

Methods of Language Sampling: Using the ADOS as a Language Sampling Context

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Background

Fragile X syndrome (FXS) is the leading cause of inherited intellectual disability (Hagerman, 2002).

A substantial number of males with FXS meet the criteria for autism (25-30%; Harris et al., 2008) and the majority display autistic-like characteristics.

The FXS phenotype also is associated with cognitive and language delays. Research on the impact of variations of language assessment methods in children with FXS is lacking.

Tager-Flusberg and colleagues (2009) suggested that the Autism Diagnostic Observation Schedule (ADOS; Lord et al., 2002) can be used to collect language samples. The ADOS provides a semi-structured context to assess features of autism with tasks that elicit language.

More traditional methods of assessing language include conversation samples, which are a less structured method of language elicitation. Given the variability within FXS and autism, recommendations for appropriate language sampling methods are needed.

Research Questions:

Does the ADOS collect comparable language to traditional conversation language samples in boys with FXS?

Do different sections of the ADOS elicit more complex language?

Preliminary language measures from a small group of children with idiopathic autism are also provided.

Methods

Participants

- Children with FXS n = 28
- Children with ASD n = 7

Cognition Leiter-Revised, Brief-IQ (Roid & Miller, 2001)

Receptive Vocabulary Peabody Picture Vocabulary Test – 4th Edition (Dunn & Dunn, 2007)

Autism Assessment Autism Diagnostic Observation Schedule (Lord et al., 2001; Lord et al., 2012)

Methods

Language Sampling Contexts

- Conversation language sample (10 minutes)
- Autism Diagnostic Observation Schedule (ADOS)
 - Modules 2 & 3
 - First 10 minutes & last 10 minutes were marked
 - Each ADOS activity was marked in the transcription
- Language samples were transcribed by trained coders using the Systematic Analysis of Language Transcripts software (SALT; Miller, Andriacchi, & Nockerts, 2011).

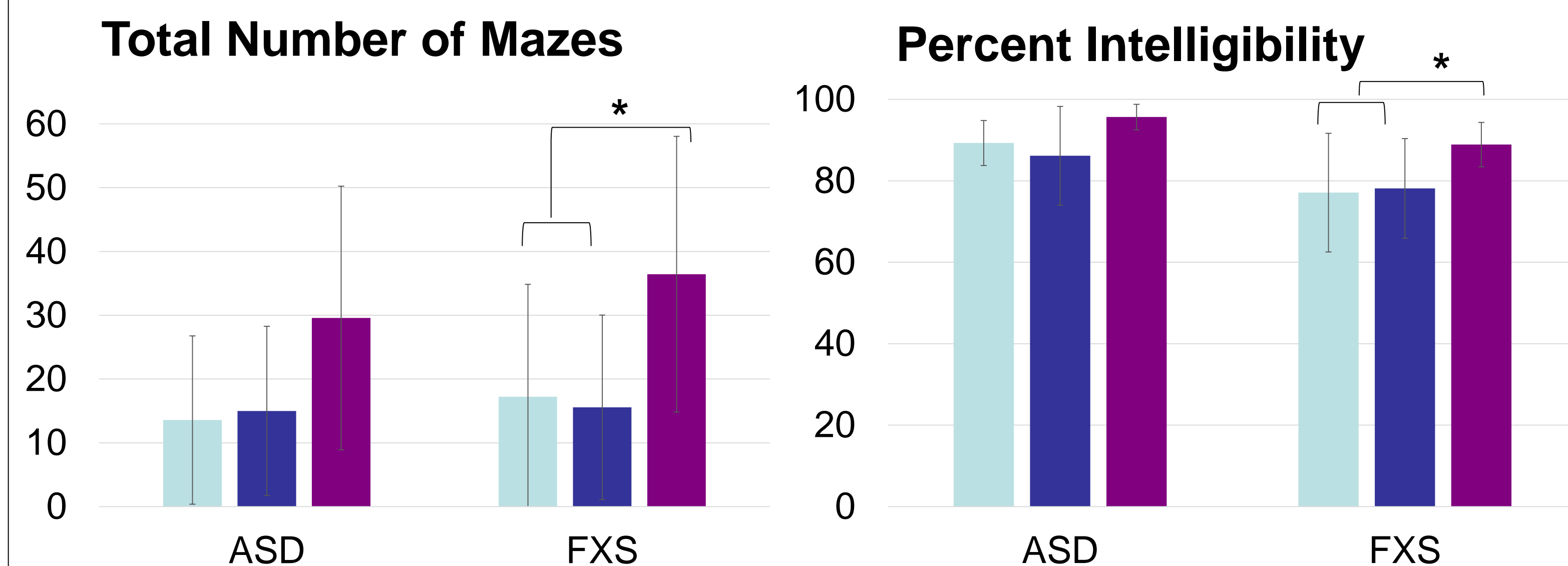
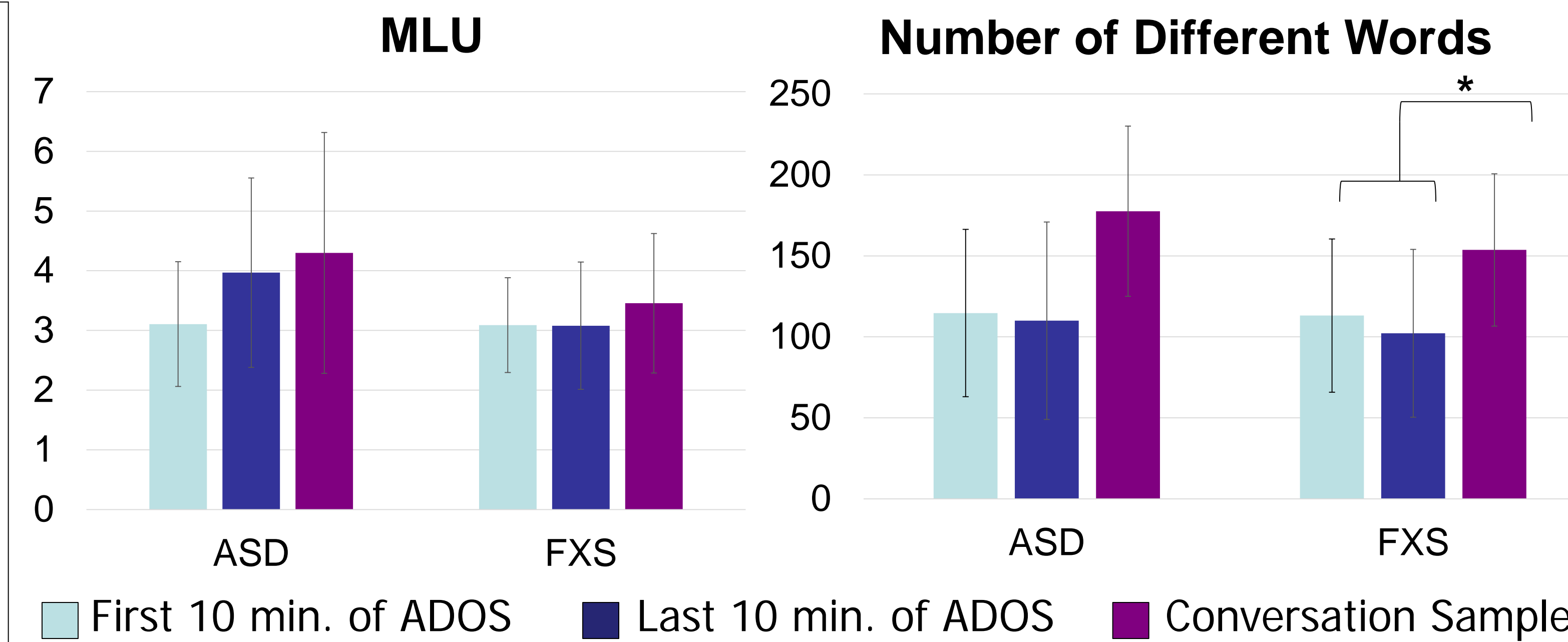
Language Measures

- Overall amount of talking (total number of utterances)
- Grammatical complexity (MLU)
- Number of different words (NDW)
- % Intelligibility
- Language dysfluencies (total number of mazes)

Analysis Plan

- To examine the first research question, we conducted a repeated measures ANOVA for each of the language measures and followed-up with pairwise comparisons in the FXS group, controlling for multiple comparisons. We also ran correlations for all of the language measures.
- We provided a descriptive table as an initial observation of the language produced in the different activities in the ADOS administration.

Results

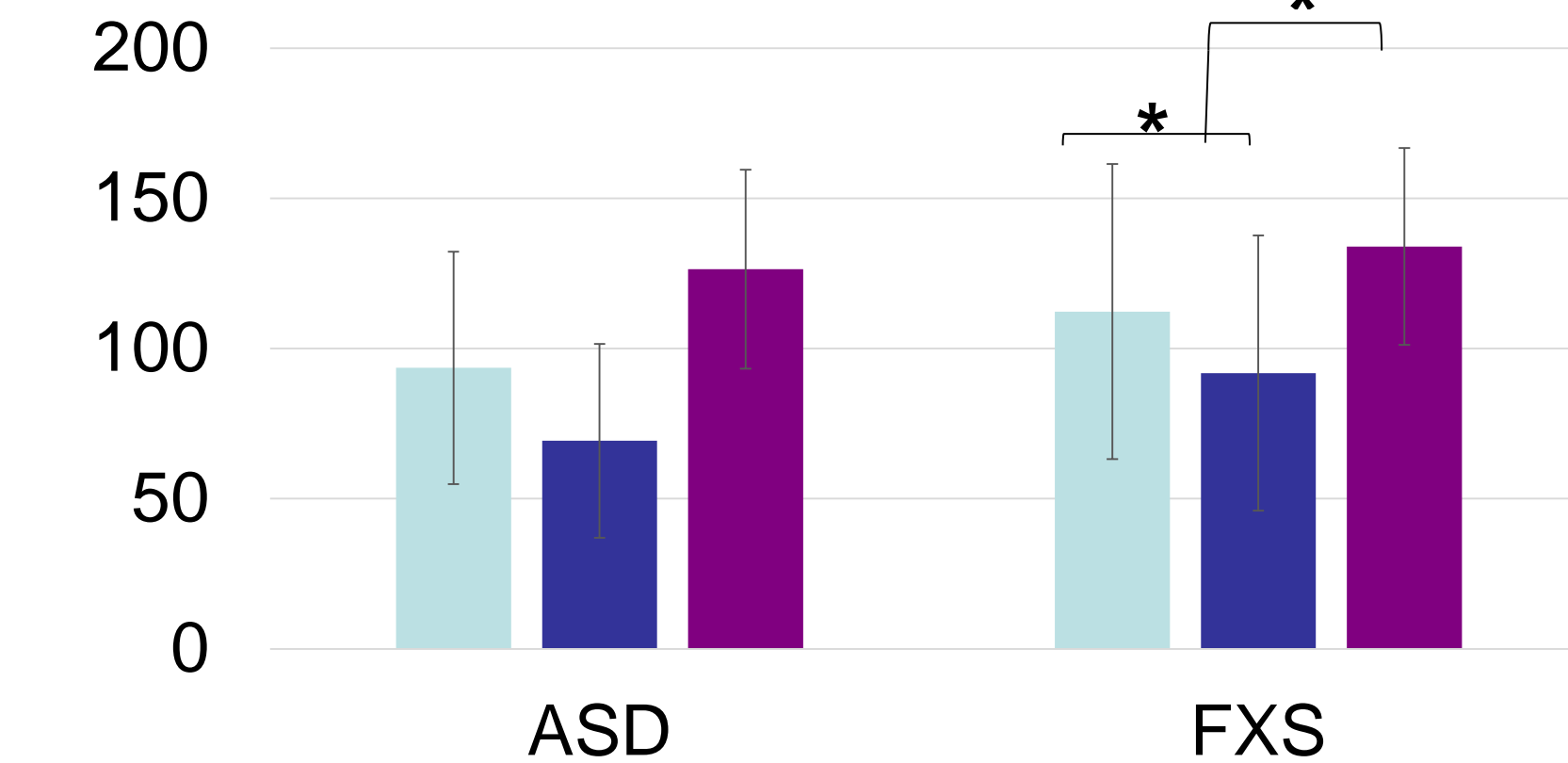


All of the language measures were correlated across the three sampling contexts ($r_s > 0.38$), except the last ten minutes of the ADOS and the conversation sample on % Intelligibility.

Despite this, the ANOVAs revealed that the children with FXS produced language that was different from the language collected during the ADOS, with the exception of MLU which was only marginally different.

See Table 2 for descriptive information about the language produced in the different ADOS activities.

Total Number of Utterances



Discussion

Though the language measures correlate across the different sampling contexts, the traditional conversation sample seems to collect the most complex language from children with FXS.

This also appears to be true for our smaller sample with idiopathic ASD. These results fall in line with previous work done with younger children with ASD (Kover et al., in press).

The ADOS activities that we measured seem to elicit similar types of language. However, language collected during the joint interactive play activity does not seem to be the best sampling context for the ASD group.

Sampling context does play a role in the quantity and quality of language that is elicited. In addition to eliciting more complex language, the conversational language sample has the benefit of being more easily and quickly administered. It also can be repeated over time more easily to chart progress.

References

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Tager-Flusberg, H., Rogers, S., Cooper, J., Landa, R., Lord, C., Paul, R., . . . Yoder, P. (2009). Defining spoken language benchmarks and selecting measures of expressive language development for young children with autism spectrum disorders. *Journal of Speech, Language and Hearing Research*, 52(3), 643-652.

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Table 1: Participant Characteristics

Measure	FXS Module 2 (n = 17)		ASD Module 2 (n = 3)		FXS Module 3 (n=11)		ASD Module 3 (n=4)	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
CA	11.8	2.0	11.5	1.9	12.4	1.8	14.2	1.8
Cognition	45.7	8.2	59.7	16.9	48.5	8.3	69.8	17.2
Receptive Vocabulary	55.3	17.0	62.7	15.1	63.7	10.4	85.5	18.1
Autism Severity	6.8	2.0	8.3	1.5	7.1	1.7	6.5	0.6
Autism Dx	n = 16		n = 3		n = 11		n = 4	

Table 2: Activities within the ADOS

Measure		Interactive Play		Story Narrative		Description of Picture	
		Mean	SD	Mean	SD	Mean	SD
MLU	FXS	3.2	0.9	3.7	1.2	3.4	1.3
	ASD	2.3	0.4	3.7	1.8	2.6	1.2
Number of Mazes	FXS	6.9	5.5	5.2	4.9	8.0	6.6
	ASD	2.4	3.0	6.4	6.2	7.4	7.0
Total # of Utterances	FXS	41.5	20.5	35.5	21.1	38.0	15.4
	ASD	29.1	10.4	32.0	13.8	38.9	15.5
NDW	FXS	58.6	28.9	56.9	31.6	61.1	31.3
	ASD	37.4	12.4	55.1	36.9	53.6	35.5
% Intelligibility	FXS	80.3	14.7	80.9	13.8	85.1	13.3
	ASD	80.3	14.8	81.9	9.1	81.6	11.0