Naturalistic Language Intervention
Adapting Enhanced Milieu Teaching for Young Children with ASD

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Disclosure Statement

• I have relevant financial relationship(s) with services described in this presentation.

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I have no relevant nonfinancial relationship(s) to disclose.
Today’s Talk

- Characteristics of Children with ASD
- Principles of Enhanced Milieu Teaching (EMT)
- EMT Adaptations for Young Children with ASD
  - Summary
- EMT Toolbox for Children with ASD
- Questions and Discussion
Social Communication is Core Deficit for Children with ASD

• **Persistent deficits in social communication and social interaction across multiple contexts**
  – Deficits in social-emotional reciprocity
  – Deficits in nonverbal communicative behaviors used for social interaction
  – Deficits in developing, maintaining, and understand relationships

American Psychiatric Association’s Diagnostic and Statistical Manual, Fifth Edition (DSM-5)
Naturalistic Developmental Behavioral Interventions (NDBI) for Children with ASD

- Delivered in naturalistic and interactive social contexts, such as play and daily routines
- Involve child-directed teaching strategies
- Based on empirically-based intervention methods derived from both the principles of behavioral learning and developmental science

What is Enhanced Milieu Teaching?

- EMT is a NDBI with an evidence-base of over 20 years of research.
- EMT is a naturalistic, conversation-based intervention that uses child interests and initiations as opportunities to model and prompt language in everyday contexts.
- Uses adult responsivity, modeling, expansion of child communication forms, and systematic prompting to increase spontaneous and social use of language.
EMT Principles and Strategies

1. Promote adult-child communication *now*
   - Notice and respond
   - Follow the child’s lead and interests

2. Increase child engagement with objects and activities
   - Child preferred activities
   - Join the child in play and activity
   - Teach play and participation

3. Expand the social basis of communicative interactions
   - Arrange environment to increase engagement
   - Teach joint attention strategies
   - Balance turns (mirror and map)
   - Increase person engagement

4. Teach child communication target forms to advance language
   - Respond
   - Model
   - Expand
   - Prompt

Kaiser & Hampton, 2017
Positive effects across settings

- **Increases child use of language targets**
  - Vocabulary (Kaiser et al., 1993; Scherer & Kaiser, 2010; Roberts & Kaiser, 2012; Kaiser & Roberts, 2012)
  - Early syntactic forms (Kaiser & Hester, 1994)
  - Moderately complex syntax (Warren & Kaiser, 1986)

- **Increases child frequency of communication**
  (Warren et al., 1994; Kaiser et al., 1993)

- **Generalization across settings, people, and language concepts** (Warren & Bambara, 1989; Goldstein & Mousetis, 1989; Kaiser & Roberts, 2012)

- **Maintenance of newly learned targets** (Warren & Kaiser, 1986; Kaiser & Roberts, 2012)

What Children Bring to EMT

- Access to Input
- Intelligibility
- Fluency

Mode

- Person
- Object
- Activity

Engagement Strategies

- Imitation
- Auditory memory
- Efficiency

Learning Strategies

- Rate
- Form
- Functions
- Transparency to partners

Baseline Communication

Ohio ASHA 2018 Children with ASD
# Children with Autism

<table>
<thead>
<tr>
<th>Communication Challenges</th>
<th>Adaptations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Difficulty with joint engagement and nonverbal communication foundations</td>
<td>Model and teach joint engagement behavior</td>
</tr>
<tr>
<td>Limited play skills and brief duration of play</td>
<td>Model and teach play skills to support engagement, language teaching, cognitive development</td>
</tr>
<tr>
<td>Requesting rather than commenting (limited social interest)</td>
<td>Model commenting, limit requesting Increase social motivation</td>
</tr>
<tr>
<td>Very low rate spoken language,</td>
<td>Add SGD, teach joint engagement, behaviors,</td>
</tr>
<tr>
<td>Interfering behavior</td>
<td>Teach Strengthen social motivation, differentially, support positive behavior</td>
</tr>
</tbody>
</table>
EMT Modifications to Fit What Children with ASD Bring

- Support speech development
- Add AAC
- Teach partners AAC support

- Increase social communication
- Teach joint attention skills
- Increase rate

- Teach imitation
- Add discrete trials
- Increase dosage
- Support generalization

- Teach play skills
- Increase person engagement
- Teach coordinated joint attention

Mode

Engagement Strategies

Baseline Communication

Learning Strategies

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Research-Based Modifications of EMT for Children with ASD

• JASPER + EMT [J-EMT]
  – Teach joint attention, symbolic play, regulation
  – Kasari, Kaiser et al, 2014
  – Kaiser & Roberts, IES in progress

• JASPER + EMT + AAC [J-EMT+ SGD]
  – Teach joint attention, symbolic play, regulation
  – Include speech generating device or signs for input and output
  – Kasari, Smith, Lord & Kaiser, in progress
  – Kaiser, Hampton & Fuller, in progress

• Add Trial Based Teaching
  – Add DTT as rescue protocol or preteaching protocol
  – Kasari, Smith, Lord & Kaiser, in progress
  – Kaiser, Hampton & Fuller, in progress

• Support Partners to use EMT and child mode
  – Parent plus Therapist
  – Teach Model Coach Review
  – Kaiser & Roberts, 2013
  – Roberts & Kaiser, 2015
  – Kaiser, Hampton & Fuller, in progress
EMT for Young Children With ASD
EMT components

1) Setting up a context for intervention by building routines
   – Noticing and responding to communication
   – Mirroring child actions and mapping language

2) Play Modeling and Expansions

3) Language Modeling and Expansions

4) Time Delays

5) Milieu Teaching Prompts
Setting up a Context for Intervention
Setting a Context for Intervention

• Communication develops on a platform of shared joint attention and engagement
  – Social interaction between child and adult
  – Play with objects and partner
  – Joint object/partner engagement
  – Coordinated object/partner engagement
  – Everyday routines where communication is functional
Setting the context for communication

- Engagement is a child’s involvement with objects, activities, and/or partners

Get child engaged
- With you as a social communication partner
- With toys, activities and routines
Building Play Routines

- What is a routine?
  - Sequence of play steps
- Routines are ideal for teaching language
  - Engaging
  - Predictable
  - Repeatable
  - Adaptable: become more flexible, complex, and longer over time
- Example
  - Build with blocks, put people in house, crash house
- Re-start the routine then elaborate
Routines are important because...

- Routines provide the opportunity to:
  - Set clear behavioral expectations
  - Map new language onto familiar motivating steps
  - Create context for joint engagement
  - Expand or build upon skills that the child is already doing:
    - Become more flexible about how steps are combined or sequenced
    - Learn some new steps
    - Learn higher level or more complex steps
The child is watching other people.

The child and partner are actively engaged in the same activity, and the child is actively and repeatedly acknowledging the partner's participation, likely by visually referencing the partner at critical junctures in the interaction.

The child and partner are actively engaged in the same activity, but the child is now acknowledging the partner.

The child is focused on an object by him/herself.

The child is watching other people.

The child is not focused on a toy or person.
Why is Coordinated Joint Engagement so important?

• Increasing engagement increases the opportunities for learning
  – Opportunity for observational learning
  – Opportunities for modeling
  – Opportunity for feedback for communication
  – Motivation
Joint Engagement

- **Signs that the child is not jointly engaged:**
  - Object focused: playing with a toy and not observing you or taking turns
  - Wandering
  - Observing without interacting
  - Problem behavior

- **Signs that the child is jointly engaged:**
  - Turn taking in an activity
  - Related requests or comments
  - Eye contact
  - Commenting
  - Material exchange
Setting up routines

- Choose toys at the child’s level
- Have multiple choices
- Join the child in the activity
- Follow the child’s lead and interests
- Imitate the child’s actions
- Use environmental arrangement throughout the routine
  - Bring over new choices
  - Clear away unused materials
- Match, match, match, model
- If these strategies don’t work quickly, use prompting or direct instruction to teach play skills
How to engage a child in play

Environmental Arrangement
• Make sure there are appropriate and interesting materials available and an open space to engage.

Ask an open question
• What are you going to play with?
• What will you do with these toys?

Offer a choice
• Consider using language alone, language paired with gesture, or language paired with a visual choice.

Choose a toy/activity
• Make a choice for the child
• Model the desired behavior and hand the child the next piece. Repeat until the child engages independently.
Before we can teach language...

• Do we have engagement?
  – Do we have toys that motivate the child?
  – Have we taught the steps to the routine?

• Do we need behavior support strategies?
  – Is behaviors getting in the way of teaching/learning?
  – Do we need to problem solve how to address behavior first?
Behavior Support

- **Identify Function**
- **Quick strategies**
  - Ignore and redirect, reinforce engagement
  - Give instructions, follow through
  - Add structure and supports
Notice and Respond to Communication
All children are communicating **now**

**Noticing a Variety of Communication**

**Prelinguistic**
- Point
- Show
- Give
- Vocalizations

**Linguistic**
- Signs
- Pictures
- Symbols
- Words

**Requesting**
- Reach
- Lifts arms up
- Shakes head

**Commenting**
- Point
- Show
- Give
- Vocalizations
What does this look like?

• Notice and respond every time the child communicates
  – Eye contact
  – Gestures
  – Vocalizations
  – Words
  – Actions (requests, instrumental behavior)

• Respond by talking about what the child is doing.
  – Respond verbally
  – Respond on AAC mode (if applicable)

• Language is most meaningful when it’s related to what the child is doing OR in response to what he/she is communicating
Why Notice and Respond?

• Noticing and responding to all communication teaches the child that their communication is important to you

• By acknowledging all communication and communicative attempts you reinforce the child for communicating
  – Increase the likelihood that they will initiate in the future

• The more the child communicates, the more practice they receive and the easier communication becomes
How is the Child Communicating?

Watch the videos and look for:
1. How did the child communicate?
2. How did the adult respond?
Encourage Turn Taking
Take Turns

• Take turns communicating
  – Similar to taking turns in an activity.
• Teach turn-taking
  – Allow time for the child to communicate.
• Play a game of “communication catch”
  – Child communicates
  – Adult responds (and waits)
  – Child communicates
  – Adult responds (and waits)
Why Take Turns?

- It gives the child practice initiating communication
- It teaches the child how to have a conversation
  - Child communicates
  - You communicate and WAIT, which signals to the child that it is his or her turn to communicate
What does this look like?

- After your response to the child, WAIT for them to communicate again before taking a turn
- If they are NOT communicating and you have nothing to respond to, try the next strategy!
Nonverbal Foundations for Talk

• Turn taking in play and routines
• Joint engagement behaviors
  – Point, show, give
  – Natural gestures
  – Model joint engagement behaviors
  – Respond to joint engagement behaviors
  – (add language)
Mirroring and Mapping
Mirror and Map

- **Mirroring**: adult imitates the child’s nonverbal behaviors

- **Mapping**: adult “maps” language onto these actions, by describing these actions
Why use mirroring and mapping?

- Mirroring allows the adult to join in the interaction with the child.
- Mapping provides the child with a language rich description of the activity.
- Mirroring and mapping allows the adult to have balanced turns when the child is not communicating.
- What the adult says is more meaningful since the adult and child are doing the same action and language is “mapped” right on top of what the child is doing.
What does this look like?

- Use mirroring and mapping when the child is not communicating
- Mapping must come after mirroring
- First imitate the action and then label the action with words
  - child: \{pours sand\}
  - adult: \{pours sand\} pour
How and When to Mirror and Map?

- Mirror (imitate) close to the child’s actions to make language more obvious
- Avoid mirroring behaviors that are unacceptable (e.g., throwing toys, hitting)
- Balance mapping and playing (e.g., don’t over map)
  - Give the child space to initiate if they are not communication
Beginning to MODEL targets

One-word Targets:
1) Nouns (people, places, things)
2) Verbs (action words)
3) Proto-verbs (prepositions; e.g., in, out, on)
4) Requesting Words (help, more)

Two-word Targets:
1) Agent + Action (e.g., throw the ball)
2) Action + Object (e.g., stir the beans)
3) Preposition + Location (e.g., in the house)
4) Modifier + Noun (e.g., big truck)

Three-word Targets:
1) Agent+action+object
2) Pronoun + two-word targets
3) Start using different verb tenses
Using Target Language

- 50% of what you say should be at child’s’ language level
  - What you want the child to produce
- 50% should be slightly higher than the child’s current target level
  - Building receptive language
    - 1-2 words above their level
    - Focus on teaching words
      - nouns, verbs, modifiers
      - agents,
    - use grammatical markings
How to model language?

- Choose targets based on the language the child is already using and what he should learn next (developmental)
- Consider both content and function
- How does the child communicate now?
  - Gestures, vocalizations
  - Single words
  - 2 words
  - 3 words
Children learn language through modeling.

Contingent modeling that is in response to a child’s communication is the most powerful form of modeling.

Simplifying language to match their language targets helps children learn language more quickly.

- Easier to imitate
- Easier to understand
When to model new language?

- After the child communicates
  - Respond with a language target
    - Remember to model with child’s mode (if applicable)
- When you are doing the same action or have the same object as the child
  - Child: {build}
  - Adult: {build} build
- While taking communication turns
Play Expansions
When to expand play

- After repeating the same sequence a few times
- When the child begins to show signs of disinterest
- When you need to model new/diverse/more complex language
How to expand play

• Remember: Use environmental arrangement throughout
  – Frequently introduce new choices of developmentally appropriate materials and that are motivating for the child
  – Clear away unused materials
How do we expand play?

- Set out new materials (EA)
- Hand the child new materials
- Model a new action with materials
Practice!

• Groups of three (5 min)
  – Write down two play expansions and the words you might mirror and map. One play expansion should use the same objects in the routine but utilize the objects in a different way. One play expansion should incorporate a new object that adds to the routine.
Expanding Communication
Expanding Communication

- Expanding play and activities gives you more to talk about!
- The best time to teach is when a child is already communicating
- Expand by:
  - Recasting
  - Adding a word
  - Extending the content
Expanding Communication

• An expansion is imitating what the child communicated and then adding more words
  – This includes expanding non-verbal communication or vocalizations
• The most powerful expansion includes one of the child’s communication targets
Why expand communication?

- Expansions immediately connect the child’s communication to additional new communication.
- The more the child hears and practices language that is more complex, the better their language skills become.
- Expansions help children learn new vocabulary and talk in more complex sentences.
How to expand communication?

• When the child communicates, imitate their communication and add target words
  – Child: eat
  – Adult: eat the cookie
  – Child: ball
  – Adult: roll the ball

• Expansions immediately connect the child’s communication to additional new language
Expanding Gestures

• **Point/reach:**
  – Child: {points to/reaches for baby}
  – Adult: {points to baby/reaches for baby} baby

• **Show**
  – Child: {hold up block}
  – Adult: {points to block} block

• **Give**
  – Child: {gives adult car to drive}
  – Adult: {takes the car} car
Expanding vs. Recast

- If the child is making an attempt to imitate a word, the adult should recast (repeat the word in a phonologically correct form) rather than adding new language.
- Child is reinforced for their verbal attempt but provided with a clearer phonological model.
- Always: communication first.
Let’s Review

- **Develop routines**
  - Build routines
  - Bring in new actions/materials to expand play
- **Respond to all child communication**
  - Expand the child’s communication with target words
- **If the child is not talking, imitate their action and model new target language (mirror and map)**
  - Nouns
  - Action verbs
  - Protoverbs
  - Requests
Practice!

- Groups of three (5 min)
  - Write down one thing that the child (your partner) said during the routine. How did you (or how would you) respond? Write down both what you would say and what you would do
Using Time Delays to Elicit Communication
What are TD strategies?

- The goal of TD strategies is to increase initiations
- **Non-verbal** cue that encourages children to communicate with increased independence
- TD strategies help elicit “communication” not just language
  - Cues the child to initiate communication with you
TD Strategies

- **Inadequate portions**: Providing small or inadequate portions of preferred materials
- **Assistance**: Creating situations in which the child needs the adult’s help
- **Pause in routine**: Setting up a routine in which the child expects certain actions and then waiting before doing the expected action
- **Choice making**: The adult holds up two objects and waits for the child to communicate about which item they want
How to use TD strategies?

1. Set up the opportunity to encourage the child to communicate by using a TD strategy
2. Wait until the child communicates (gestures, vocalizes, says a word)
3. Expand this communication with a target (gesture or word)
Groups of three (5 min)

- Embed a time delay in your routine. Include what you did, how the child (your partner) responded, and how you responded (your words and actions) to the child’s communication. Challenge: Try different types of time delays (choices, pause in routine, inadequate portion, needs assistance)
Using Milieu Teaching Episodes to Prompt Communication
What is a language prompt?

• A signal to the child to do or say something
• There are 3 types of language prompts:
  – Open prompt
    • “What do you want?”
  – Choice prompt
    • “Fish” or “gummy”
  – “SAY” prompt
    • “Say Gummy”
What to Prompt?

• The child’s language targets:
  – Target 1: noun (e.g., cat)
  – Target 2: verb (e.g., eat)
  – Target 3: protoverb (e.g., in)
  – Target 4: request (e.g., help, again)

• Mode
  • Spoken or AAC
  • Only prompt with highly motivating actions or materials, and when you have compliance and engagement
How to Prompt Language

• Wait for the child to request
• Use a time delay strategy to elicit a specific request
  – Inadequate proportions
  – Assistance
  – Pause in routine
  – Waiting with cue
  – Choice making
• Ask an open ended question
  – What do you want?
• Instruct the child to talk (Mand)
  – Tell me what you want.
• Respond with expansion and give requested item
• Use a least to most prompting strategy
How to Prompt Language

• If the child does not respond to the first prompt
  – Use a least-to-most prompting strategy to support the child
    • Repeat
    • Make it easier for the child to respond
      – Mand: Tell me what you want
      – Verbal choice: Do you want the truck or the ball?
      – NV choice: show two objects as a choice
      – Model: (Say) Truck

• Always respond with expansion, positive affect and give requested item

• Tailor the prompting strategy to the individual child and the skill
Let’s Review

- Develop routines
  - Model actions to teach the child to participate
  - Bring in new actions/materials to keep the routine interesting
- Respond to all child communication
  - Model target level talk
  - Expand the child’s communication with target words
- If the child is not talking, imitate their action and model new target language (mirror and map)
  - Use time delays when the child isn’t communicating frequently
- Prompt language
  - Sparingly
  - To teach new language
  - During teachable moments
<table>
<thead>
<tr>
<th>Adaptation</th>
<th>How to teach</th>
<th>Tools</th>
</tr>
</thead>
<tbody>
<tr>
<td>Joint engagement and play</td>
<td>Environmental arrangement, model, expand, prompt</td>
<td>Play assessment</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Play skills for modeling and building routines</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Toys</td>
</tr>
<tr>
<td>Use of SGD</td>
<td>Model, expand, prompt</td>
<td>Software. SGD</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Skills for setting up, managing SGD</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fluent integration into EMT</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Supporting partners</td>
</tr>
<tr>
<td>Train parents</td>
<td>Teach-Model-Coach- Review</td>
<td>Skills for teaching parents</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Handouts, videos</td>
</tr>
<tr>
<td>Add trial based teaching</td>
<td>Direct instruction</td>
<td>Skills assessment</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Curriculum</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Data collection</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Direct instruction skills</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Plan for integration with EMT</td>
</tr>
<tr>
<td>Support Behavior</td>
<td>Positive behavior support strategies</td>
<td>Skills for positive behavior support</td>
</tr>
<tr>
<td></td>
<td>Environmental arrangement</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Interesting, motivating activities</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Visual schedules, tangible reinforcers, etc. as needed</td>
<td></td>
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<td></td>
<td></td>
<td>Behavior consultation</td>
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<tr>
<td></td>
<td></td>
<td>Planning across settings</td>
</tr>
</tbody>
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Adaptations for Children with ASD: Include SGD

- Make SGD accessible across people, settings,
- Assess motor and symbol use skills
- Adapt display to child skills, language abilities, interests
- Program for high interest activities

- Teach using core EMT strategies
  - Embed in interactions, communicate using SGD
  - Model with words and SGD at least 50%
  - Expand with words and SGD at least 50%
  - Use time delays and prompting much less than modeling
Adaptations for Children with ASD: Teach Parents to Use EMT

- What to teach:
  - Play and engage
  - Notice and respond
  - Model and expand
  - Time Delays and Milieu Prompting

Teach Using Teach-Model-Coach-Review
Based on adult learning strategies
Systematic, planned, responsive to child and parent
Give clear rationale, instructions, information
Model with the child while parent watches: dosage, priming,
Support the parent while practicing:
Review the impact of parent behavior, reflect with parent,
encourage parent questions and input
Adaptations for Children with ASD: Add Trial Based Teaching

• What to teach:
  – Imitation
  – Comprehension
  – Responding to prompts
  – Basic SGD responding

• Teach using direct instruction or trial-based strategies
  – Trials, with repeated practice
  – Antecedent-Response-Consequence
  – Tangible reinforcers if needed
  – Carefully sequenced skills
  – Data driven
  – Use a communication curriculum (e.g., Smith et al, 2001)
EMT Modifications to Fit What Children with ASD Bring

- Support speech development
  - Add AAC
  - Teach partners AAC support

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- Add discrete trials
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- Teach play skills
- Increase person engagement
- Teach coordinated joint attention

Ohio ASHA 2018 Children with ASD
Questions?


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This talk and supplementary information will be posted at
  https://vkc.mc.vanderbilt.edu/kidtalk/