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Statistical Learning and Language Characteristics in Preschoolers With or Without Specific Language Impairment

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Abstract

The current study aimed to examine the relationship between statistical learning and language skills, including phonological, morphological, and syntax awareness, in preschool children with or without language impairment. Forty-two Hebrew-speaking children aged 5 to 6 years old, with (*n = 21*) or without (*n = 21*) language impairment, were trained, evaluated, and later tested in statistical learning using an artificial grammar learning task. They also completed a series of phonological, morphological, and morpho-syntax awareness tasks. Results indicated that while both groups showed a better than chance statistical learning level, children with language impairment had a lower level of statistical learning than those without language impairment. Among the children with language impairment, high exposure to specific sequences during the training stage did not improve their level of statistical learning. Instead, high exposure during training interrupted the learning process of children with language impairment as evidenced by the reduction in their ability to identify sequence regularity. Language skills were significantly lower in children with language impairments compared across all the language tasks. In line with our hypothesis, higher statistical learning ability was significantly associated with a better syntax ability in both groups. However, no significant association was found among statistical learning, phonological, and morphological awareness tasks. Taken together the findings support the argument that the difficulties faced by children with impaired language skills are not language-specific but rather extend to a general cognitive difficulty in statistical learning. Moreover, the findings support the idea that statistical learning is not limited to one cognitive function which is equally related to a set of language functions but rather that statistical learning is comprised of a set of cognitive functions.