

# IMPROVING COMMUNICATION IN CHILDREN WITH AUTISM SPECTRUM DISORDERS

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# Today

## Diagnostic Considerations

What do we know about current interventions?

What have we learned from research?

What is the future?

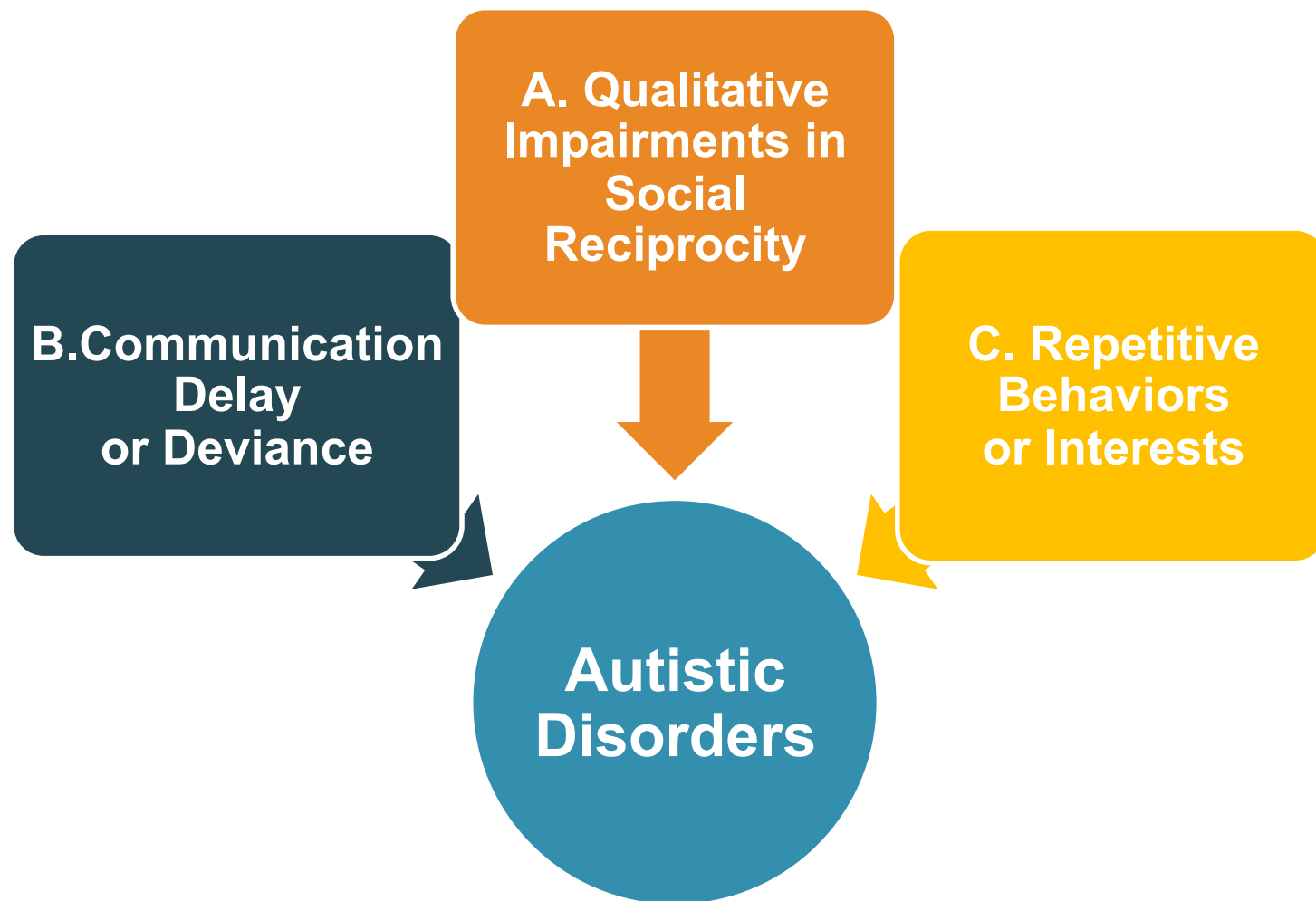


At 22 months, developmental age of 8 months

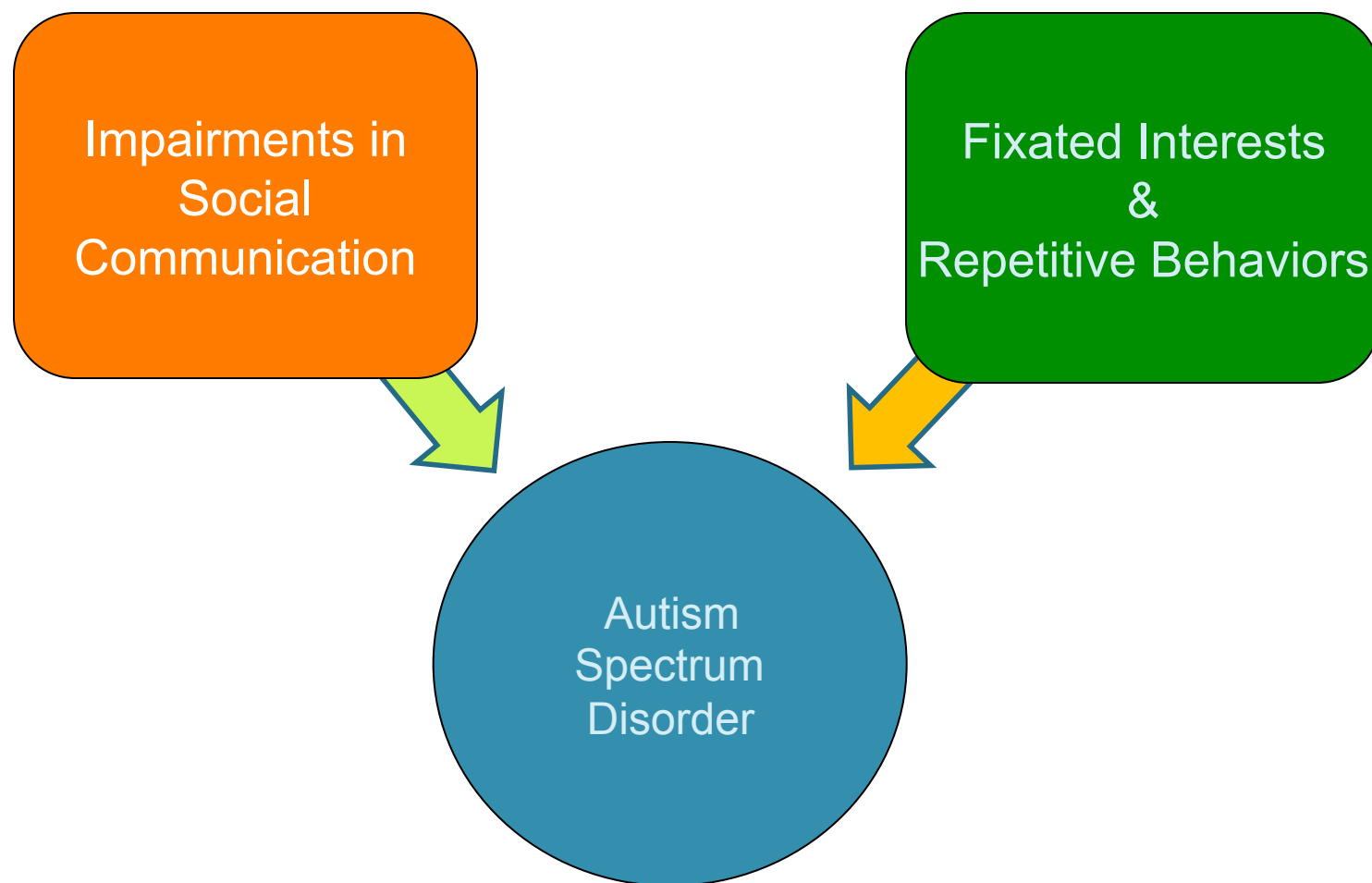


At age 7, in regular school, typical functioning

# Diagnostic Changes: DSM-IV



# Diagnostic Changes: DSM-V





# DSM-5 ASD

- Defined with and without language impairment
- Current data; 55-75% ASD obtain language
- 25-45% remain minimally verbal (Anderson et al, 2007)

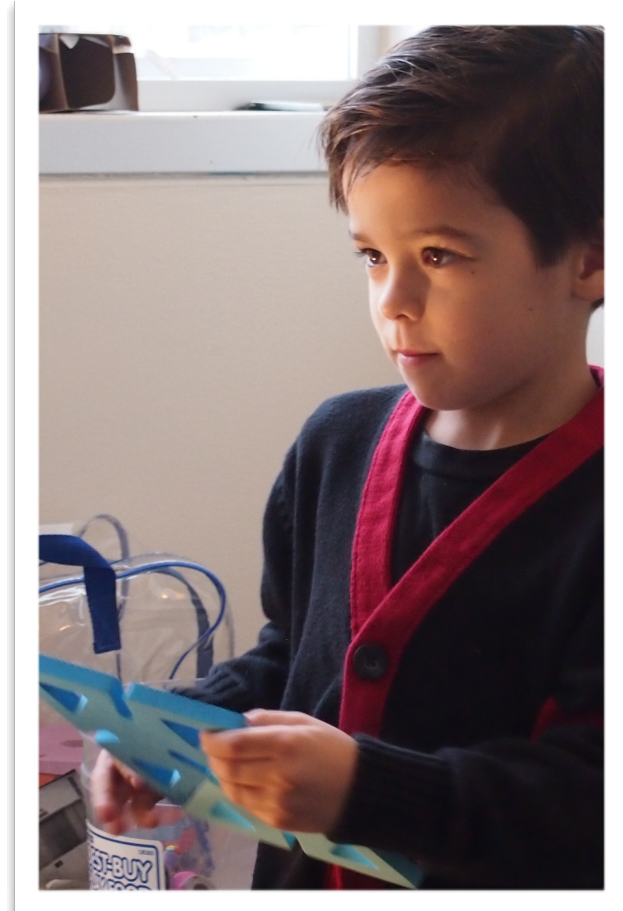
# What does it mean to be ‘minimally verbal’

- Unclear how many children remain minimally verbal
  - Somewhere between 25% and 55%
- Clear most children are not ‘nonverbal’
- They have words, often for requesting, and sometimes scripted phrases
- They may not use language functionally
- They may be quiet, and not talk very much although they can talk
- Some children physically seem unable to make sounds, words (but this appears to be a smaller percentage)

(Tager-Flusberg & Kasari, in press; Kasari, Brady, Lord, & Tager-Flusberg, in press)

## Who are the minimally verbal?

- Differ from preverbal children
- Range in communication abilities and cognitive levels



# Preverbal is Different from Minimally Verbal

- Most preschool aged children are preverbal.....
  - They may not be talking yet; but we expect they will talk
- Children are considered ‘nonverbal’ or minimally verbal when they cannot talk in sentences (carry on even a simple conversation) by age 5 when they should enter Kindergarten

# Heterogeneity in children who are minimally verbal



# Why do some children struggle with 'talking' ?

- Unclear why some children learn to talk and some do not despite having access to the same early interventions
- Possible that traditional interventions may not work
- Children need something different, including more supports (both human and via alternative communicative approaches)



## Most ABA interventions focus on verbal imitation as a first step

- This may not be the best approach for all children
  - Language outcomes weakest for children with Autism receiving comprehensive DTT interventions (best outcomes for children with PDD-NOS)(Smith et al, 2000)
  - Other interventions (ESDM) took 2 years to show language improvement greater than control group (Dawson et al, 2010)
- Typical children learn to gesture and to play prior to learning spoken language
- Evidence that children with ASD also benefit from learning to gesture and play (Kasari et al, 2006; 2008; 2012)
  - Language outcomes better for children who are taught these skills if they don't learn them easily

# ABA approaches focus less on core deficits important to child language acquisition



**Joint Attention  
Initiations:**

← Point to share

Show →



Symbolic Play →



These are core  
deficits for children  
with ASD

**J**oint

ABA approach that uses DEVELOPMENTAL and BEHAVIORAL strategies systematically to focus on CORE DEFICITS

**A**ttention



**S**ymbolic

**P**lay

**E**ngagement



**R**egulation

# JASPER focuses on core social communication deficits

- Increases engagement
- Increases initiations of joint attention
- Improves play skills
- Facilitates language development



# Set of systematic strategies that make up the JASPER intervention module

FIRST---Goal is selected for child that is developmentally on target—

- **PHASE 1 (3 weeks)**
- Environmental arrangements (setting up the environment) (and knowing child play level)
- Allowing the child to initiate an activity (following the child's attentional focus)
- Establishing and playing within established routines
- **PHASE 2 (3 weeks)**
- Facilitating, maintaining states
- Balance between imitating and modeling
- Expansions, showing enjoyment, eye-contact
- Joint attention: recognizing, responding, modeling
- **PHASE 3 (3- 5 weeks)**
- Allowing child access to communication
- Initiating and expanding language
- Generalizing skills across other routines
- Practice....
- Some additional modules can float....” unengaged module”; “behavior regulation”



# Several studies (RCTs)

## Joint attention in young children with autism

Connie Kasari

**Background:** Delays and developmental problems in young children with autism but have rarely been examined in this study, we examine their play. **Methods:** Participants randomized to a joint attention intervention were conducted 30 min and play skills and mother-child interactions were assessed. **Results:** Results indicate that expressive language skills were more showing and responsive to more child-initiated joint attention in the play assessment at follow-up. **Conclusion:** This randomized controlled trial provides promising evidence for joint attention interventions for young children with autism.

Journal of Consulting and Clinical Psychology  
2010, Vol. 78, No. 1, 123–137

## Language Outcome in Autism: A Randomized Controlled Trial of Symbolic Play Intervention

Connie Kasari, Tanya Paparella, and  
Stephanny Freeman  
University of California, Los Angeles

This study reports results of a randomized controlled trial of a symbolic play intervention (SP) in preschool children with autism. Participants were 58 children (46 boys) with autism spectrum disorder randomized to a symbolic play intervention, an SP intervention, or control group. Assessments of JA skills, SP skills, and language skills were collected at 4 time points: pre- and post-treatment and follow-up. Results indicate that expressive language skills were more showing and responsive to more child-initiated joint attention in the play assessment at follow-up. Findings suggest clinically significant benefits of the symbolic play intervention.

**Keywords:** preschool children, symbolic play, clinical trial

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J Autism Dev Disord (2010) 40:1045–1056  
DOI 10.1007/s10803-010-0955-5

ORIGINAL PAPER

## Randomized Controlled Caregiver Mediated Joint Engagement Intervention for Toddlers with Autism

Connie Kasari · Amanda C. Gulsrud ·  
Connie Wong · Susan Kwon · Jill Locke

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© The Author(s) 2010. This article is published with open access at Springerlink.com

**Abstract** This study aimed to determine if a joint attention intervention would result in greater joint engagement between caregivers and toddlers with autism. The intervention consisted of 24 caregiver-mediated sessions with follow-up 1 year later. Compared to caregivers and toddlers randomized to the waitlist control group the immediate treatment (IT) group made significant improvements in targeted areas of joint engagement. The IT group demonstrated significant improvements with medium to large effect sizes in their responsiveness to joint attention and their diversity of functional play acts after the intervention with maintenance of these skills 1 year post-intervention. These are among the first randomized controlled data to suggest that short-term parent-mediated interventions can have important effects on core impairments in toddlers with autism. Clinical Trials #: NCT00065910.

### Introduction

Joint attention has been the focus of a number of recent early intervention studies in autism. Joint attention refers to the development of specific skills that involve sharing attention with others through pointing, showing, and coordinating looks between objects and people, as well as the development of attention states that involve mutually sustained joint engagement with others. For children with autism, both joint attention skills and sustained joint engagement are significantly impaired.

Qualitative differences or a complete absence of joint attention often raises a red flag for parents early in the child's development. Parents notice that their child seems to be happy on his/her own (not jointly engaged), may not respond to his/her name, and may not bring toys to show the parent. Using videotapes of early development, several



# Teaching Children Joint Attention and Play Skills Important for Later Language Outcomes: UCLA studies

- RCT of 58 children, 3-4 years old
- All children received ABA, 30 hours per week
- Children seen for 30 minutes by therapist daily for 5-6 weeks
- Combined developmental and behavioral approach

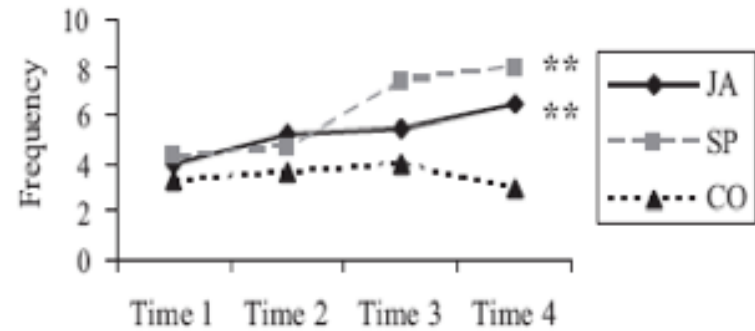


Joint Attention Intervention

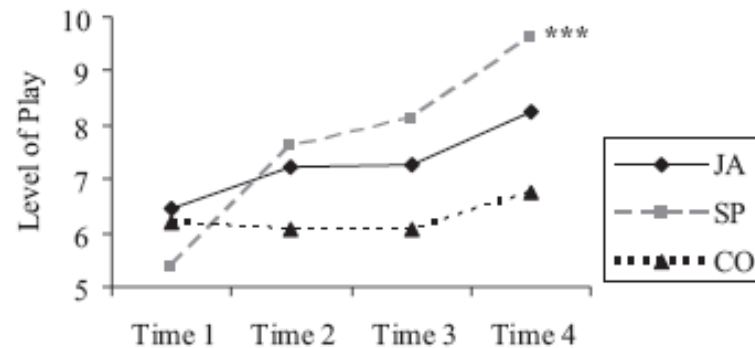


Play Intervention

# Teaching Play and Joint Attention Skills Results in Better Performance



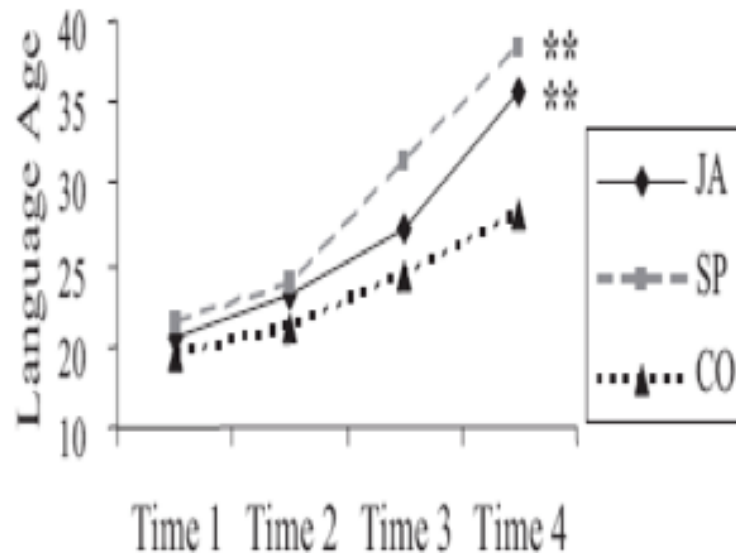
Joint Attention Initiations



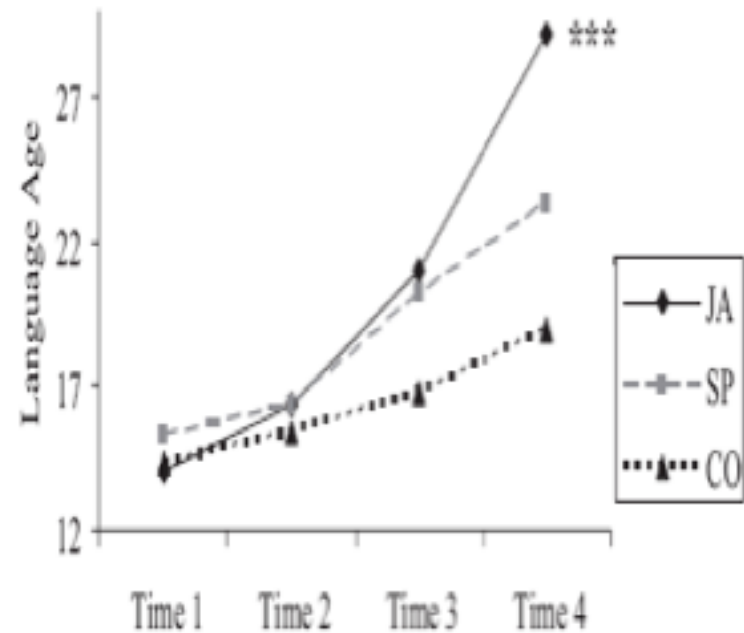
Play Level

# Importance of Content in Early Interventions for Predicting to Spoken Language Outcomes

Prediction to Spoken Language one year later



Prediction to Spoken Language one year later for minimally verbal



# Current follow up study: Multi-site comparing DTT to JASPER in 3-5 year old minimally verbal children

- Project in public school classrooms
- 1 hour per day of JASPER or DTT (by UCLA therapists)
- Parent training in home
- 6 mo treatment, 6 mo follow up
- In progress, stay tuned!

- 6-12 words at entry
- 25 month receptive and 22 expressive
- 46 mo age



- 20+ words at exit (6 months)
- 3 word sentences (and pronouns, prepositions)
- 31 month receptive and 33 expressive
- 53 months age



# Why systematic play interventions are important to social communication in school?

- Need to improve peer interactions in school
- Two boys who received JASPER treatment in school





# What about children who are older and minimally verbal?

- 62 minimally verbal 5 to 8 year olds
- Fewer than 20 words
- Randomized controlled trial
- All children received a blended intervention-- JASPER and EMT
- Half also received a speech generating device

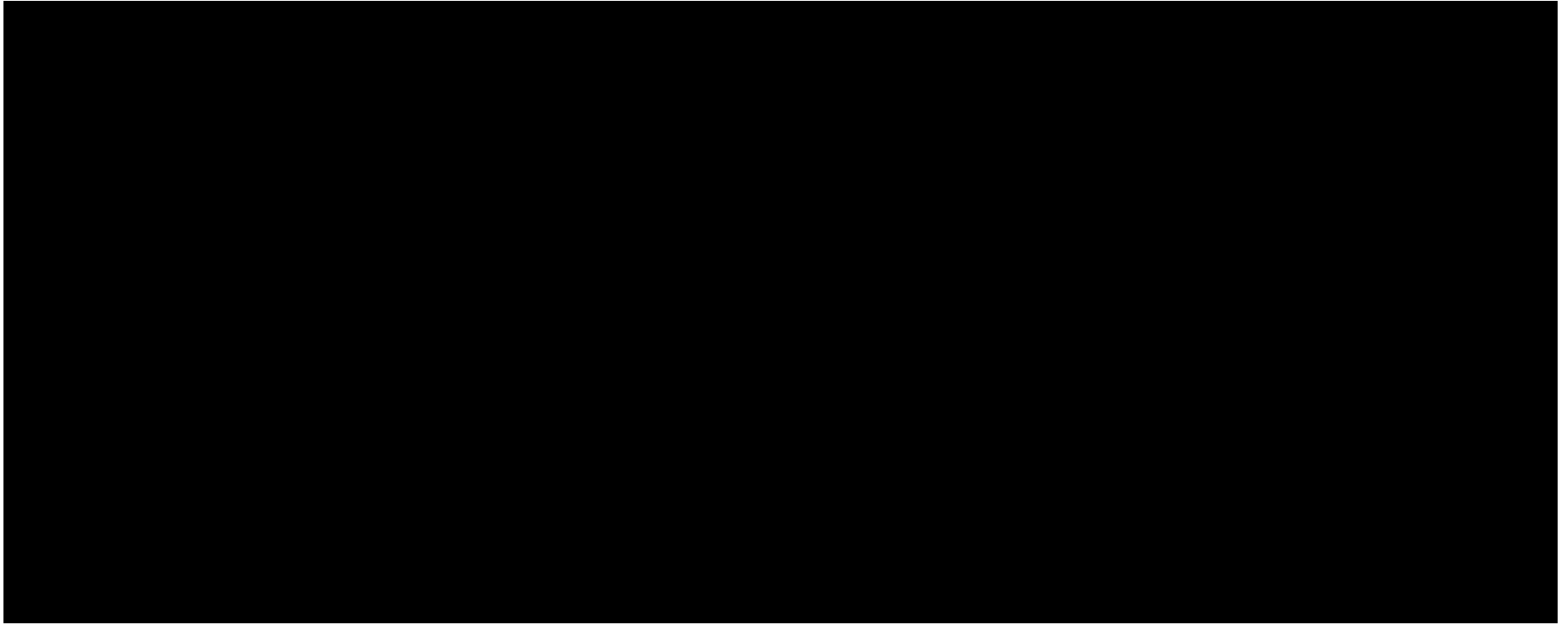




# Change over time for nonverbal child



# Change over time for minimally verbal child



# Changes on standardized language sample

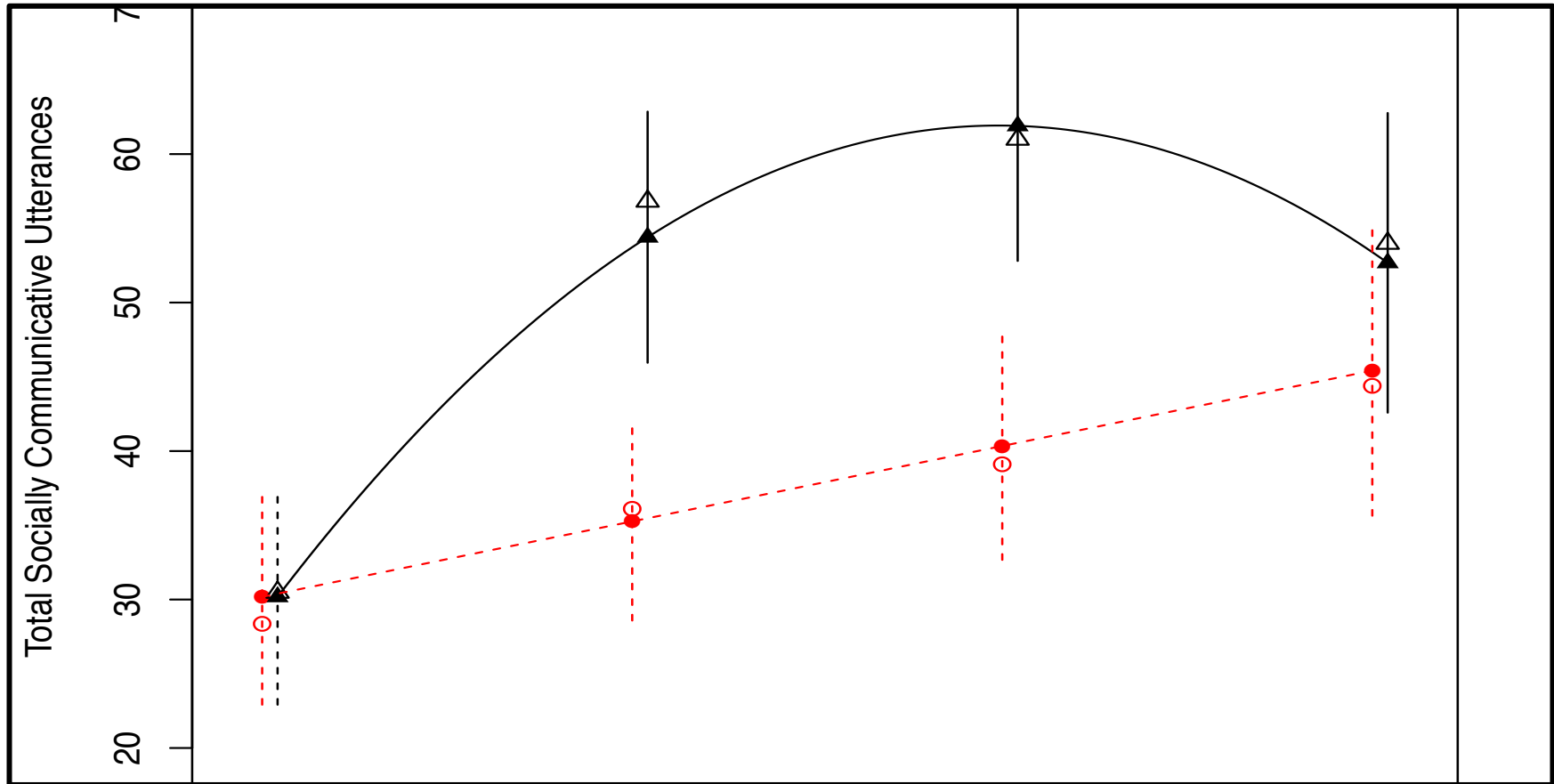
5 yr. 2 mo. male with Autism

IQ=average

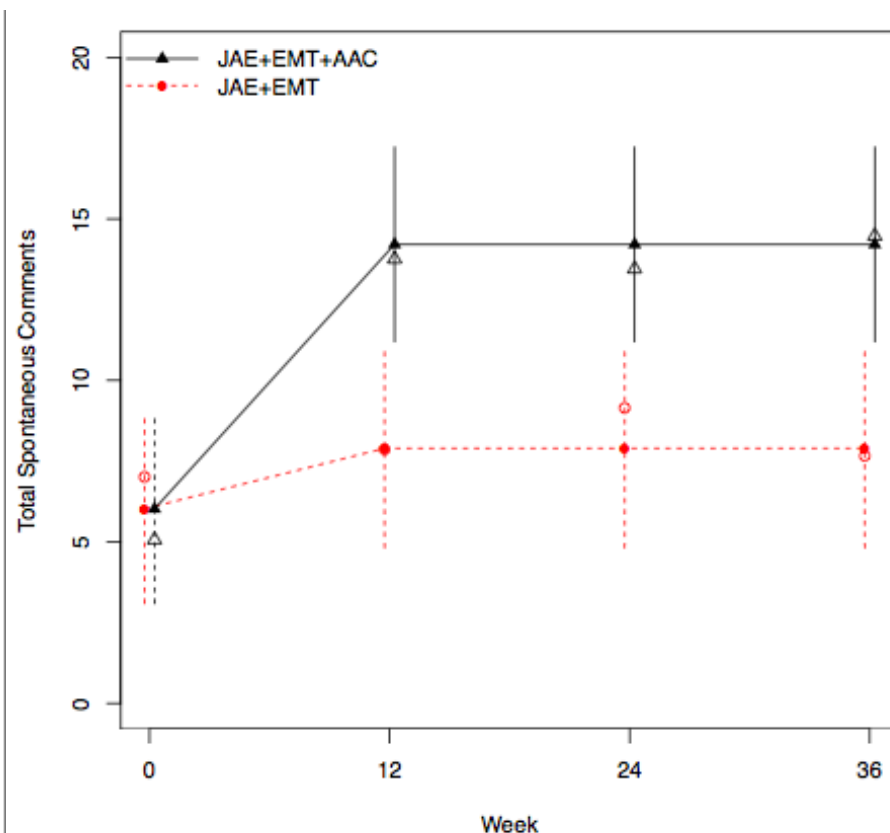
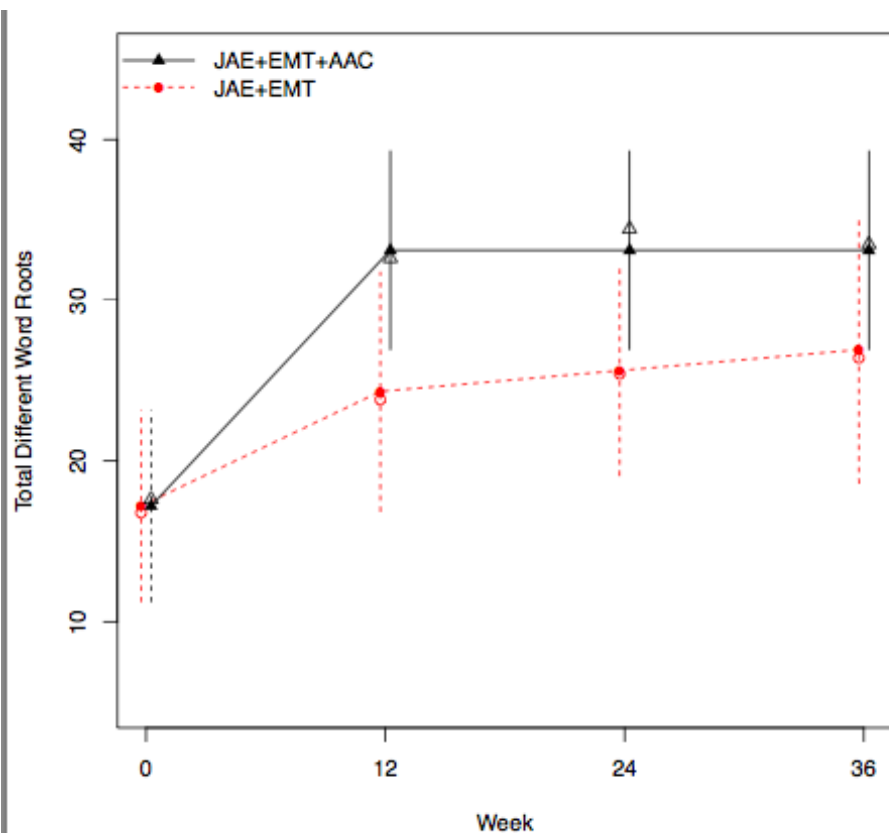
Receptive Language=19 mo.

Expressive Language=25 mo.

# JASPER+AAC improves spoken language in minimally verbal children



# Findings: Novel words and comments improved, SGD group did best



# Current studies for minimally verbal

- AIM-ASD (ACE network study---UCLA, Vanderbilt, Cornell, Rochester, Michigan)
  - 192 children with ASD between ages 5 and 8 years who are minimally verbal (<20 words)
  - Adaptive treatment design testing sequences of intervention
  - 4 months treatment daily in school, 4 months follow up
- Medication + Behavioral Intervention
  - JASPER + or – medication therapy (3 sessions per week)
  - 72 minimally verbal children (< 30 words) between ages 6 and 11
  - 3 months treatment, 3 months follow up



# What about verbal children in school?

- Social difficulties sometimes most impairing
  - Social skills interventions often group based and didactic
  - Train and hope
- UCLA studies on social relationships at school
  - Ask children about their relationships (friendships) at school
  - Learn about who they nominate as friends, and which children nominate them as friends
  - Discover how connected they are to peer groups at school

# FRIENDSHIPS SURVEY

What is your name? Nahomy Date: 10/14/09  
 School Name: \_\_\_\_\_  
 Age: 6

Are you a ~~BOY~~ or a GIRL? (circle one)

1. Are there any kids in your class that you like to hang out with?  
 Who are they? (Use first names only; plus last initial if needed)

My best FRIEND is  
Faith, Hanna and Karolina

2. Circle the names of the 3 kids you most like to hang out with.

3. Put a STAR \* next to the name of the ONE kid you most like to hang out with.

4. How often do you play with the friend with the STAR \* next to their name? (circle one)

almost everyday sometimes only once in a while

5. Are there any kids in your class that you don't like to hang out with?  
 Who are they? (Use first names only; plus last initial if needed)

Citali Citali Magli Srgol  
 (Magali) (Sergio)

6. What is your favorite game to play at school? Who do you play this game with?  
Hid-and-see k  
Magali

7. Are there kids in your class who like to hang out together?  
 Who are they?

Remember to think about Boys and Girls. Remember to put yourself if you hang out with a group.

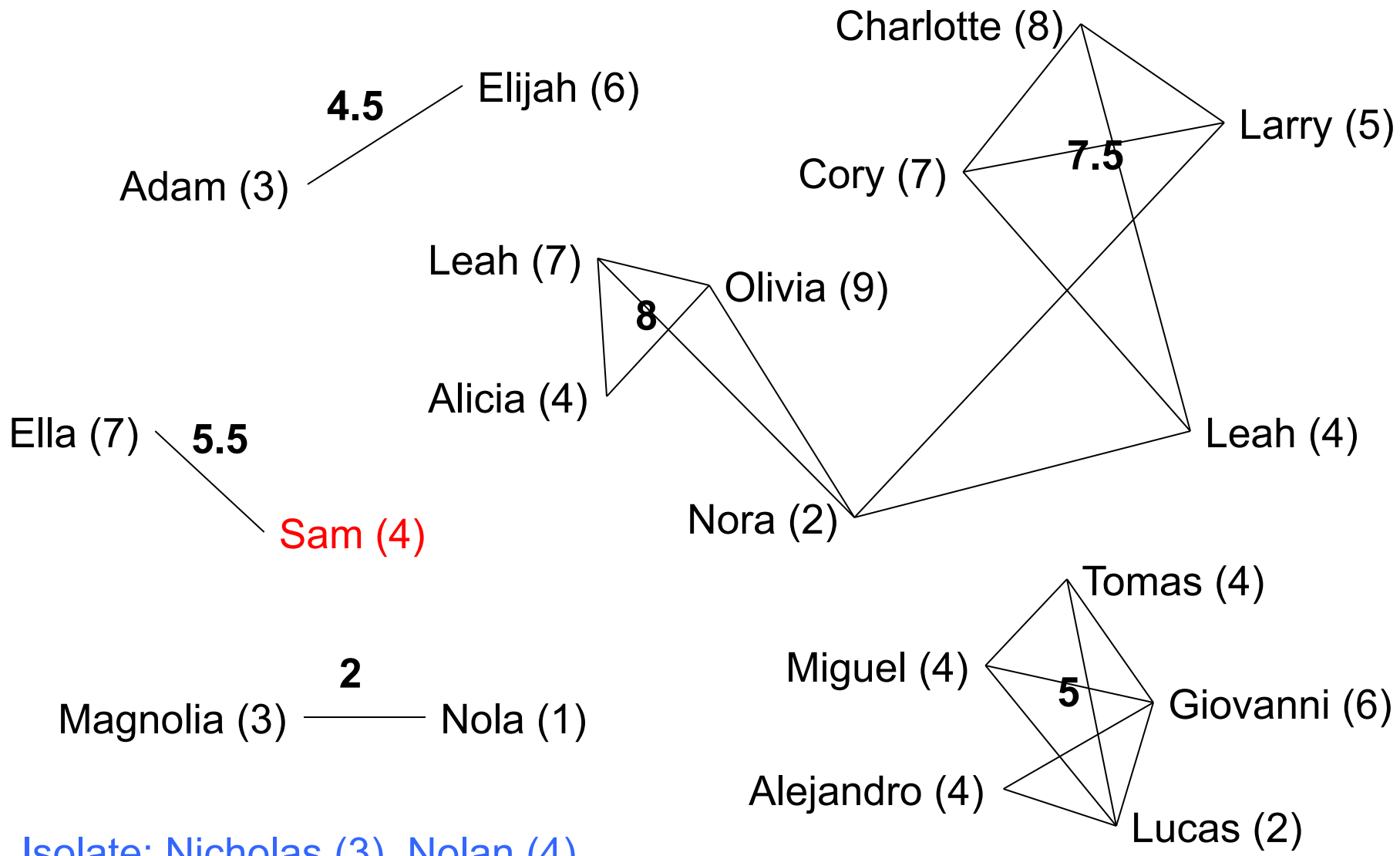
Write the kids names and then draw a CIRCLE around each group!

Faith magali Hanna

Melven max!  
Degen

Faith Angolena  
Max

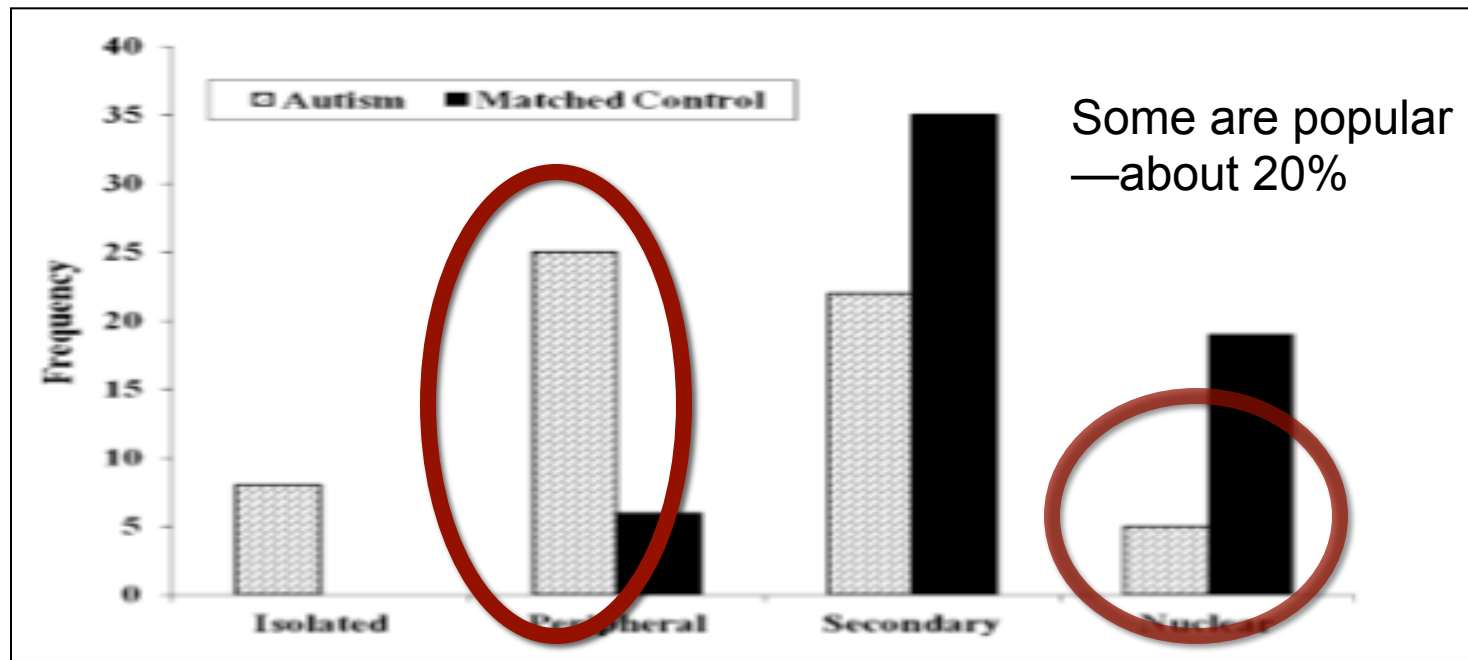
# Discovering the social connections at school (a measure of social networks)



Isolate: Nicholas (3), Nolan (4)

# Connection to Social Groups at School—few children with ASD are isolated!

Most are peripheral to the main social groups, just loosely attached to others



Chamberlain, Kasari, Rotheram-Fuller, 2007, JADD; Kasari et al, 2011, JADD; Rotheram-Fuller et al, 2010, JCPP

# Peer Related School Intervention Study

## UCLA Peer Intervention Study in Schools

Child Assisted Approach



Peer Mediated Approach





# Modular, individualized approach

- *Child Assisted*
- Observed child on playground, obtained teacher reports, peer networks, self reports
- Determine top 3 problems for child engaging with peers
- Worked on 1 at a time



# Modular, individualized approach



- *Peer Mediated*
- 3 peers willing from the class
- Had peers identify some children who had difficulty on playground
- Had peers generate ideas to help engage all children on the playground

# Summary of UCLA Peer Study

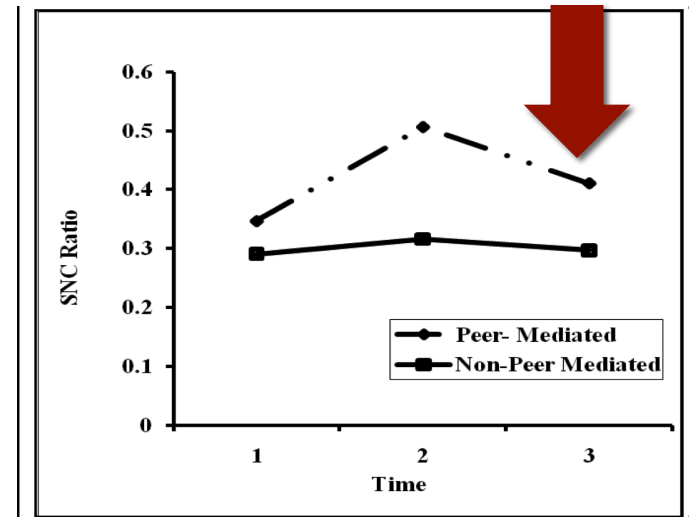
<b>CHILD (1:1)</b>	<b>PEER (3 peers)</b>
<b>NO Treatment</b>	<b>CHILD+PEER</b>

- PEER Mediated Interventions > CHILD Assisted Interventions
- Primary Outcome
  - Social Network Salience (d=.79)

6 WEEK TREATMENT  
(12 SESSIONS)

12 WEEK FOLLOW UP

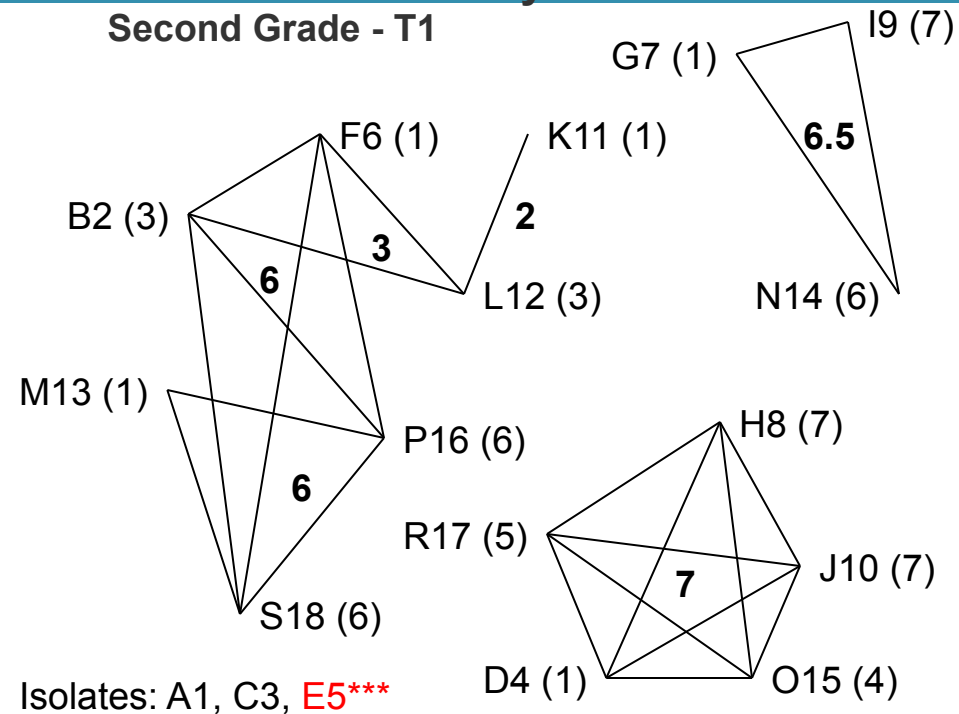
Kasari, Rotheram-Fuller, Locke, & Gulsrud, 2012, JCPP



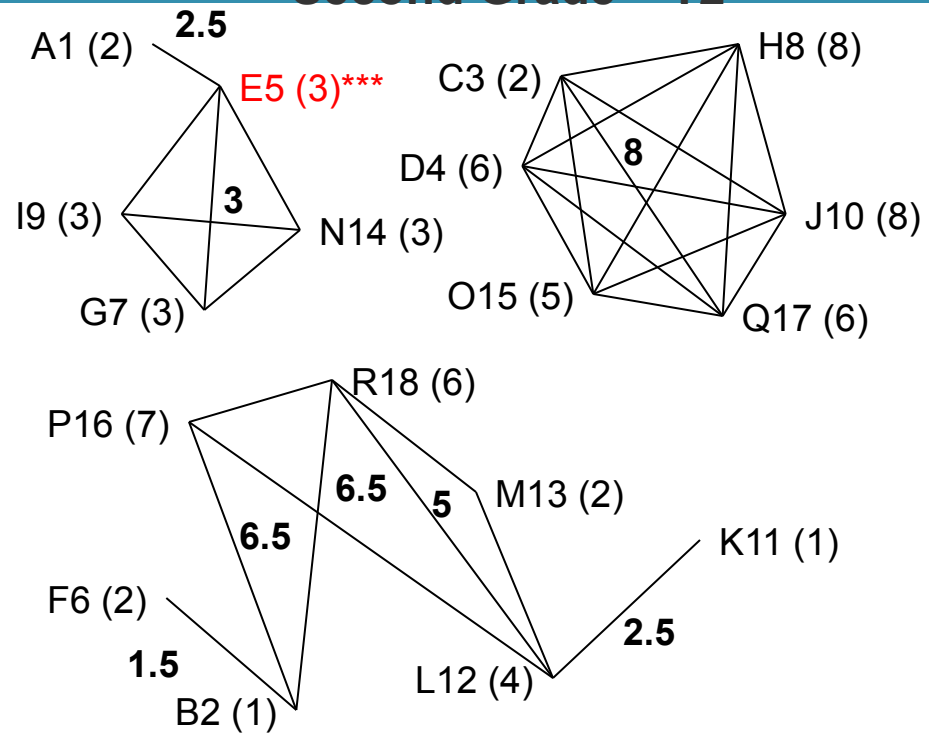


# Social Network Centrality

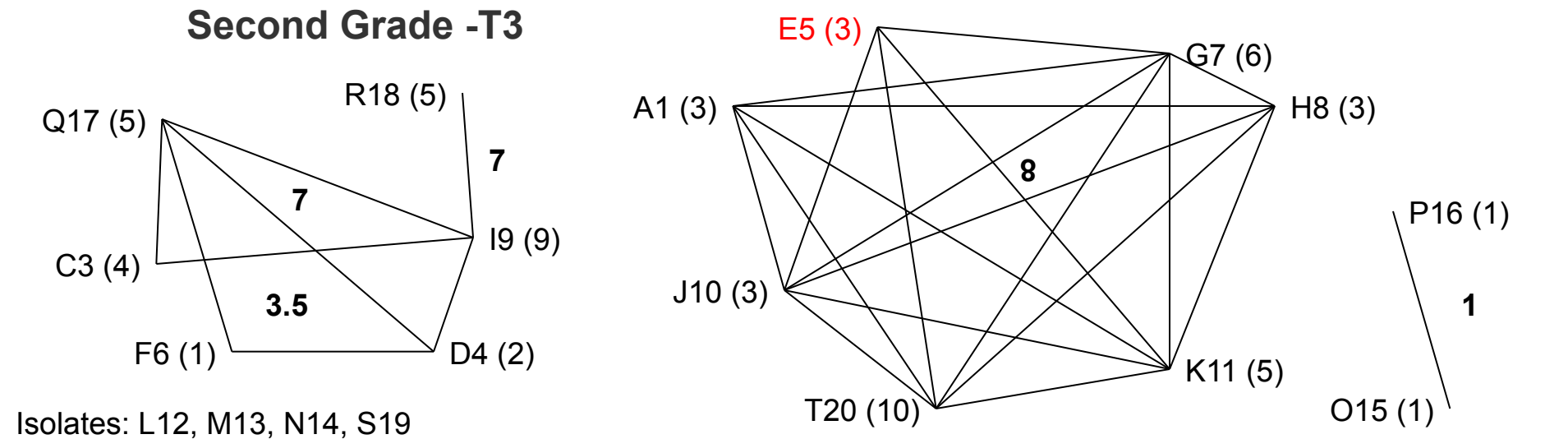
## Second Grade - T1



# Second Grade -T2



## Second Grade -T3



# Summary of UCLA Peer Study

<b>CHILD (1:1)</b>	<b>PEER (3 peers)</b>
<b>NO Treatment</b>	<b>CHILD+PEER</b>

6 WEEK TREATMENT (12 SESSIONS)

12 WEEK FOLLOW UP

- Other Findings favoring Peer Mediated Interventions:
  - Number of Received Friend Nominations (d=.74)
  - Less isolated on playground
  - Improved rating of social skills (by Teachers) (d=.44)

# What did we learn?

- Teaching peers about engaging all children makes the biggest difference (Kasari et al, 2012)
- Children who have reciprocated friendships are not more engaged on the playground (Kasari et al, 2011)
- 1:1 aide with child did not improve engagement (Kasari et al, 2012)
- Playground is very tough environment and needs a specific intervention.
  - One issue might be the transitions out to play

# Playground Study: Teaching assistants on the playground

Using transitions to facilitate peer interactions, language and behavior regulation  
And particularly to work in the playground setting



# Materials for Teachers/Playground Assistants

Playing Games

Autism Intervention Research  
Network – Behavioral Health  
(AIR-B)

## Remaking Recess

By: Mark Kretzmann, Jill Locke & Connie Kasari  
Illustrations by: Bere Muñiz and Graphikslava

### Facilitating Peer Conversations

**Conversations with Peers** – Help children have conversations with each other (defined as four or more back and forth exchanges between children).

**Conversation Starters** – strategies that assist children in initiating and maintaining conversations and improving reciprocal interactions with peers. If the target child has difficulty engaging in conversations with peers during lunch, provide fun topics to talk about.

There are many ways to stimulate conversations between children at school. Remaking Recess focuses on using Social Menus, but other methods can also stimulate conversation between children (i.e. a Topic Box, Picture Prompts, or Interesting Objects).

- During times when children have opportunities to converse give them direct instructions to talk to each other. Example: “Now is the time for you to talk to each other.”
- Offer social menus to all children in the area. Do not single out the target child by approaching them only. Instead target the cluster of peers they are closest to by offering the social menus to the group.
- Give the menus to the children with the instructions “Here are some fun things for you and your friends to talk about”
- Move away so that the children aren’t tempted to talk to you instead of each other.
- Observe the children from a distance. If needed, move back and prompt them to ask each other the questions on the menu. Praise children who are having good conversations.

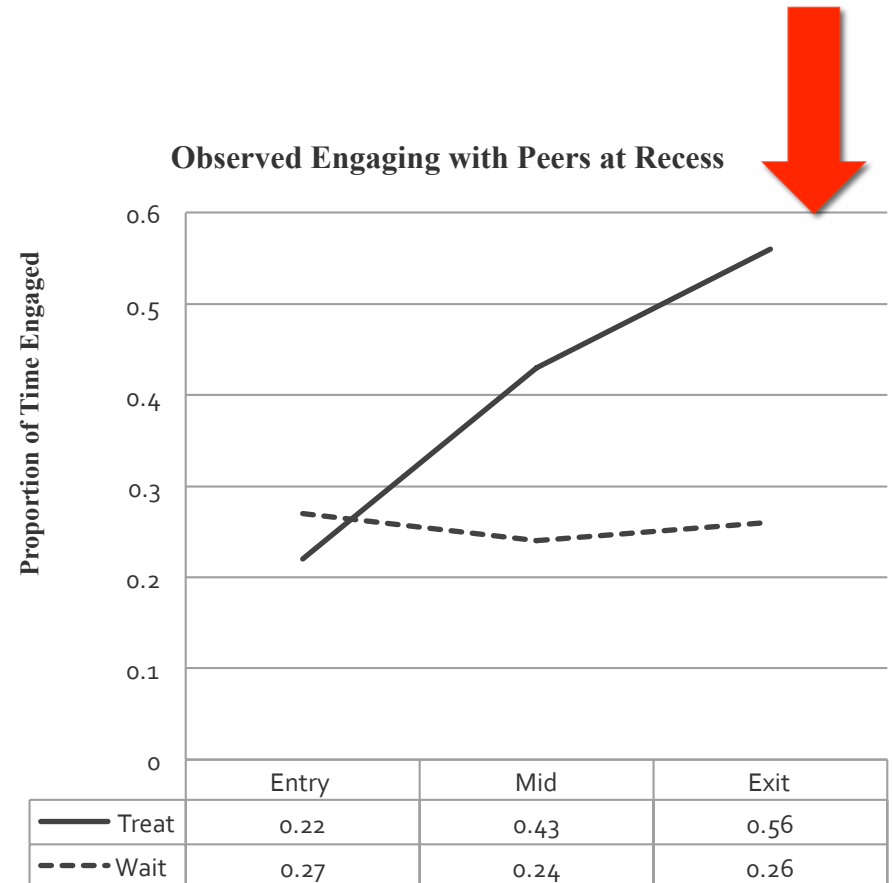
*It may help to give the target child and a peer model/buddy a “job” (e.v. ball*

### Initiating and Responding

Helping the Target Child Initiate and Respond to Peers	Helping Peers Initiate and Respond to the Target Child
Remind the Target Child To:	Remind Peers To:
<ul style="list-style-type: none"> <li>• Pay attention to who he/she is talking to.</li> <li>• Listen before trying to join an existing conversation.</li> <li>• Stay near the person he/she is talking to—not too close and not too far. Be sure that the target child does NOT walk away.</li> <li>• Use an appropriate tone of voice—not too loud and not too soft.</li> <li>• Direct their initiations to the peer by grabbing their attention (e.g. use a name—(e.g., Hey John!)—or lightly tap the child on the shoulder if he is not facing them).</li> <li>• Use facial expressions that show how they are feeling—if you’re happy, smile!</li> <li>• Stay on the topic of conversation (even if it is something they may not be interested in).</li> <li>• Be sure to take conversational turns.</li> </ul>	<ul style="list-style-type: none"> <li>• Be patient—give the target child a few moments to respond. Sometimes it takes people a little bit longer.</li> <li>• Be persistent—politely try again if he/she does not respond.</li> <li>• Share a topic of mutual interest (talk about something they both like).</li> <li>• Be aware of the “right” time to approach the target child (e.g., when he/she is not already engaged).</li> <li>• Make sure to trade information —take turns in the conversation.</li> </ul>



# Paraprofessionals can improve child engagement on the playground (6 weeks)



(Kretzmann & Kasari, submitted)

# Conclusion

- Targeted focus on engagement may be an active ingredient of intervention with young children and with older children---approach changes
- Engagement is associated with greater social communication gestures and language use
- Parents and teachers need to know specifically what to do, and likely in brief moments
  - Knowing the active ingredients (strategies that work) critical
  - Integration of approaches; when to use more direct instruction versus developmental strategies
- Goal is to put all children on a positive developmental trajectory



# Acknowledgements

- Autism Speaks, HRSA, NIH for research funding
- Families and children who participate
- Teachers, staff in LAUSD
- Students, staff at UCLA

