"Using LENA in an Integrated Preschool Environment with Children with Autism: Challenges and Successes"

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Objectives

- Description of the FCLC preschool
- Current LENA research interests
- What we have learned using LENA in a preschool setting
- Challenges of using LENA in our setting
- Future directions

Family Child Learning Center (FCLC)

- Department of Akron Children's Hospital
- Research and Intervention programs
  - Early Intervention Program *(birth to 3 years)*
  - Integrated Research Preschool for Children with Autism Spectrum Disorders (ASD) (*3-5 years)*
  - Regional Infant Hearing Program *(birth to 3 years)*
  - Family Information Network of Ohio
- Training site for undergraduate and graduate students from area universities

FCLC Preschool

- Two classrooms:
  - First Year = 10 children who are 2.5 to 4 years old
  - Second Year = 9 children who are 4 to 5 years old
- This presentation focuses on the use of LENA in the first year (three year old) classroom
  - 5 children with ASD (4 boys, 1 girl)
  - 5 typical peers
- Children with ASD participate in the classroom 4 days per week, from 9:15am until 12:00pm
- Peers participate 2 days per week

Overview of FCLC Preschool

- Combination classroom- and home-based research preschool program
- Programming follows developmentally appropriate guidelines set forth by the National Association for the Education of Young Children (NAEYC) as well as recommendations from the National Research Council (NRC) for educating children with ASD
- Low adult-child ratio (1:1--1:2)
- We use a developmental, social-pragmatic model to educating children with ASD
- Our emphasis is on ***qualitative*** change (LENA is especially helpful here!)

Classroom Description

- Our classroom utilizes a combination of large group, small group, and one-on-one activities to engage children in their environment and in learning opportunities. Teachers engage in responsive interactions to promote children's pivotal developmental behaviors, such as:
  - social play, interest, affect
  - exploration, problem-solving
  - initiation, joint attention
  - cooperation, persistence, motivation
- This responsive style, implemented throughout daily routine activities, provides a foundation for learning and encourages generalization across environments and people.

Home Visit Description

- Home visits occur biweekly where parents and staff meet to discuss the use of intervention strategies in the home.
  - Responsive Teaching (RT) curriculum is an evidence-based, relationship-focused, developmental approach for educating young children with autism.
  - Triple P (Positive Parenting Program) to develop individual **behavior** plans for children.

The Preschool Team

- Program Director
- Lead Teacher
- Assistant Teacher
- Speech-Language Pathologist
- Research Coordinator
- Graduate and undergraduate students

Research Questions

- Do children with ASD communicate *more* or *less* when peers are present? Does this differ for *higher-functioning* vs. *lower functioning* children with ASD?

  Based on some of our observations, we hypothesized that in the presence of typically developing peers, some children with ASD would show increased communication, interaction, and turn-taking behaviors, while others would shut down in the same environment.

- What information can LENA provide our staff and training students regarding their intervention efforts?

How We Use LENA

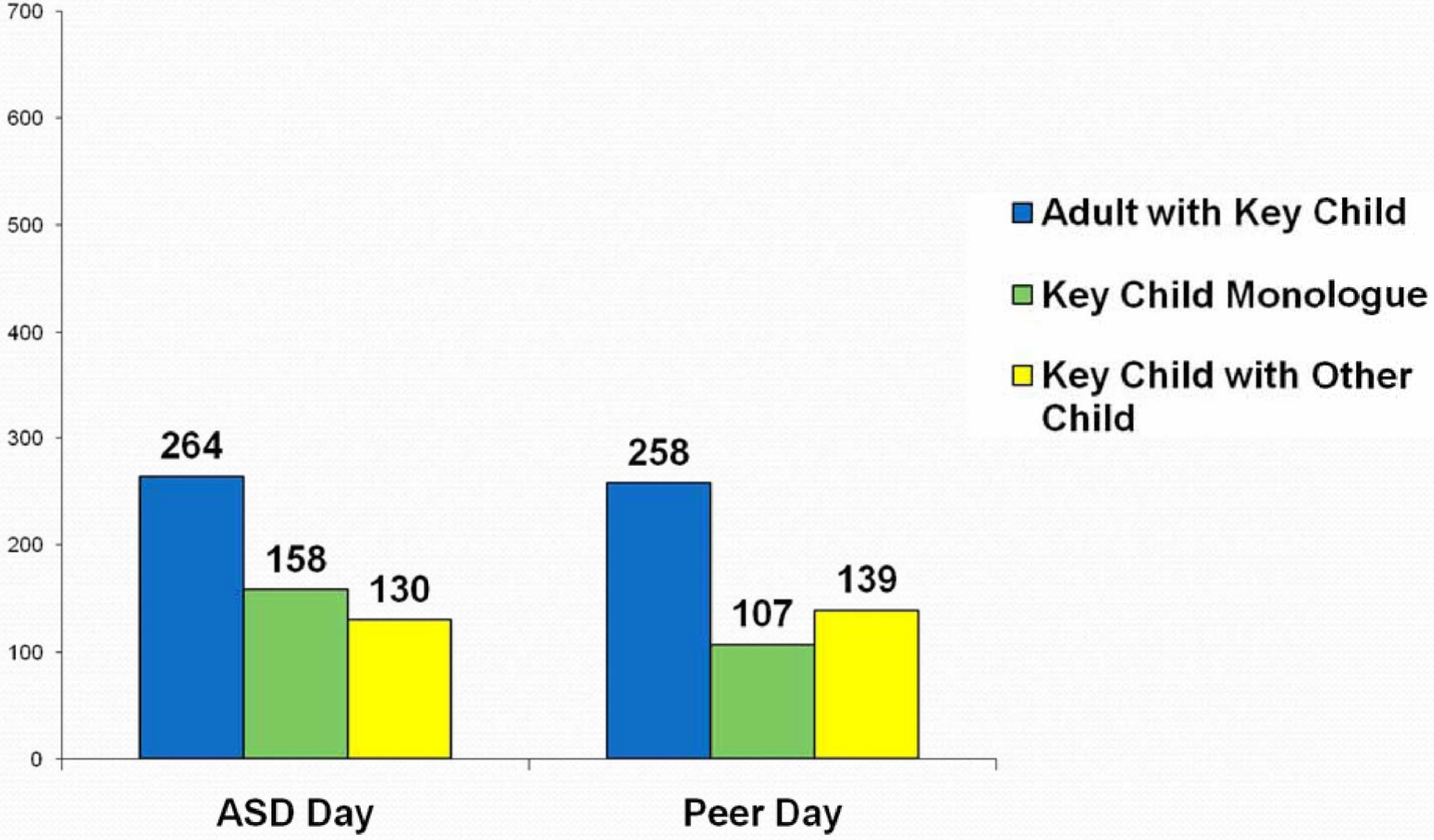
- Children with ASD wear LENA for approximately 2.5 hours during their preschool day
- We use ADEX to analyze the recordings
- We are specifically looking at any block that involves the ***Key Child***
- For the present analyses, we did not differentiate *who* initiated the interaction, and we collapsed some of the block types (e.g., adult with key child and key child with adult are all together)

What LENA is telling us about our preschoolers and our program

We used several pre-test assessments (Stanford–Binet 5, Psycho-Educational Profile-3, Vineland Adaptive Behavior Scales) as well as observations (does the child have functional play? joint attention? is the child verbal? easy vs. difficult to engage?) to loosely classify children with ASD as *higher functioning* vs. *lower functioning.*

Child 1 (A.M.)

Lower functioning child with ASD

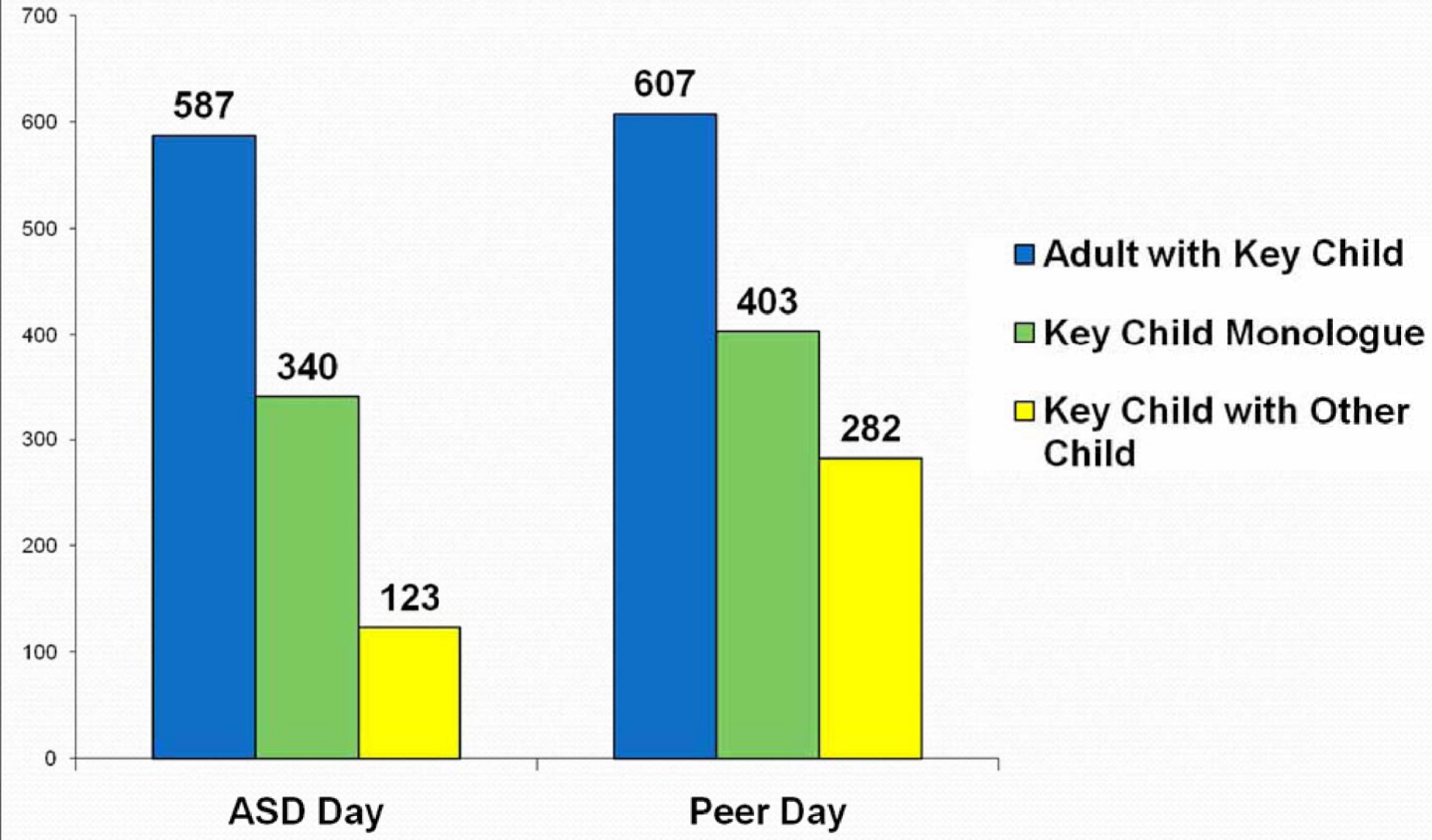


Child 1 (A.M.) Summary

- Preliminary findings show no notable differences in Child 1's communication on days with just children with ASD (ASD Day) compared to days with peers also present (Peer Day).

Child 2 (A.K.)

Higher functioning child with ASD

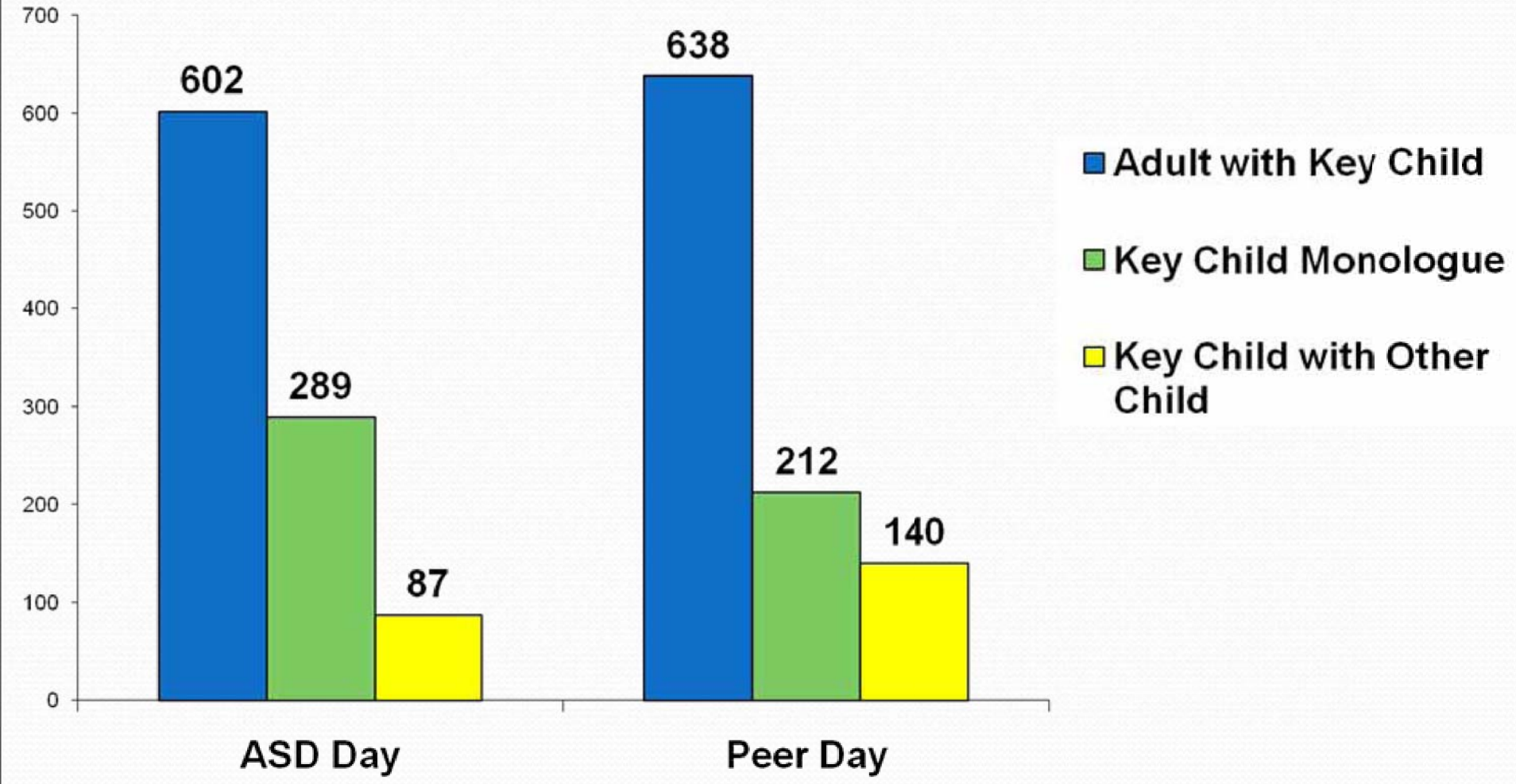


Child 2 (A.K.) Summary

- Preliminary findings suggest that Child 2 communicates visibly more with other children and has more monologues on days with peers also present (Peer Day) compared to days with just children with ASD (ASD Day).

Child 3 (D.C.)

Middle functioning child with ASD

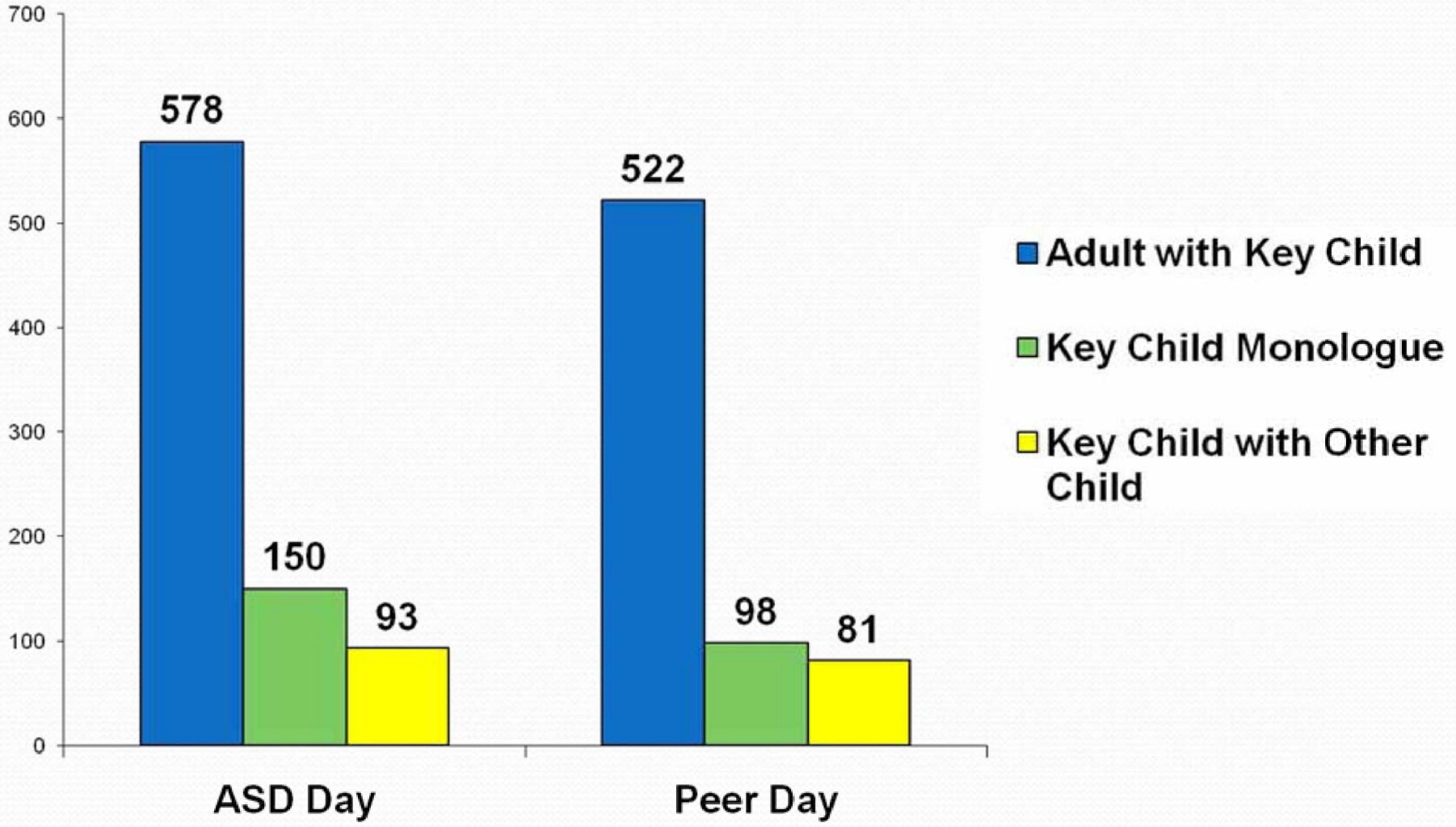


Child 3 (D.C.) Summary

- Preliminary findings show that Child 3 has fewer monologues (talks less to himself) and communicates notably more with other children on days with peers also present (Peer Day) compared to days with just children with ASD (ASD Day).

Child 4 (E.H.)

Lower functioning child with ASD



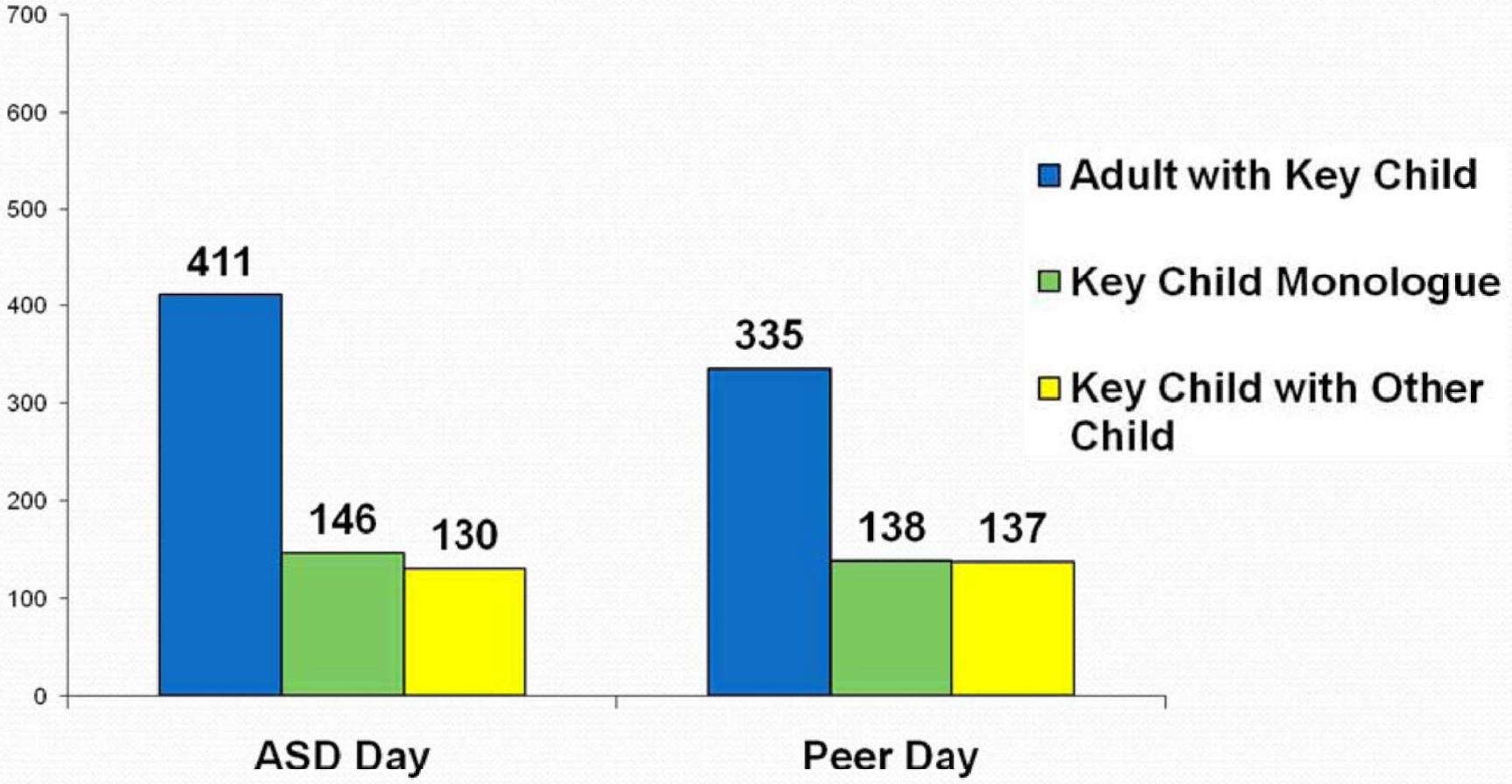
Child 4 (E.H.) Summary

- Data on Child 4 are difficult to interpret because of the child's non-functional vocalizations (child hums throughout the day).

- Preliminary findings suggest little differences in Child 4's communication on days with just children with ASD (ASD Day) and days with peers also present (Peer day).

Child 5 (J.W.)

Higher functioning child with ASD



Child 5 (J.M.) Summary

- Child 5's skills closely resemble those of a typically developing peer.

- Preliminary findings suggest little differences in Child 5's communication on days with just children with ASD (ASD Day) compared with days with peers also present (Peer Day).

Preliminary Findings: Peer vs. ASD Days

- Overall, children have the same number of vocal exchanges with Teachers on Peer Days and on ASD Days.

- Children with ASD vocalize more to themselves (Child Monologues) on ASD Days than on Peer Days.

Preliminary Findings: Peer vs. ASD Days

- Higher functioning children with ASD communicate notably more with other children on Peer Days than on ASD Days.
- There is no visible difference for lower functioning children with ASD.
- These findings may support the inclusion of peers in the programming of children with ASD. However, more data is needed on other developmental outcomes (socialization, play, etc) as well as other ratios (ex., if the presence of peers makes a positive contribution, what if there was one child with ASD with 9 typical peers vs. five children with ASD with 5 peers??)

Preliminary Findings

- Are lower functioning children “ready” for preschool?? Should they still be in a setting with just an adult as opposed to with other preschool children?? Cost-effectiveness issue.
- LENA provides us information about children’s communication at different times of the preschool day. It allows us to examine whether there are certain times of the day (i.e., certain activities) that elicit more communication. This information is valuable in designing individual programming plans for children with ASD.

Preliminary Findings: Staff and Student Training

- What are teachers doing in the classroom?
  - Quality control (i.e., a way to measure ourselves)
  - Higher functioning vs. lower functioning children with ASD
- Are we doing what we think we are doing? (fidelity of implementation)
- Teachers at FCLC are largely consistent in the amount of communication they deliver to children each and every day.

Challenges

- Background noise in the classroom environment
- Echolalia, monologues, non-functional vocalizations (humming, vocal stim)
- Shorter duration (not the recommended 16 hours) and fewer number of recordings
- No differentiation between words and vocalizations

Future Directions

- Evaluation of:
  - home environment (a way to measure parent implementation of intervention at home)
  - quality of teaching staff and how staff uses communication with different children
  - training efforts with graduate students
  - typical peers' communication in the classroom
  - program effectiveness on child's communication (pre-post analysis)
  - Collaboration with others for comparative projects

Questions????