

# Analysis of Language Learning Environments of Preschoolers with Autism and Typical Peers



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# Introduction



- One of the defining characteristics of autism spectrum disorders (ASD) is deficits in communication.
- A child's expressive language ability by age 5 years is a central predictor of long-term developmental outcomes.
- Ongoing measurement of a child's communication skills is critical in designing effective interventions.

# Introduction



- To date, the majority of LENA research with children w/ ASD:
  - has focused on the audio environment in the home
  - is based on a limited number of recordings and/or has not followed the children over time
  - has not utilized a peer comparison group



# Purpose



- The present study used LENA to:
  - track changes in the communication of children with ASD in ***both preschool and home settings over time***
  - compare the communication of children with ASD to that of ***typically developing peers***
  - evaluate ***intervention efficacy***
  - compare the language learning opportunities provided by different settings (***integrated vs. segregated vs. home***) and different types of activities (***teacher-directed vs. child-directed***)

# Setting & Subjects



- Family Child Learning Center's Integrated Preschool for Children with ASD
- Two classrooms/cohorts:
  - Cohort 1: 5 children with ASD; 4 typical peers
  - Cohort 2: 4 children with ASD; 4 typical peers
- Children with ASD attended four half days/week; Typical peers attended three half days/week
- Parents of children with ASD received biweekly home visits designed to support their use of responsive teaching strategies in the home

# Method: LENA Recordings

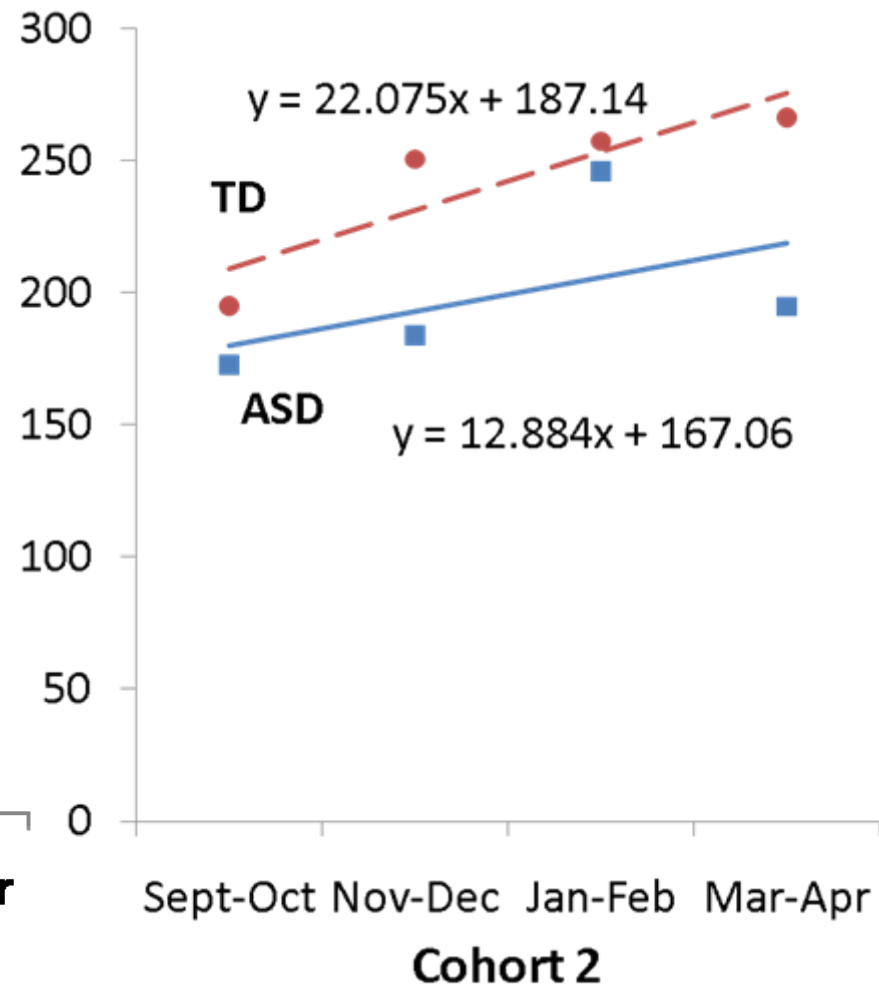
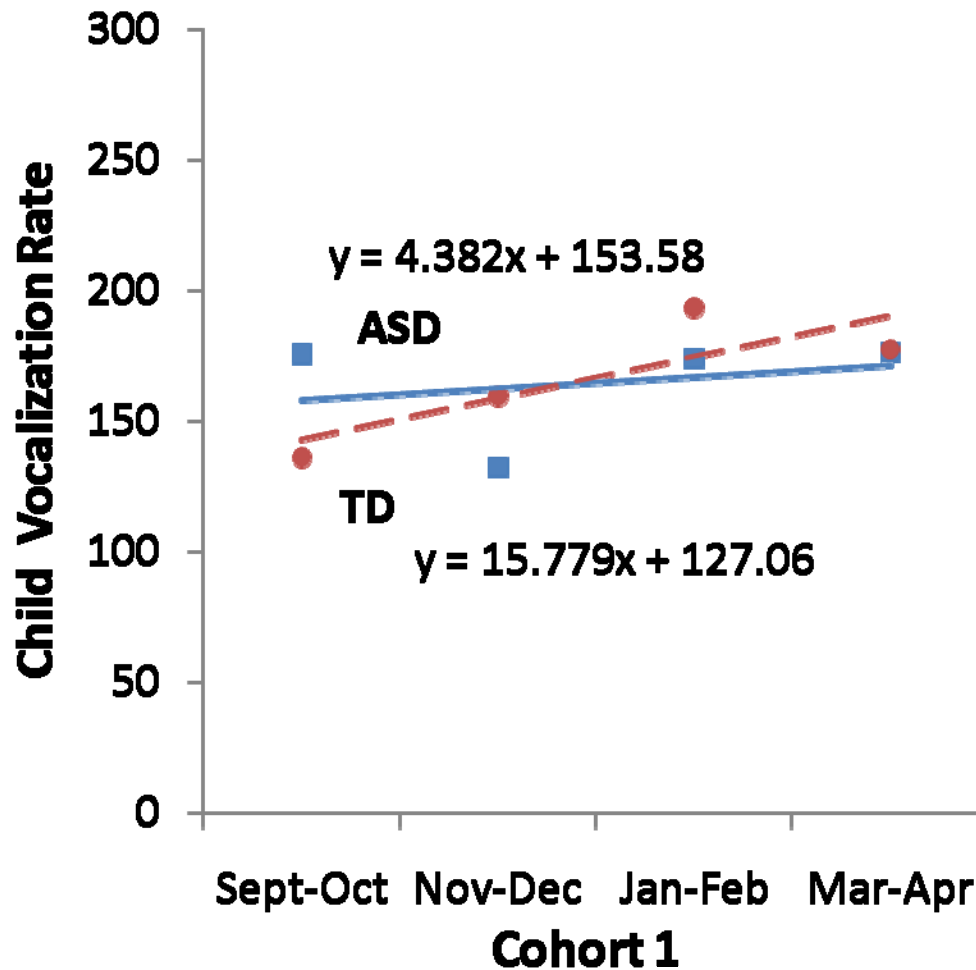
- Biweekly recordings were collected across 3 settings:
  - **Home Days**
  - **ASD-only/Segregated Days**
  - **Peer/Integrated Days**
- Children were followed for one school year



# Total LENA Recordings Hours

Total LENA Recording Hours	Children with ASD	Typical Peers
Hours in the Home	180 hours PER child	90 hours PER child
Hours in the Classroom	100 hours PER child	54 hours PER child

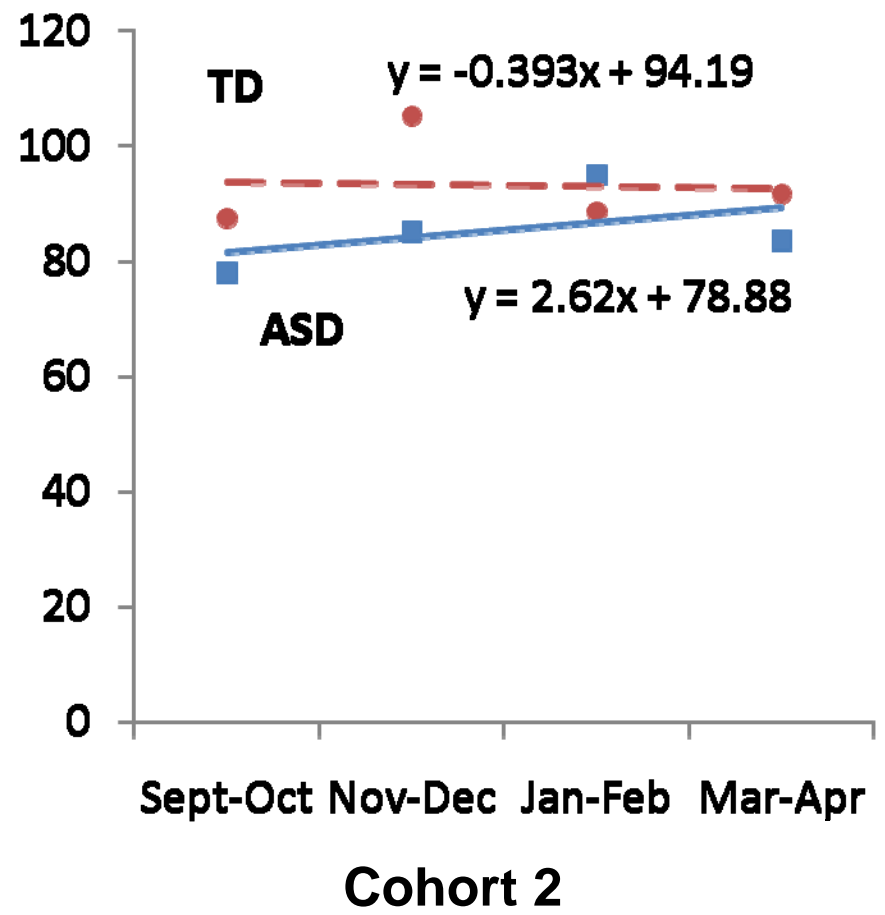
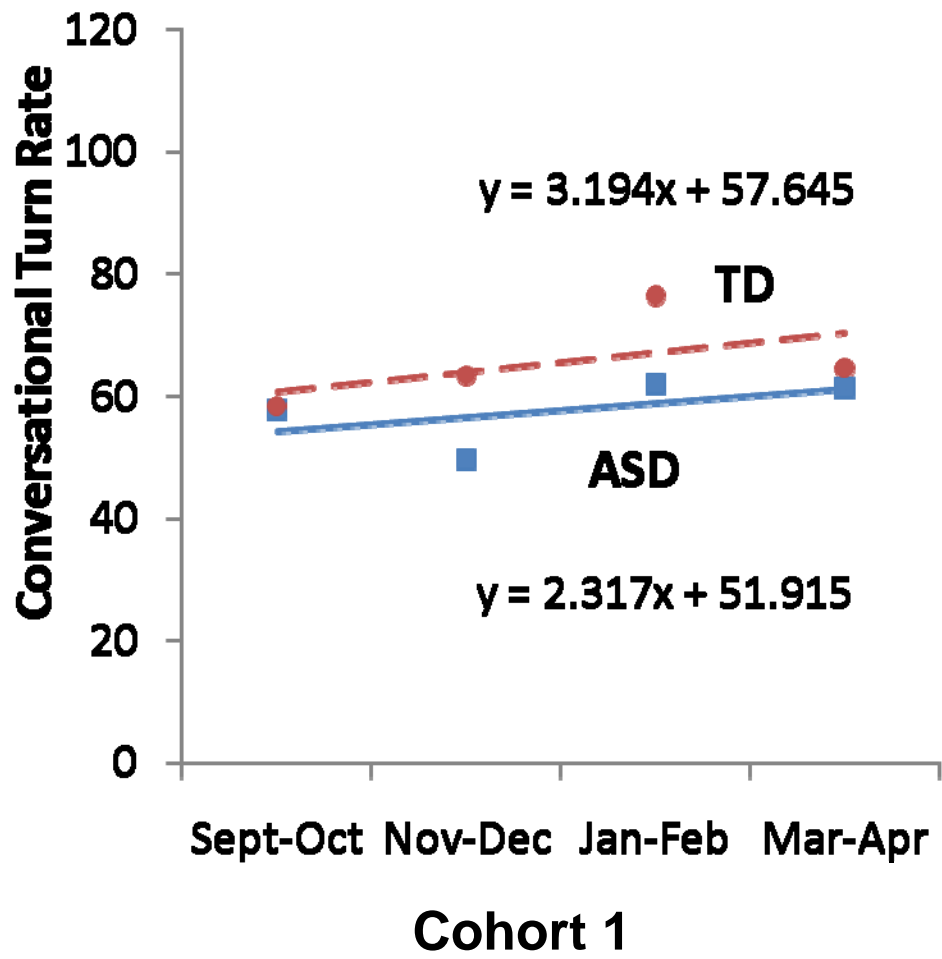
# Rate of Child Vocalizations Over Time



**For both cohorts, all children showed increases in the rate of CVC over time.**

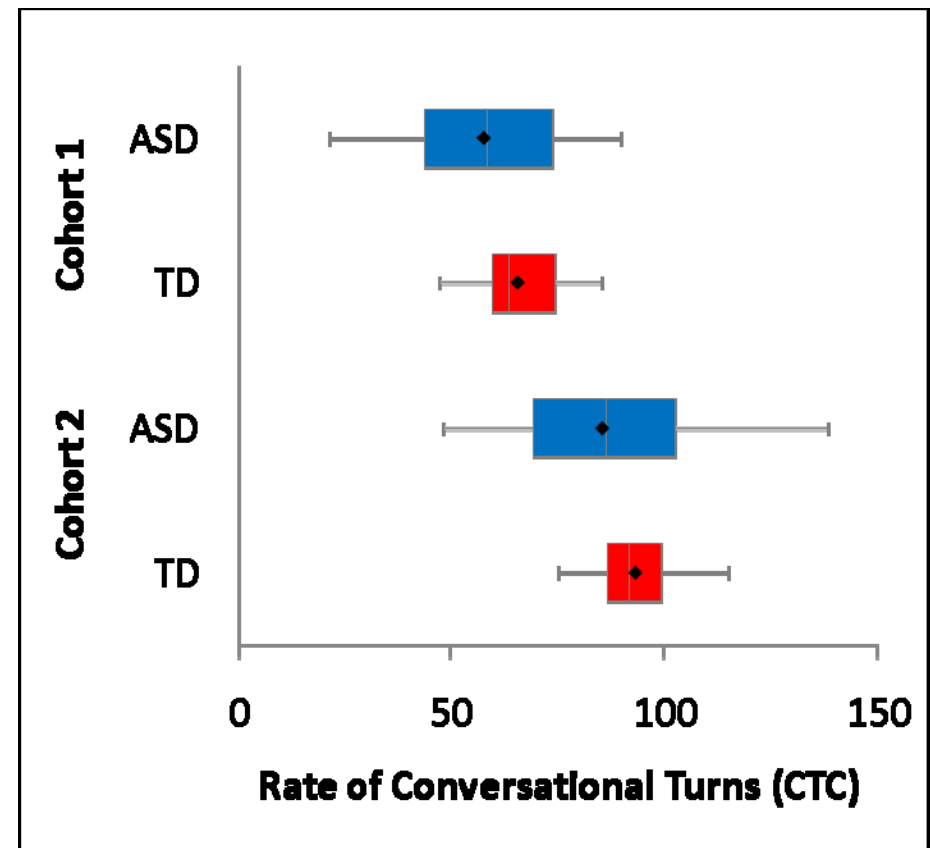
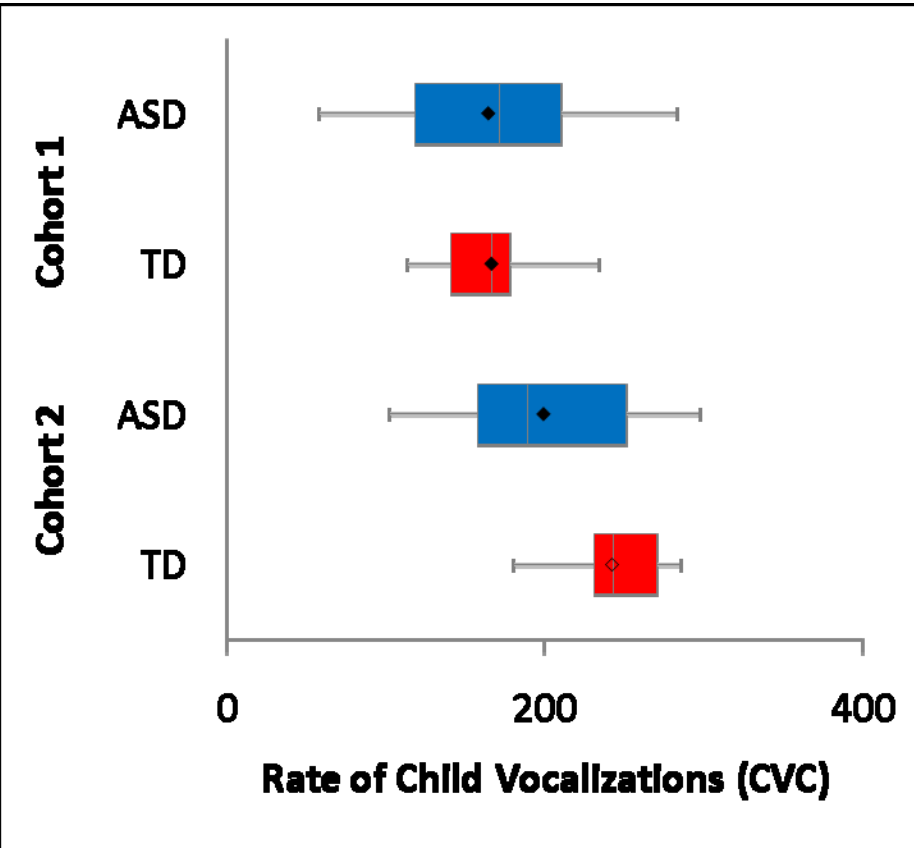


# Rate of Conversational Turns Over Time



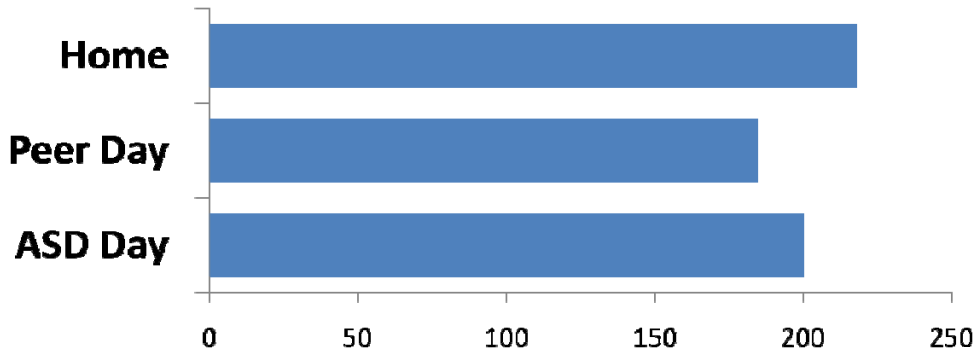
**For both cohorts, children with autism showed increases in the rate of CTC over time.**

# Results: Diagnostic Variability

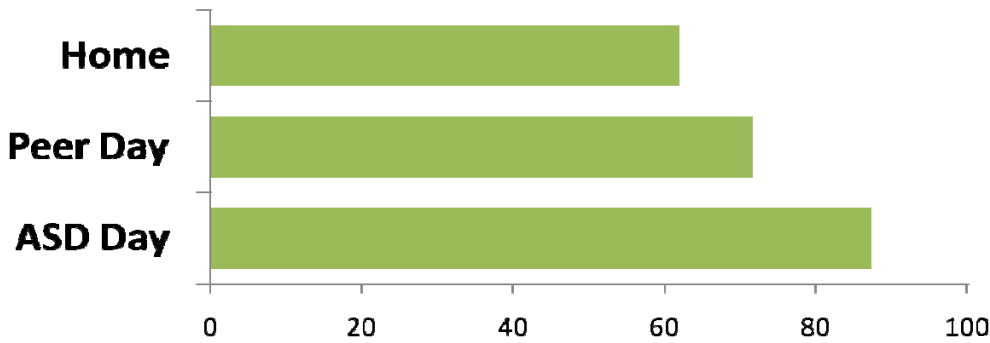


For both cohorts, there is significantly more variation in the rate of child vocalizations and conversational turns produced by children with ASD than by typical peers.

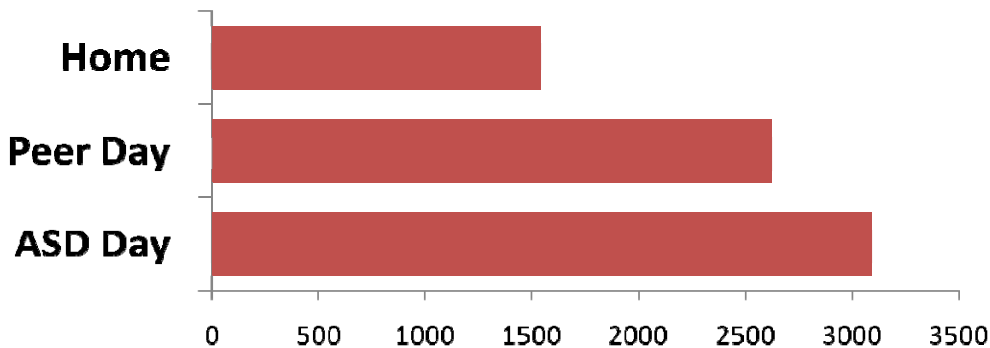
## Child Vocalizations



## Conversational Turns



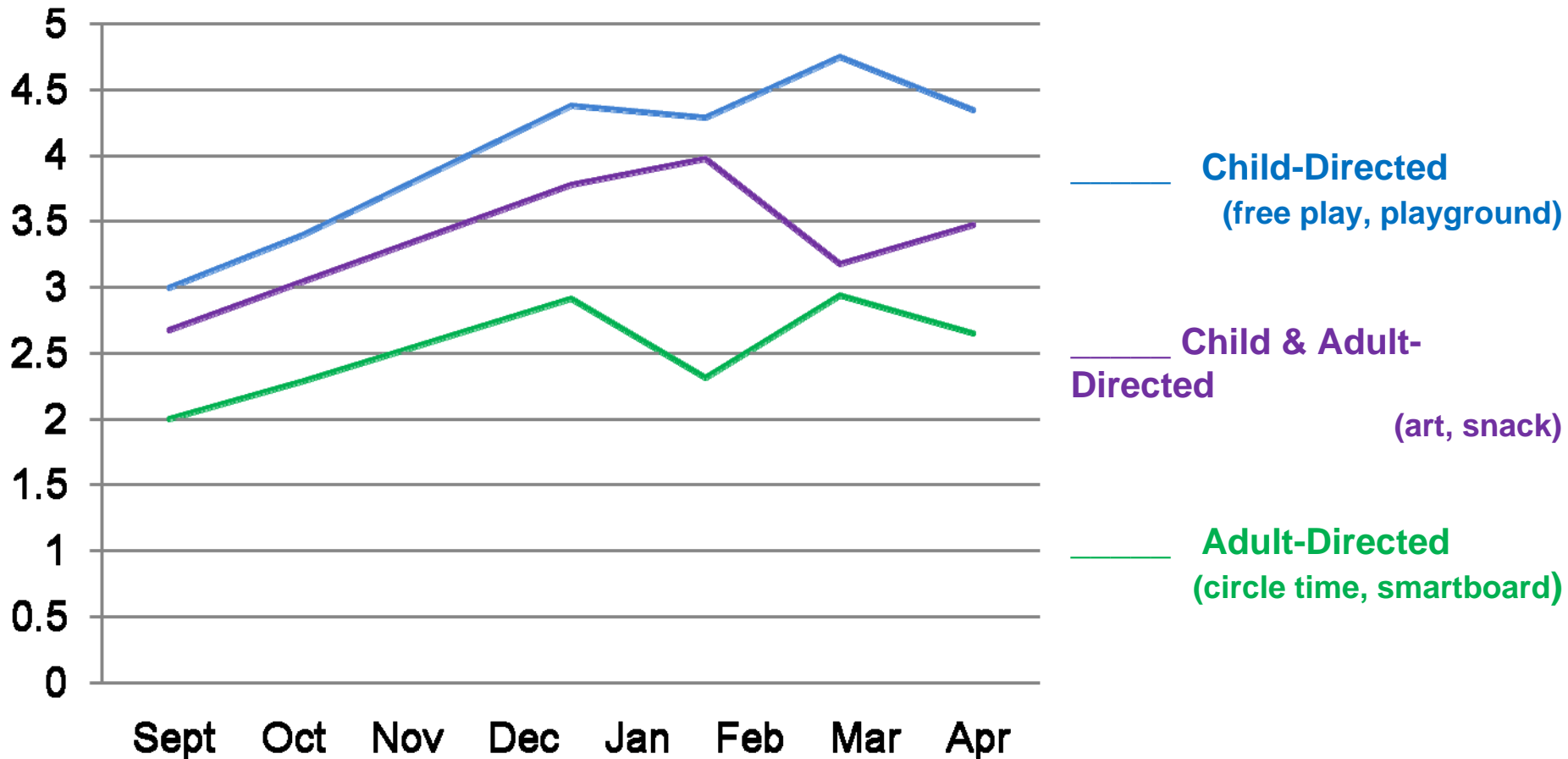
## Adult Words



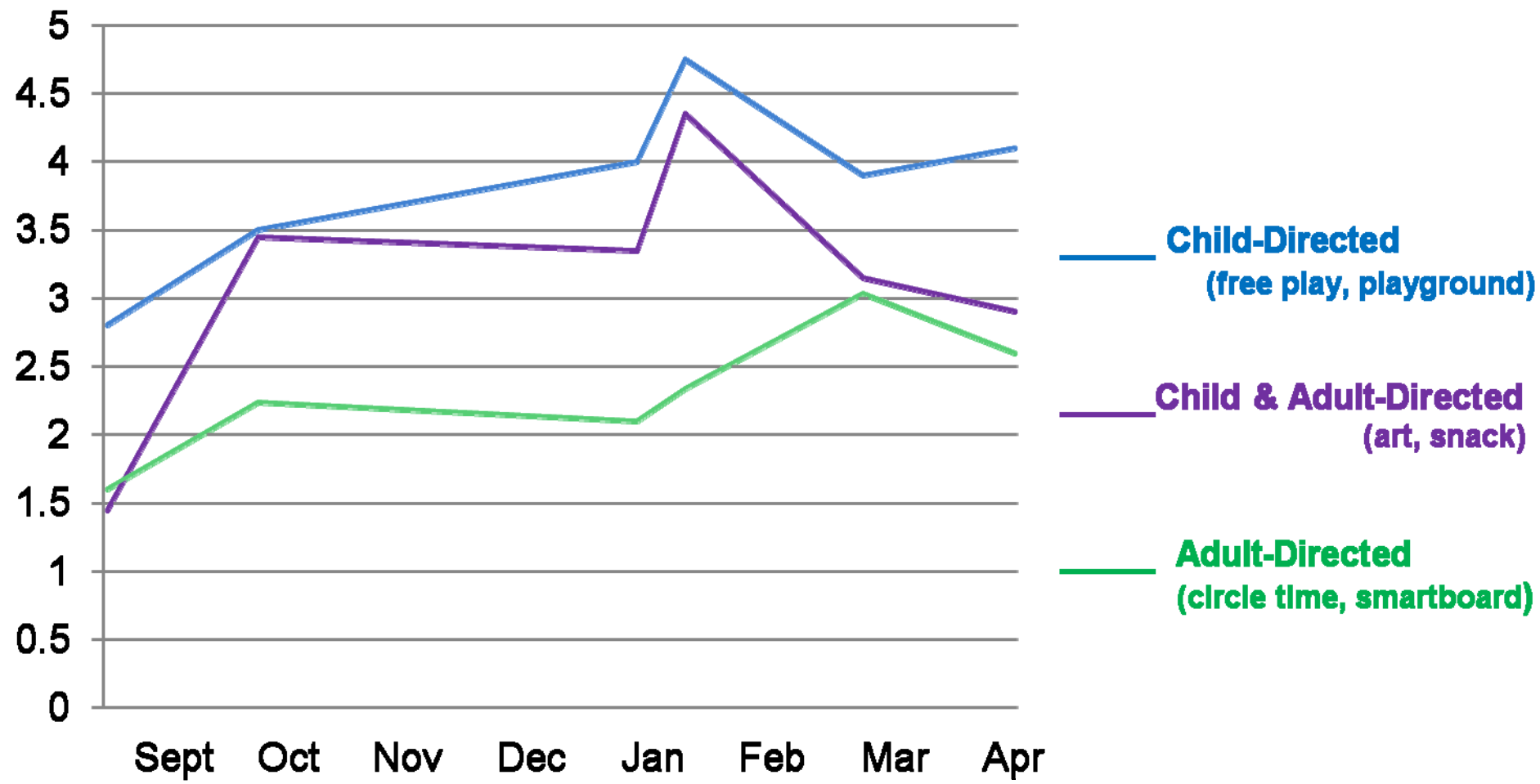
- Within the classroom setting, children with ASD had a greater rates of **CVC**, **CTC**, and **AWC** on ASD Days than on Peer Days.

- Children with ASD have greater rates of **CVC** in the home than in preschool, but they hear fewer words (lower rate of **AWC**) and engage in fewer conversational turns (lower rate of **CTC**).

# Children w/ ASD: Average CVC Rate During Different Classroom Activities



# Typical Peers: Average CVC During Different Classroom Activities





# Discussion



- Results suggest that over the course of the school year, children with ASD and typical peers showed increased rates of child vocalizations (CVC) and conversational turns (CTC) in the classroom setting.
- **All** preschoolers, regardless of diagnosis, received similar rates of adult words (AWC) in the classroom setting.



# Discussion



- In addition, results found:
  - Higher rates of adult word counts (AWC) and conversational turn counts (CTC) in the classroom setting compared to the home.
  - Children with ASD have higher rates of vocalizations at home than in the classroom.
    - Further examination, however, revealed that these child vocalizations were often classified as monologues.
  - Results also showed that both children with ASD and typical peers vocalize more during child-directed activities.