

Parent Implemented Language Intervention Using Distance Video-Teleconferencing

Andrea McDuffie, PhD, CCC-SLP

Ashley Oakes, MS, CF-SLP

Monica Ma, BA, BCaBA

Leonard Abbeduto, PhD

MIND Institute, UC-Davis

13th International Fragile X Conference

Overview of Intervention Project

- ▶ Implemented by Speech/Language Pathologists with collaborative support from Board Certified Behavior Analysts
- ▶ 12 young children with fragile X and biological mothers
 - Age range: 2–4 years
 - Preverbal communicators → one-word speech
- ▶ Intervention Goals:
 - Improve child communication and language skills
 - By teaching mothers to provide verbal language in a way that enables children to process and learn from this input
- ▶ Delivery:
 - Parent education sessions
 - Clinician coaching of parent–child interaction
 - Onsite and distance video–teleconferencing
- ▶ Pilot project funded by the National Fragile X Foundation
- ▶ Continue to modify intervention format and content

Recommended Practice for SLPs Working in Early Intervention

- ▶ American Speech–Language–Hearing Association (2008)
 - Clinicians should provide services that promote children’s participation in natural environments
 - Early intervention services should...
 - Strengthen family’s capacity to support their child’s development
 - Be “embedded” into everyday contexts in which parents and children spend time interacting
 - Focus on routines and activities which are identified as important by the family

The Role of Parents in Early Language Learning

- ▶ The ways in which parents interact with young children have important implications for many aspects of development
 - ▶ Especially for children with developmental language delays
- ▶ Certain characteristics of parent speech are likely to support and enhance child language learning
- ▶ Parent speech that incorporates these characteristics is termed “verbally responsive”
 - ▶ Prompt, contingent and affectively positive verbal responses to child acts of play and communication

Parent Verbal Responsiveness

- ▶ Verbally responsive parents provide language input that corresponds closely to the objects and activities the child is attending to at the time the verbal language is provided
- ▶ This type of language input helps to make early language learning more efficient because the child doesn't have to expend cognitive resources trying to figure out the mapping between "word and world"
- ▶ Verbal language input that...
 - ▶ Describes what the child is doing during ongoing activities
 - ▶ Acknowledges and responds to child communication acts

Describe what your child is doing...

- ▶ Brush teeth!
- ▶ Look at the blue towel!



- Chocolate ice cream!
- Lets play with the truck!

- Put the block in the cup.
- Red block on top!



Add a word or two...

- ▶ Toothbrush
- ▶ Blue toothbrush!



- Ummm!
- Chocolate ice cream is yummy!

- Red.
- Red block on top!

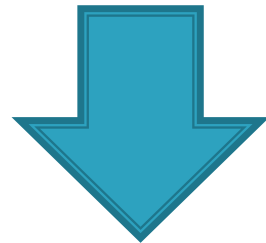


Parent Implemented Language Intervention

Interventionist



Mom



Child

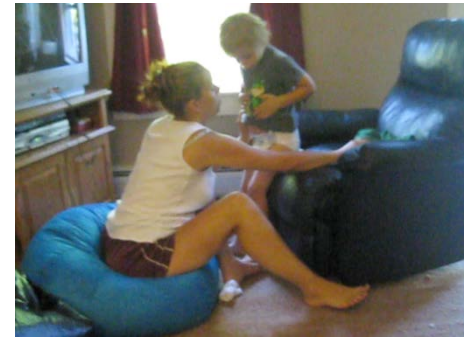


An Intervention Based on Routines

- ▶ Many family interactions are organized around activities that are repeated daily
- ▶ Understand children's participation in daily routines from the mother's perspective
- ▶ Collaborate with mothers to identify communication outcomes that are valued by the family
- ▶ Implement an intervention plan that is embedded within activities and routines chosen by the caregiver
- ▶ Begin with play → move to daily routines

What is a Routine?

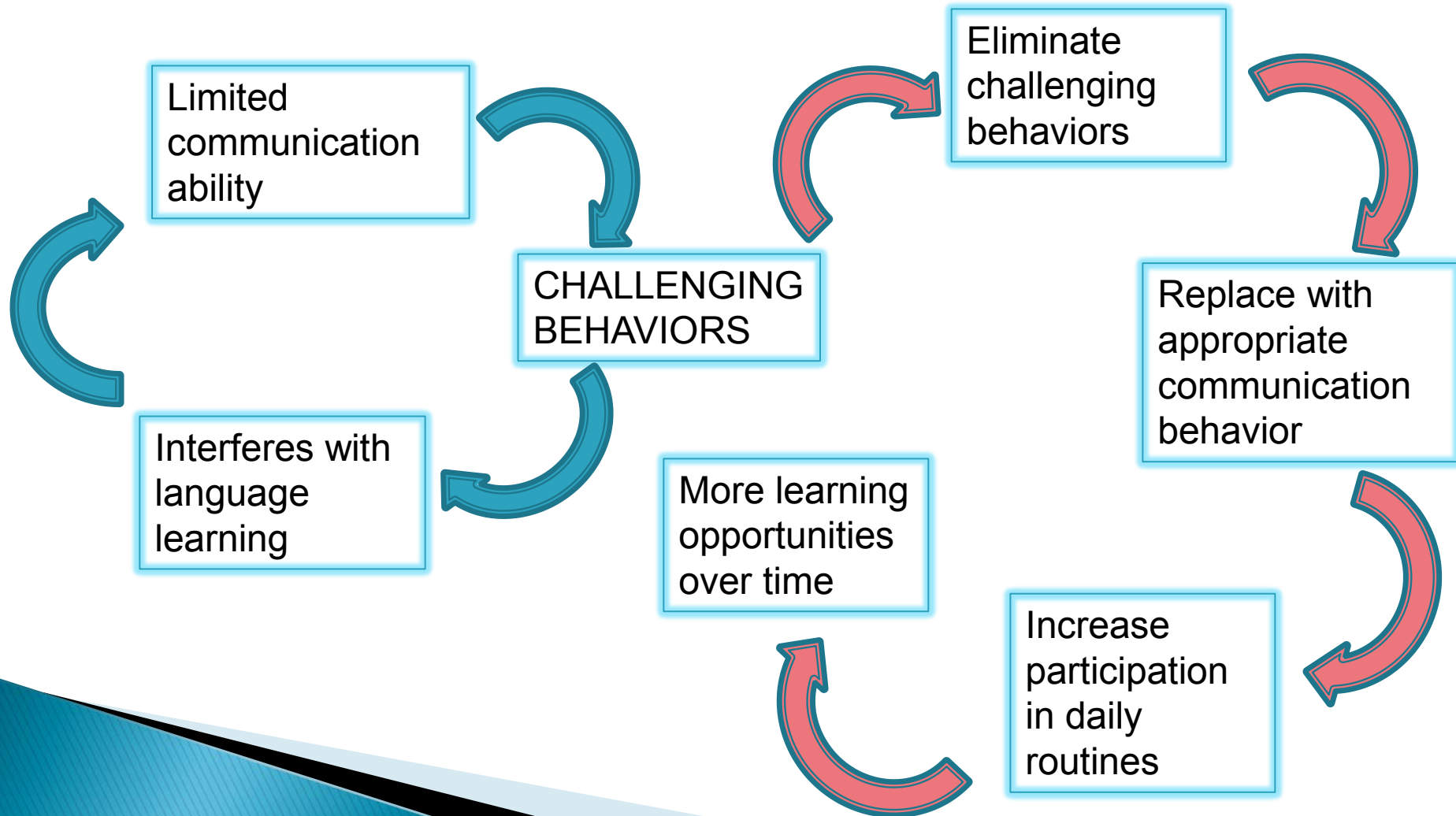
- ▶ Any repeated daily activity
 - Clear beginning and ending
 - Has an expected outcome
 - Includes familiar set of materials
 - Has a familiar set of vocabulary words
 - Has a familiar sequence
 - Can be brief (just a few minutes)
- ▶ Routines provide excellent contexts for language learning



Characteristics of Young Children with FXS

- ▶ Short attention span → may have difficulty participating in play and other daily activities
- ▶ Limited communication skills → may use CB to get what they want or get out of something they don't want to do
 - kicking, screaming, throwing, hitting, head banging
- ▶ When child participation in a family routine is limited...
 - Parents may have to change the way they complete caregiving routines and daily activities to avoid meltdowns
 - Routines become a less optimal context for teaching new skills

The Link between Language and Challenging Behaviors



Dealing with CB within the context of a language intervention

- ▶ Maintain focus on the supporting the development of communication and language
- ▶ Eliminate CB that limit opportunities for language learning
- ▶ Established collaboration
 - SLP develops guiding principles for teaching language in natural contexts
 - BCBA provides proactive strategies to
 - Eliminate reinforcement for CB
 - Enhance reinforcement for appropriate behavior
- ▶ Through SLP–BCBA collaboration, we can promote family routines in which CB is no longer an effective means of communication and which now provide many more opportunities for language learning.

Broad Intervention Goals

- ▶ Provide mothers with a set of tools that can be used during parent–child interaction
 - Decrease CB
 - Enhance verbal language input
 - Support child communication and spoken language
 - Encourage child participation in play and routines
- ▶ Cost effective
- ▶ Implemented in the natural environment
- ▶ Used many times throughout the day
- ▶ Accessible regardless of geographic location

Distance Video-Teleconferencing

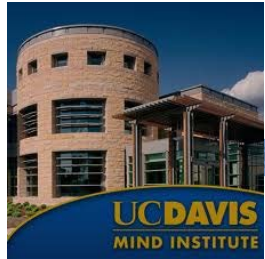
Eliminates travel to clinic

Enables intervention delivery into the natural environment

Allows access to service regardless of geographic location



Our families...



★ Alberta, Canada



Current Structure of our Language Intervention Program

- ▶ Pre-treatment assessment
 - Day 1 – Evaluation of Communication and Language
 - Day 2 – Functional Behavior Assessment
- ▶ Four onsite clinic visits – once per month
 - Parent education session
 - Face-to-face coaching of parent-child interaction
- ▶ Twelve distance coaching sessions ~1 hour each
 - Project loans each parent Macbook Pro laptop computer with Skype and Dropbox installed
 - Assists parent in recognizing opportunities and practicing language facilitation strategies during play and other daily activities
 - Provides encouragement, clarification, feedback and joint problem solving between parent and clinician
- ▶ Weekly videotape of family-identified routine
- ▶ Post-treatment assessment (Month 5)
 - Evaluation of Communication, language, and play
- ▶ Three month follow-up via distance video-conferencing

Program Structure

**Pre-treatment
Assessment**



Month 1				Month 2				Month 3				Month 4				Month 5
TX 1	D 1	D 2	D 3	TX 2	D 4	D 5	D 6	TX 3	D 7	D 8	D 9	TX 4	D 10	D 11	D 12	Post-TX Assessment



**Month 8 Distance
Follow Up
Session**



**Month 7
Distance
Booster Session**



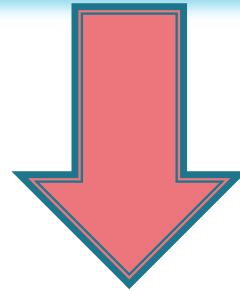
**Month 6
Distance
Booster Session**

**Week 3
Distance
Session**

**Between
Sessions...**

**Week 4
Distance
Session**

**Parent-child
interactions in play
and daily routines**



Child Language Learning

Monthly Session Goals

- ▶ Month 1
 - Modeling language that teaches
 - Decreasing CB
 - Increasing engagement in play
- ▶ Month 2
 - Teaching functional communication to replace CB
 - Responding to child communication acts
- ▶ Month 3
 - Prompting child communication acts
 - Thinning the reinforcement for functional communication
- ▶ Month 4
 - Embedding targeted strategies into routines
 - Prompting more advanced communication

Targeting Play-Based Interactions

- ▶ Many children with FXS have limited play skills and short attention span
- ▶ Difficult to sustain communicative interaction
- ▶ Help moms to support play-based engagement
- ▶ Gradually increase duration of interaction by
 - Following the child's lead
 - Modeling more advanced play
 - Positive touch
 - Managing the materials
 - Choices between and within activities
 - First→Then
 - All Done!
- ▶ Increasing engagement during play allows mom to have more opportunities to practice targeted strategies
- ▶ Ultimate goal is to move intervention into daily routines

Targeting Daily Routines

- ▶ Routines provide excellent contexts for learning
- ▶ Young children with FXS may face challenges participating in everyday routines
- ▶ Parent identifies a daily caregiving routine or family activity that is either:
 - Fun for the child
 - Challenging for the parent
- ▶ Parent provides us with one video each week of this routine

Example of Fun Routine



Challenging Routine



Previously Challenging Routine



Examples of Other Intervention Strategies (Moms in action!)

Pretreatment Play Session



Distance Play Session



Challenging behavior interferes with play-based interaction



Challenging Behaviors Reduced



Tooth brushing: Modeling language that teaches



Play: Expanding verbal communication (Add a word or two)



Bath Time: Modeling language that teaches



Re-engaging between activities: Providing Choices



Transition using “First → Then”



Signaling End of Activity: All done!



Future Directions

- ▶ Can we decrease the number of onsite visits?
- ▶ Can we implement the intervention with families that have more than one affected child?
- ▶ Can we develop an assessment process to identify the preferred mode of communication for children who are nonverbal?
- ▶ Can we incorporate more of a focus on daily routines?
- ▶ Should we implement two distance sessions per week?
- ▶ Evaluate use of shared desktop vs. delayed performance feedback for coaching in routines.
- ▶ Can we enhance the effect of the intervention by adding a pharmacological treatment?

Acknowledgements

- ▶ Families that participated in this research
- ▶ National Fragile X Foundation
- ▶ Graduate School, University of Wisconsin
- ▶ Our Research Team
 - Ashley Oakes, MS, CF–SLP
 - Monica Ma, BA, BCaBA
- ▶ Current and Past Collaborators
 - Wendy Machalicek, PhD, BCBA–D, Univ of Oregon
 - Caio Miguel, PhD, BCBA–D, Cal State – Sacramento
 - Susan Ellis Weismer, PhD, University of Wisconsin
 - Eileen Haebig, MS, CF–SLP, University of Wisconsin