

No Advantage of Pragmatic Inference for Vocabulary Retention in Children with Autism



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Background

- Pragmatic inferences are often needed for referential resolution (Tomasello, 2003; Stephan, 2021).
- Autistic (ASD) Children
 - Word learning via pragmatic inference has not been studied
 - Word retention beyond in-the moment meaning mappings rarely studied
- Typically Developing (TD) children
 - 6-to-9-year-olds, similar to adults (Saratsli et al., 2021), retain words learned via pragmatic inference better than those directly mapped (Trice et al., 2021)
 - 4-to-6-year-olds, whose social cognition skills are less mature, did not benefit from pragmatic inference for word retention (Trice et al., 2021)
- **How do autistic children learn and retain novel words in a pragmatic-inferential vs. direct-mapping context relative to their typically developing peers?**

Participants

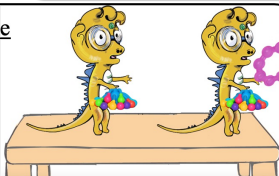
Characteristics	ASD	TD	Group Difference
N (# of Girls)	34 (11)	34 (16)	$\chi^2 = 1.2, p = 0.3$
Mean Age (SD)	7.6 (0.9)	7.4 (0.8)	$t(66.6) = 0.78, p = 0.4$
Mean ToM Score (SD)	0.7 (0.2)	0.8 (0.2)	$t(61.7) = -3.0, p < 0.01$
Mean SCQ (SD)	15.8 (6.8)	-	
Mean ABI-S (SD)	40.9 (17.6)	-	
Mean KBIT (SD)	106.2 (26.7)	-	
Mean PVT (SD)	105 (18.4)	-	

ToM Score = Verbal Theory of Mind Booklet Task from Richardson et al., 2018, SCQ = Social Communication Questionnaire, ABI-S = Autism Behavior Inventory Short from Bangarter et al., 2017, KBIT = Non-Verbal Kaufman Brief Intelligence Test, PVT = Standardized Picture Vocabulary Test

Methods

Learning via Pragmatic Inference (4 words, X2)

“Look! I like this dinosaur! It’s holding a MEL!”



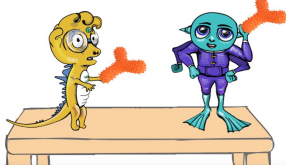
Immediate Recall/Retention (X4)/(X8)

“Which one is a MEL?”



Learning via Direct Mapping (4 words, X2)

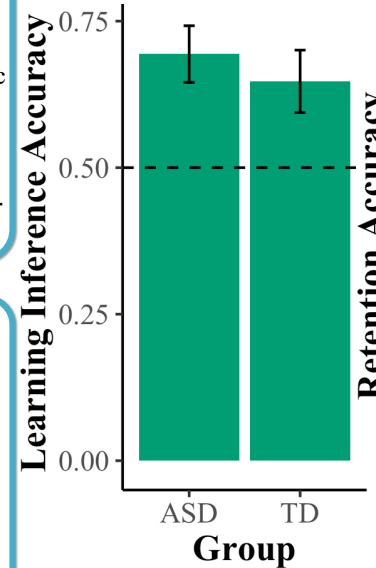
“Look! I like this BINK! It’s on the alien!”



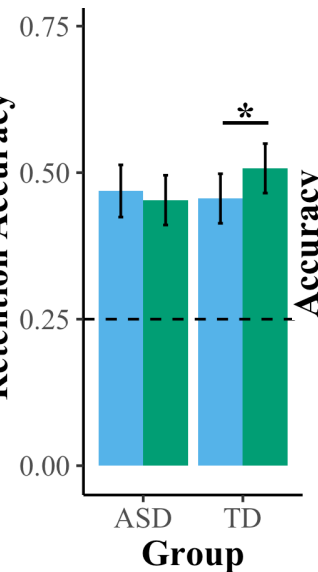
Learning/Immediate Recall $\xrightarrow[15-20\text{ Minutes}]{\text{Assessments}}$ Retention

Results

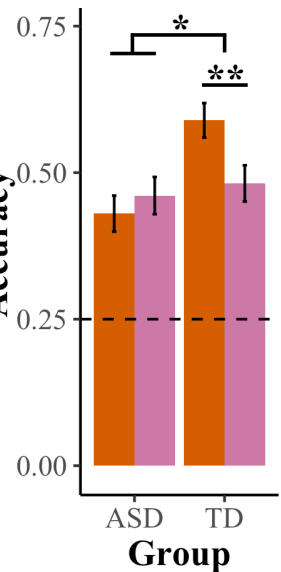
Similar immediate learning of inferred words between groups



No benefit of pragmatic inference in retention in ASD



More stable meaning retention over time in ASD



Higher SCQ scores correlate with lower learning inference accuracy (Rho = -0.35, p < 0.05)

Legend: Direct Mapping (Blue), Inference (Green), Immediate Recall (Orange), Retention (Purple)

Summary

- Highly verbal autistic children are capable of learning and retaining words in pragmatic-inferential contexts
- Unlike their age matched peers, autistic children do not have a memory advantage of pragmatically inferred words
- However, autistic children may have protective memory mechanism that result in a slower rate of memory decay
- We are currently exploring whether this translates to longer-term retention and how this may correlate with individual difference measures such as vocabulary outcomes.