

Unraveling the Link Between Language and Scene Knowledge in Children

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It has been suggested that objects in scenes adhere to semantic and syntactic rules similar to words in sentences and that scene and language processing might share common mechanisms. Here we aimed to investigate this relationship further by including children (age range: 6-10) with typical language development and developmental language disorder, encompassing a broad language ability spectrum. In addition to language tests, we tracked children's eye movements during a free viewing task involving scenes with semantic and syntactic violations, and a search task with objects in expected or unexpected locations. Additionally, children arranged a dollhouse with 61 objects. Results showed that dwell time on semantic and syntactic violations increased with the children's semantic and syntactic language scores, and RTs for finding objects at unexpected locations increased with syntactic language scores. These findings indicate that children's ability in semantic and syntactic aspects of language might go hand in hand with responses to corresponding violations in scenes. Additionally, as semantic scores increased, children placed objects more accurately in the dollhouse (correct rooms). While we did not find a relationship between syntactic language scores and the distance between objects in the dollhouse, we did observe children who looked longer at syntactic violations in the free viewing task also placed the related objects more closely. We did not find a similar relationship for dwell times on semantic violations. In summary, our findings substantiate a potential link between scene and language knowledge, underscoring the need for further investigations.

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