**Title:** An Exploratory Analysis of the Relationship between Parent Verb Input and Verb Expressive Vocabulary in Children with Autism Spectrum Disorder

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**Introduction:** Little is known about the type of linguistic input that children with autism spectrum disorder (ASD) use to learn verbs, despite the importance of verb acquisition for grammatical development (Tomasello & Kruger, 1992). Within the constraints of longitudinal correlational designs, such input is studied as early predictors of later verb vocabulary. Studies from the typically developing literature suggest that certain qualities of parent input, not just quantity, might support verb acquisition. Aspects of quality that might be important are diversity of input and the inclusion of verb-related syntactic elaborations (Hsu et al., 2015; Venker et al., 2015). In children with ASD, this specially-crafted input might need to also be specially timed in the form of utterances that follow-on the child’s attentional leads (follow-in utterances). The association between parent verb follow-in input and later child verb vocabulary may be stronger for children with ASD who have lower object interest (i.e., those who have restricted interests in the types of objects they play with). The purpose of this study was to evaluate if quality and quantity of parent verb input was significantly related to later child expressive verb vocabulary in children with ASD, and if that relationship might vary as a function of child object interest.

**Method:** We conducted a longitudinal correlational design using a sample of thirty-one toddlers with ASD from a larger sample of children who participated in a larger longitudinal study. These children were selected based on having an expressive vocabulary of at least fifty expressive words at the final time point on the MacArthur-Bates Communicative Developmental Inventory (MCDI; Fenson et al., 2007) to maximize the likelihood of having at least one verb in their vocabulary at the final time point of this smaller study. Videos of parent-child free play sessions from early time points in the larger study were coded for parent linguistic responses with verbs, diversity of verbs, and presence of verb phrase elaborations. Object interest was derived from a developmental play assessment. Simple and multiple regression models were used to test for significant relationships between an aggregate early parent verb input variable and later child verb expressive vocabulary (as measured by number of words produced from the action word section on the MCDI). The PROCESS extension to SPSS (Hayes, 2013) was used to conduct a moderation analysis with object interest entered as a moderator.

**Results:** The overall model including the aggregate quality and quantity of parent verb input variable and earlier child expressive verb vocabulary resulted in a large amount of variance accounted for in later child expressive verb vocabulary, $F(2,28)=12.832$, $p<.001$, $R^2=.478$. The change in $R^2$ when the aggregate parent input score was added as a predictor after controlling for early expressive verb vocabulary was $.17$, $p=.005$. Importantly, early parent linguistic input without verbs was not significantly correlated with later child verb vocabulary ($r=.13$). In the moderation analysis equation, a significant interaction between object interest and parent verb input emerged, $p<.05$, $R^2$ change $=.13$. The association between input and verb vocabulary size was significant only in the subgroup of participants with lower object interest.

**Discussion:** This exploratory study revealed a significant relationship between quantity and quality parent verb input in follow-in utterances and later child expressive verb vocabulary; this relationship was stronger in a sub-group of children with lower object interest. Given the importance of verb acquisition for developing more grammatically complete utterances, and the social communicative deficits and special linguistic input needs children with ASD exhibit, developing a knowledge base for how a strong verb vocabulary might be facilitated is an important goal for clinicians and parents alike to consider. However, there is a clear need for more research on supporting relevant stakeholders in this important, and often over-looked, part of language development in children with ASD.
References/Citations: