PROJECT FACT SHEET

The Tools to Read: Comparing Intervention Strategies for Children with Down Syndrome

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Down syndrome is a genetic condition that causes delays in the way a child develops. It is estimated that one in every 800 infants will be born with the condition. Children with Down syndrome often have cognitive impairments and require early intervention to help promote a positive learning experience in school.

Nova Scotia researchers are working to establish the best methods to help children with Down syndrome develop literacy skills.

Patricia Cleave, Associate Professor at Dalhousie University's School of Human Communication Disorders, and Derrick Bourassa, Associate Professor of Psychology at the University of Winnipeg, led a research project comparing programs designed to develop literacy skills in children with Down syndrome. Two of the programs were designed to affect reading directly (Rime-based and Whole Word Decoding Programs), and two were designed to improve oral language, (Phonological Awareness and Narrative Skills programs) which are important in the acquisition of reading skills.

In the study, 47 children in elementary-level classes across Nova Scotia participated in a series of 30-minute, one-on-one intervention sessions once a week. Thirty beginning readers were assigned to one of the Decoding programs while seventeen pre-readers participated in the Phonological Awareness and Narrative programs.

"Children with Down syndrome commonly have an intellectual disability and find language development especially challenging" says Dr. Cleave. "While there is a wide range in the severity

of developmental delay from child to child, children with the condition are often highly visually oriented and have particular difficulties in auditory-based kinds of learning."

While children with Down syndrome have delays in receptive language, they have particular difficulty with expressive language skills. This means that they often understand more than they are able to say. They have trouble with essential aspects of language development such as grammar, using words correctly, telling stories, and pronouncing sounds clearly. Such problems can lead to frustration as the child cannot express the ideas they wish to communicate to others.

"The results of the study's interventions were encouraging, notes Dr. Bourassa. While children in both of the Decoding groups showed gains, those who participated in the Rime-based program learned the words in fewer sessions. Children in the Rime-based group also showed significant improvements in reading new words that had not been part of the intervention sessions and the children scored higher in standardized tests.

A Rime-based approach draws the reader's attention to the letters following the first consonant in a word thereby breaking single words into a number of identifiable components. This approach enabled the children in the study to develop reading strategies they could use when attempting to decode unfamiliar words.

In work with the pre-readers, the researchers also discovered that making language patterns explicit worked to help the children improve both their phonological awareness and narrative skills. Phonological awareness is the ability to hear the sounds in words. This is an important skill in learning to read words. Narrative skills, or the ability to understand and tell stories, is an important foundation for reading comprehension.

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