Title: Access to Literacy Instruction in Preschool Age Children with Developmental Disabilities

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Introduction: Phonological awareness, children’s knowledge regarding the sound structure of spoken words, is a critical component of successful reading development (NRP, 2000). Activities of phonological awareness introduced during preschool inherently involve speech ability to participate. Children with Down Syndrome have a range of speech ability, and often have significant delays in speech development that continue through their preschool years. Little is understood about the relationship between speech ability, access to instruction, and phonological awareness skills for children with Down syndrome during preschool. This study will highlight the performance of six children with Down syndrome, within the context of a study of 42 preschool age children with developmental disabilities that range in etiology. Two main questions are asked: 1) What is the relationship between children’s speech ability, vocabulary comprehension, phonological awareness, and home literacy experience? 2) What is the relationship between children’s speech ability, vocabulary comprehension, phonological awareness, and school literacy experience?

Method: Forty-two children between 4 and 5 years of age (M = 4.74) with developmental disabilities were recruited. Six children had Down syndrome (DS), 19 children had a developmental disability (DD) with etiologies that included Fragile X Syndrome, Phelan McDermid Syndrome, Smith-Magenis Syndrome, Angelman Syndrome, Tuberous Sclerosis Complex, or were unspecified. 17 had a parent reported diagnosis of ASD. Groups were matched for age (F(2, 39) = 1.09, p = .419), speech ability (F(2, 39) = 2.17, p = .128), developmental skill assessed by the Mullen Scales of Early Learning (MSEL) (F(2, 39) = 2.88, p = .068), shared literacy experiences at home (F(2, 35) = 0.68, p = .513), and at school (F(2, 29) = 0.13, p = .875). MSEL composite standard scores for children with DS were 48.50 (SD = 0.55), DD were 65.37 (SD = 14.63), and for children with ASD were 66.65 (SD = 20.75). Children had hearing and vision within normal limits, English as a primary language, and motor skills for direct selection of a touchscreen. Each child completed standardized and experimental assessments of speech ability, vocabulary comprehension, and phonological awareness. Each child’s primary caregiver completed surveys of home and school literacy experiences and instruction.

Results: Parents of children with DS reported they began reading to their child at 2.5 months of age on average, while parents of children with DD began at 9.13 months on average, and parents of children with ASD began at 11.53 months on average. Children with ASD had greater phonological awareness skills (M = 17.06) than children with DD (M = 10.42) or DS (M = 10.67). When looking at all 42 children, speech ability and vocabulary comprehension did not account for a significant amount of variance in shared literacy experiences at home (R² = 0.140, F(2, 35) = 2.84, p = .072). Speech ability and vocabulary comprehension did not account for a significant amount of variance in literacy instruction at school focused on phonological awareness and decoding (R² = 0.001, F(2, 29) = 0.016, p = .984). Parents reported high levels of shared home literacy experiences regardless of vocabulary knowledge or speech ability, while parents reported low levels of school literacy instruction regardless of vocabulary knowledge or speech ability. Significant correlations were found for the relationship between children’s phonological awareness and shared literacy experiences for children with DD (r = 0.62, p = .009), but not for children with DS or ASD. No significant correlations were found in any group for the relationship between phonological awareness and literacy instruction focused on phonological awareness at school.

Discussion: Overall, high levels of shared literacy experiences were reported at home, but low levels of instruction were reported at school for all children. Greater phonological awareness was found in children with DD who also had the greatest amount of shared literacy experiences at home. This relationship between increased shared literacy at home and increased phonological awareness was not found in children with DS or children with ASD. Findings from this study represent an important step in understanding the relationship between intrinsic factors of speech ability, vocabulary comprehension and access to reading instruction that support the development of phonological awareness. Children with DS may evidence specific delays in the development of phonological awareness when provided with the same supports at home as children with DD and ASD. Larger samples of children with DS are needed to confirm these findings. Children with ASD evidenced greater phonological awareness overall, but this ability was not related to the amount of home or school instruction as it was in children with DD. Opportunities for increased instruction in phonological awareness that capitalize on children’s strengths in vocabulary comprehension, and support alternate access for speech production will be discussed.