

Group 3: Composed of normal (non-Down syndrome) controls, whose reading level was matched with Group 2 (Down Accelerated).

All subjects were tested with five measures of phonemic awareness and one test of reading decoding skills.

The five measures of phonemic awareness included:

1. The Test of Awareness of Language Segments (TALS).
2. The Woodcock-Johnson Test of Cognitive Ability-R—Sound Blending subtest (W-J SB).
3. The Woodcock-Johnson Test of Cognitive Ability-R—Incomplete Words subtest (W-J IW).
4. Sound Categorization Test (SC).
5. Sound Deletion Test (SD).

The test for reading decoding skills used was:

- The Woodcock-Johnson Tests of Achievement-R—Word Attack subtest (W-J WA).

Study 2: Non-Down readers without phonemic awareness.

Case records were examined of children who were referred for “school problems” to a private psycho-educational clinic and were assessed both for reading level (Reading), using the Woodcock-Johnson Test of Achievement-III Letter-Word Identification subtest, and for phonemic awareness (PA), using the Phonological Awareness Test.

Children whose reading level was discrepant from their level of phonemic awareness were selected. Those who met these criteria were divided into two groups: one group whose reading level was average (standard score of 90 or above) but whose level of phonemic awareness was one standard deviation or more below average (standard score of 85 or below) and one group whose level of phonemic awareness was average but whose reading level was one standard deviation or more below average.

Results

Study 1:

Table 1: Performance on Measures of Phonemic Awareness

| | TALS | W-J SB | W-J IW | SC | SD |
|-------------------------|--------------------|---------------------|---------------------|--------------------|---------------------|
| | M (SD) | M (SD) | M (SD) | M (SD) | M (SD) |
| Normal | 14.4 (1.52) | 22.88 (3.70) | 24.4 (3.435) | 26.8 (2.39) | 11.4 (1.949) |
| Down Accelerated | 9.8 (3.56) | 11.88 (3.11) | 14.2 (5.070) | 8.6 (1.52) | 2.6 (2.074) |
| Down Poor | 6.2 (7.26) | 12.40 (4.45) | 13.8 (5.762) | 8.0 (4.64) | 1.2 (1.304) |

Table 2: Mean Number Correct on Measure of Reading Decoding

| | W-J Word Attack |
|-------------------------|------------------------|
| | M (SD) |
| Normal | 18.0 (5.701) |
| Down Accelerated | 15.6 (4.159) |
| Down Poor | 8.0 (4.637) |

Comparison of scores for normal readers and accelerated readers with Down syndrome revealed no significant difference between the groups ($t = -1.19, p = .1495$) on the Word Attack Test. Independent sample comparisons of accelerated and poor readers with Down syndrome revealed significant differences between the two groups ($t = 2.73, p = .013$) on the Word Attack Test.

Overall, neither group of Down syndrome children demonstrated phonemic awareness. In addition, the adequate reading Down syndrome children, (Group 2), were also able to decode phonetic nonsense

words as well as the normal children. This demonstrated that neither real-word decoding, nor phonetic nonsense word decoding were dependent upon phonemic awareness in the Down syndrome children.

Study 2:

Of 308 cases reviewed, 29 had both low phonemic awareness skills and low reading skill. A total of 271 had average or higher reading skills, which were consonant with their average or higher level of phonemic awareness. Of the remaining cases, four met the criteria for being reading disabled but with intact phonemic awareness and four met the criteria of being average readers with deficient phonemic awareness.

| Table 3: Intact reading with Deficiencies in Phonemic Awareness | | | |
|--|------------|----------------|-------------------|
| Case | Age | Reading | Average PA |
| 1 | 8-4 | 90 | 85 |
| 2 | 8-3 | 99 | 78 |
| 3 | 12-0 | 103 | 85 |
| 4 | 7-7 | 90 | 80 |

| Table 4: Reading Disability with Intact Phonemic Awareness | | | |
|---|------------|----------------|-------------------|
| Case | Age | Reading | Average PA |
| 1 | 12 | 79 | 104 |
| 2 | 8 | 76 | 96 |
| 3 | 11 | 83 | 100 |
| 4 | 9 | 67 | 111 |

Conclusions

The data of **Study 1** replicated the findings of Cossu et al., demonstrating that children with Down syndrome may read adequately without evidence of phonemic awareness.

The data of **Study 2** confirm that some normal children may read adequately without fully developed phonological awareness and some children with reading disability may have adequate phonemic awareness.

These findings, taken as a whole, demonstrate that phonemic awareness is neither necessary nor sufficient for acquiring reading decoding skills. Some children, both normal children and those with Down syndrome, are able to read adequately without firmly established phonemic awareness while some children who have intact phonemic awareness still fail to acquire reading decoding skills.

Therefore, it is essential to perform careful assessment of phonemic awareness in a reading disabled patient prior to launching on a course of phonemic awareness intervention. In some cases, interventions that treat impairments (e.g. problems with attention, short-term memory, reading fluency) that interfere with reading may be more appropriate. In particular, Attention Deficit/Hyperactivity Disorder should be ruled out as a cause of reading problems since it has been found to affect reading negatively, particularly at the initial stages of reading acquisition.

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For Further Information

Further information on this and other projects can be obtained from info@centerforlearning.net.

References

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