

Students with Intellectual Disability who used Fast ForWord[®] Products show Improved Language Skills

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ABSTRACT

Purpose: This study investigated the effects of the Fast ForWord products on the language skills of students with intellectual disability who used the products within a school or clinic setting. **Study Design:** The design of this study was an observational study using nationally normed assessments. **Participants:** Study participants were students diagnosed with mild to moderate intellectual disability. **Materials & Implementation:** Following staff training on the Fast ForWord products, students used the products and had their language skills assessed with the Clinical Evaluation of Language Fundamentals-Third Edition (CELF-3). **Results:** Overall, students with intellectual disability improved significantly in both receptive and expressive language skills following use of the Fast ForWord products.

Keywords: observational study, intellectual disability, Fast ForWord Language, Fast ForWord Language to Reading, Clinical Evaluation of Language Fundamentals-Third Edition (CELF-3).

INTRODUCTION

University-based research studies have reported the development of a computer software product that focused on the memory, attention, processing and sequencing skills critical for language and literacy development (Merzenich et al., 1996; Tallal et al., 1996). This prototype of the Fast ForWord Language software showed that an optimal learning environment with a focus on early reading and cognitive skills resulted in dramatic improvements in the auditory processing and language skills of school children who had specific language impairments (Merzenich et al., 1996; Tallal et al., 1996) or were experiencing academic reading failure (Miller et al., 1999).

In this study, commercially available computer-based products (Fast ForWord Language and ForWord Language to Reading) were used to evaluate the effectiveness of this approach for improving the language skills of students who were diagnosed with mild to moderate intellectual disability.

METHODS

Participants

Twenty-nine students participated in this study, 24 with mild intellectual disability and 5 with moderate intellectual disability¹. The average age of the students

¹ At the time the data for this study were collected, different diagnostic nomenclature was used, but all study participants would now fall under the diagnostic category of intellectual disability, as described in the Diagnostic and Statistical

was 10 years, 6 months. The students' language skills were assessed using the Clinical Evaluation of Language Fundamentals-Third Edition (CELF-3) before and after Fast ForWord participation. School or clinic personnel administered the assessments and reported standard scores for analysis.

Implementation

Educators and clinicians were trained in current and established neuroscience findings on how phonemic awareness and the acoustic properties of speech impact rapid development of language and reading skills; the scientific background validating the efficacy of the products; methods for assessment of potential candidates for participation; selecting appropriate measures for testing and evaluation; effective implementation techniques; using reports to monitor student performance; and measuring the gains students have achieved after they have finished using the Fast ForWord products.

Materials

The Fast ForWord program comprises several computer-based products that combine an optimal learning environment with a focus on early reading and cognitive skills. Each product includes multiple exercises designed to build the cognitive skills critical for all learning, such as attention and memory. These exercises simultaneously develop academic skills

critical for language and literacy development, such as English language conventions, phonemic awareness, vocabulary, and comprehension.

descriptions of the exercises and learning modes within each product can be found online at <http://www.scientificlearning.com/exercises>.

Table 1 outlines some of the primary skills developed by the products used in this study. More detailed

Primary Skills	Listening Accuracy & Auditory Sequencing	Auditory Word Recognition	English Language Conventions	Following Directions	Listening Comprehension	Phonological Skills / Phonemic Awareness	Phonics / Word Analysis	Vocabulary
Product Name								
Fast ForWord Language	•	•	•	•		•		•
Fast ForWord Language to Reading	•		•	•	•	•	•	•

Table 1: The Fast ForWord products work on numerous cognitive and early reading skills. The primary skills focused on by each product are noted in the table.

Assessments

Before and after Fast ForWord participation, study participants were assessed with the Clinical Evaluation of Language Fundamentals-Third Edition (CELF-3).

Clinical Evaluation of Language Fundamentals-Third Edition (CELF-3): The CELF-3 is a comprehensive language test widely used to measure a child’s ability to understand words and sentences, follow directions, recall and formulate sentences, and understand relationships between words and categories. Scores were reported for three composites, Total Language, Receptive Language, and Expressive Language.

Analysis

Standard scores were analyzed using a p-value of less than 0.05 as the criterion for identifying statistical significance.

RESULTS

Before Fast ForWord use, the study participants’ mean scores were approximately three standard deviations below average, which is well below the average range, and indicative of marked impairment. After Fast ForWord use, the students demonstrated significant improvements in both their receptive and expressive language skills (Figure 1). Mean scores improved by approximately 2/3^{ths} of a standard deviation on both composites.

CONCLUSION

Language skills are critical for all students, impacting their ability to benefit from instruction, follow directions, participate in class discussions, and develop into productive members of society. Strong linguistic skills also provide a critical foundation for

building reading and writing skills. Many school-based studies have demonstrated that the Fast ForWord products impact the language and literacy achievement of students in various populations. This study extends those findings to students with intellectual disability.

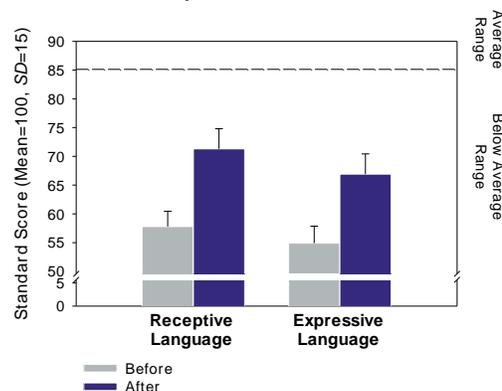


Figure 1. On average, students with mild to moderate intellectual disability demonstrated significant improvement in language ability after Fast ForWord participation. Results from 29 students are shown.

After Fast ForWord use, students with intellectual disability made significant gains in their language skills. These findings demonstrate that an optimal learning environment coupled with a focus on cognitive and early reading skills can help students with intellectual disability attain higher levels of language skill, better positioning them to benefit from their classroom curriculum and to function in society.

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Note: The study reported here was one of two studies originally reported in a 2007 publication. The two were combined on the basis of a shared diagnostic category that is now obsolete. To reflect current diagnostic categories and terminology, the studies have been separated into two updated reports.

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