## Feeding the Brains of Students with Autism

Social skills instruction or a context for social emotional learning?

Lindee Morgan & Michael Siller

EMORY UNIVERSITY SCHOOL OF MEDICINE

Marcus AUTISM CENTER
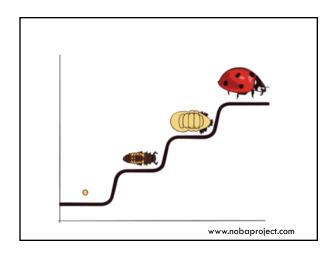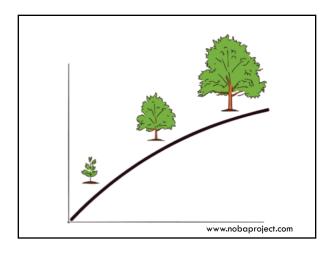NIH Autism Center of Excellence

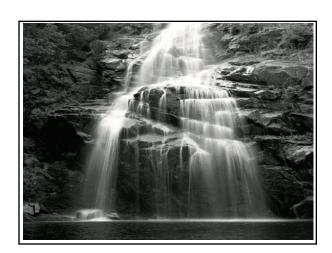---

### Learning Objectives

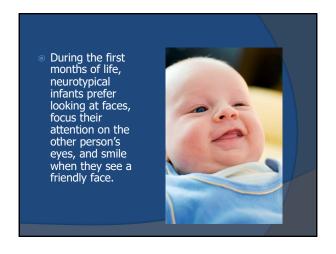As a result of this activity, participants will be able to:

- Describe how social emotional development differs for children with and without autism
- List primary strategies for fostering engagement in the classroom

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### How do children develop?



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- During the first months of life, neurotypical infants prefer looking at faces, focus their attention on the other person's eyes, and smile when they see a friendly face.
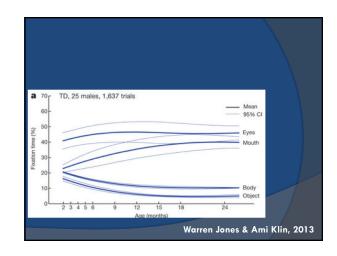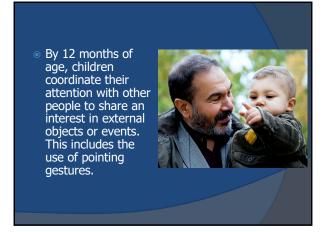




Warren Jones & Ami Klin, 2013

- Between 2 and 5 months, children learn to participate actively in face-to-face encounters: they learn to take turns, form expectations, and respond distinctly if their expectations are being violated.
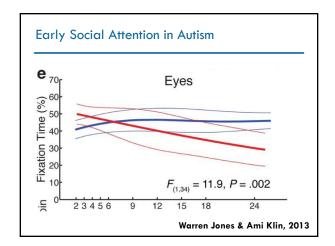


- Between 9 and 12 months, infants learn to follow the gaze direction and pointing gesture of other people with increasing flexibility.

- By 12 months of age, children coordinate their attention with other people to share an interest in external objects or events. This includes the use of pointing gestures.



- Between 12 and 24 months, children respond to others' emotional cues, and take active steps to alleviate the distress of another person.

○ These capacities foster expertise about the social world, foster language development, and perspective taking / awareness of norms.



Developing Expertise about the Social World

Developing Expertise about the Physical World

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## Early Social Attention in Autism



Eyes

Fixation Time (%)

$F_{(1,34)} = 11.9, P = .002$

2 3 4 5 6  9  12  15  18  24

**Warren Jones & Ami Klin, 2013**

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## Red Flags of Autism in Toddlers

**Impairment in Social Interaction:**
☐ Lack of appropriate eye gaze
☐ Lack of warm, joyful expressions
☐ Lack of sharing interest/ enjoyment
☐ Lack of response to name

**Impairment in Communication:**
☐ Lack of showing gestures
☐ Lack of coordination of nonverbal communication
☐ Unusual prosody (little variation in pitch, odd intonation)

**Repetitive Behaviors & Restricted Interests:**
☐ Repetitive movements with objects
☐ Repetitive movements or posturing of body, arms, hands, or fingers

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Social Difficulties in School-Aged Children with Autism (Scott Bellini, Autism Social Skills Profile)

- **Initiation Skills**
- **Social Reciprocity and Terminating Interactions**
- **Non-verbal Communication Skills**
- **Social Cognition**
- **Perspective Taking and Self-awareness**
- **Social Anxiety and Avoidance**

SEE-KS

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Social Difficulties in School-Aged Children with Autism (Scott Bellini, Autism Social Skills Profile)

- **Initiation Skills**
  - Joins in activities with peers
  - Invites peers to join in activities
  - Joins a conversation without interrupting
  - Requests assistance from others
  - Initiates greetings with others
- **Social Reciprocity and Terminating Interactions**
- **Non-verbal Communication Skills**
- **Social Cognition**
- **Perspective Taking and Self-awareness**
- **Social Anxiety and Avoidance**

## Social Difficulties in School-Aged Children with Autism (Scott Bellini, Autism Social Skills Profile)

- **Initiation Skills**
- **Social Reciprocity and Terminating Interactions**
  - Takes turns during games and activities
  - Maintains the give-and-take of conversations
  - Responds to the greetings of others
  - Responds to questions from others
  - Reads cues to terminate conversations
- **Non-verbal Communication Skills**
- **Social Cognition**
- **Perspective Taking and Self-awareness**
- **Social Anxiety and Avoidance**

## Social Difficulties in School-Aged Children with Autism (Scott Bellini, Autism Social Skills Profile)

- **Initiation Skills**
- **Social Reciprocity and Terminating Interactions**
- **Non-verbal Communication Skills**
  - Recognizes the nonverbal cues of others
  - Maintains eye contact during conversations
  - Has facial expressions that are congruent with emotion
  - Correctly interprets the emotions of others
- **Social Cognition**
- **Perspective Taking and Self-awareness**
- **Social Anxiety and Avoidance**

## Social Difficulties in School-Aged Children with Autism (Scott Bellini, Autism Social Skills Profile)

- **Initiation Skills**
- **Social Reciprocity and Terminating Interactions**
- **Non-verbal Communication Skills**
- **Social Cognition**
  - Compromises during disagreements with others
  - Understands the jokes or humor of others
  - Considers multiple viewpoints
  - Talks about topics that other people find interesting
  - Correctly interprets the intentions of others
- **Perspective Taking and Self-awareness**
- **Social Anxiety and Avoidance**

## Social Difficulties in School-Aged Children with Autism (Scott Bellini, Autism Social Skills Profile)

- **Initiation Skills**
- **Social Reciprocity and Terminating Interactions**
- **Non-verbal Communication Skills**
- **Social Cognition**
- **Perspective Taking and Self-awareness**
  - Maintains personal hygiene
  - Expresses sympathy for others
  - Speaks with an appropriate volume
  - Talks about/acknowledges the interests of others
  - Offers assistance to others
- **Social Anxiety and Avoidance**

## Social Difficulties in School-Aged Children with Autism (Scott Bellini, Autism Social Skills Profile)

- **Initiation Skills**
- **Social Reciprocity and Terminating Interactions**
- **Non-verbal Communication Skills**
- **Social Cognition**
- **Perspective Taking and Self-awareness**
- **Social Anxiety and Avoidance**
  - Exhibits/expresses fear/anxiety regarding social interactions
  - Engages in solitary activities in the presence of peers
  - Actively avoids social situations

## Social Emotional Learning

- Best learning emerges in the context of supportive relationships that make learning challenging, engaging, and meaningful.
- Social and emotional skills are critical for being successful in school and beyond.



*www.casel.org*

- Risky behaviors (e.g., drug use, violence, bullying, and dropout) challenge children's success in schools.

## Educational Interventions for Children with Autism - Emerging field of science

- Georgia's Department of Education (i.e., your local school district) provides the only universal, federally-mandated services for children with autism over the age of 3 years (IDEA Part B)
- Increase of 478% in number of children receiving special education due to autism since 2001 (~538,000); these numbers continue to increase at a fast pace

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## Working towards inclusive settings

- Directives of US Department of Education



U.S. Departments of Education and Health and Human Services Release
### Monday, September 14, 2015
Today, the U.S. Departments of Education and Health and Human Services released a policy statement highlighting the importance of making sure that all young children with disabilities have access to inclusive high-quality early childhood programs. Secretary of Education Arne Duncan announced the new policy statement in Kansas City, Missouri, during the first stop of his back-to-school bus tour.

- Children with autism are educated with various levels of inclusion, ranging from self-contained classrooms/schools (~41%) to inclusive general education classrooms (~40%)
- An empirical science of classroom-based programs for children with autism is virtually non-existent

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## DOE's initiatives in 'Universal Design for Learning' & 'Social Emotional Learning' provide a fertile ground for innovation



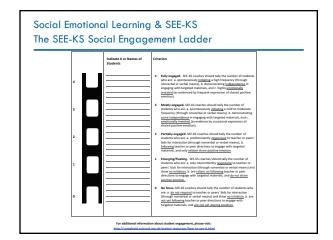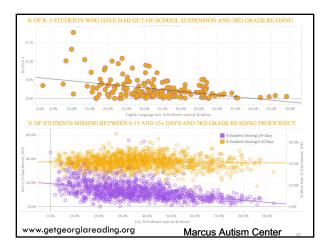*Emily Rubin*

- Universal Design for Learning - enables a wide range of diverse learners to be successful in the classroom
- Social Emotional Learning competencies embedded with emphasis on active engagement of all students
- Sustainable peer coaching model using Appreciative Inquiry

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## Social Emotional Learning & SEE-KS
## The SEE-KS Social Engagement Ladder



For additional information about student engagement, please visit:
http://complexld.ssatrust.org.uk/project-resources/how-to-use-it.html

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% OF K-3 STUDENTS WHO HAVE HAD OUT-OF-SCHOOL SUSPENSION AND 3RD GRADE READING

% OF STUDENTS MISSING BETWEEN 6-15 AND 15+ DAYS AND 3RD GRADE READING PROFICIENCY



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## Universal Design for Learning

- Multiple means of representation, to give learners various ways of acquiring information and knowledge,
- Multiple means of expression, to provide learners alternatives for demonstrating what they know,
- Multiple means of engagement, to tap into learners' interests, offer appropriate challenges, and increase motivation.

UDL is a process, not a product... it implies a "push towards seeing space as multiple and in-process"... it does not stop when all the boxes are checked (Dolmage, 2015).

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## Slide 1

### Universal Design for Learning & SEE-KS
### The SEE-KS Instructional Rubric



Getting the emotional "hook"

Letting kids "show what they know"

Providing information in different ways

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## Slide 2

Social Communicative Competence;
(Marans, Rubin & Laurent, 2005)

"Social communicative competence…plays a major role in our success or inability to form those relationships that allow us to function happily and effectively in the communities within which we live."

## Slide 3

**Social Communication**

Individuals who display a greater capacity to both *initiate* and *follow* the conversational focus of their social partners are more competent social communicators.

## Slide 4

**Unique neurological differences in social communication development in ASD**

- Children with ASD show limited neural sensitivity to social stimuli and tend not to look toward people's faces.
- As a result, they miss gaze shifts between people and objects. They have difficulty predicting actions and initiating bids for engagement.
- Individuals with ASD may process social stimuli (e.g., faces, speech sounds) in regions of the brain typically reserved to process images and sounds that are non-biological.
- Children with ASD present with neurological differences that reduce overall social engagement and contribute to difficulties with predicting the actions of others.

## Slide 5

Three Critical Developmental Stages

(Prizant et al., 2005)

1. **Before Words** (i.e., children who are communicating through pre-symbolic nonverbal means),

2. **Emerging Language** (i.e., children who are communicating through early symbolic means, as expressed through verbal language, signs, or pictures).

3. **Conversational Stage** (i.e., children who are communicating through sentence and conversational level discourse).

## Slide 6

# What About Social Skills Training?



Social Skills Training

## Limitations of social skills groups

- Generally not appropriate for children younger than nine years
- Social competence is much more than a list of rules to be memorized
- Not effective without real life practice
- Generalization is not guaranteed
- May not consider the role of the communicative partner
- Limited resources and time

## The Case for an Embedded Model: Classroom as a Context for Social Emotional Learning

- No need to program for generalization
- Use of ongoing lessons and activities
- Natural environments with communicative partners

**Supporting Engagement**

Individuals are more competent when their partners adapt their interaction style and the environment to foster effective social communication and emotional regulation.

Thus, they are surrounded by partners who are understanding, supportive, and are also enjoying the interaction.

What are the essential elements of engagement?

SEE-KS

**Focus on the three I's of engagement**

**I**ndependence
**I**nvestment
**I**nitiation

## Before words: The impact of neurological differences

- When other people are being processed in regions of the brain reserved for non-biological stimuli, it is difficult to predict that a caregiver or teacher is a source of assistance; thus, gestural forms of communication are initially delayed.
- When they do emerge, gestures tend to involve physical manipulation rather than "shared messages" with others. A child with ASD may take your hand and pull you to a location (e.g., the refrigerator) or place it on an object (e.g., a jar of bubbles) to make a request for assistance.
- Gestures which have "shared" messages (e.g., will you help me, will you look at this, no thank you) tend to be delayed. Delayed gestures include: giving, pointing, showing, pushing away, waving, and a head nod / headshake.

Before words
*Appropriate learning supports*

## Before Words
*Appropriate learning supports*



- *Sealed see-thru containers can be used to create a "menu board" during meal routines.*
- *Objectives: initiating communication using proximity, pointing, or giving.*

## Before Words
*Appropriate learning supports*



- *Objects can be used to represent social routines during play.*
- *Objectives: initiating communication using proximity, simple motor actions, and giving gestures.*

## Before Words
*Appropriate learning supports*



- *Waving wands plus photos paired with music during morning circle.*
- *Objective: imitation of wave gesture for greetings.*

## Emerging Language: The impact of neurological differences

- When others are being processed in regions of the brain reserved for non-biological stimuli, the earliest forms of symbolic language are often object labels (i.e., nouns).

- The most challenging symbols for children with ASD at emerging language stages are subjects (i.e., people's names) and verbs (e.g., action words). This is likely due to a limited appreciation of the intentions of others and limited gaze shifting toward people and between people and objects.

- As subject + verb word combinations are predictive of creative language acquisition, limitations in this semantic relationship lead to a reliance on object labels and rote sentence structures.

## Emerging Language: *Appropriate learning supports*

- *Color coded graphic symbols can be used to represent subject + verb + noun sentences during meal routines.*
- *Objective: initiating communication using subject + verb word combinations.*

## Emerging Language
*Appropriate learning supports*

**Emerging Language** *Appropriate learning supports*



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Emerging Language
*Appropriate learning supports*

- *Graphic symbols can be used within play schemes, cooking activities, or vocational tasks.*
- *Objective: initiating communication using creative word combinations.*

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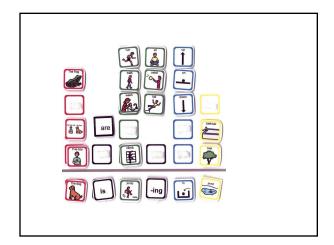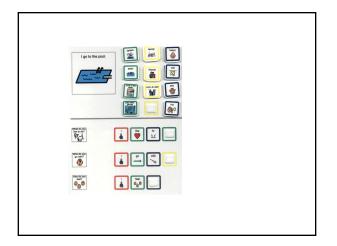Emerging Language
*Appropriate learning supports*



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Conversational Stage:
the impact of neurological differences

- Similar to the single word level, challenges may be due to a limited appreciation of the intentions of others and limited gaze shifting toward people and between people and objects.
- Even those individuals with ASD who appear to have strong expressive language skills, the use of syntax to clarify intentions is limited, as evidenced by limited use of subordinate clauses to clarify who was present, where an event occurred, and why an event occurred (e.g., "My grandmother, *who came to my brother's birthday*, brought me a present, *because she didn't want me to feel left out*.").
- Difficulty with predicting the intentions of others also leads to challenges with knowing how to pick topics, when to initiate, how to balance conversational turns, and collaboration and negotiation with others.

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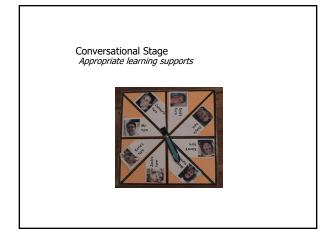Conversational Stage
*Appropriate learning supports*

- *Written symbols and/or graphics can be displayed using color coded word banks and sentence assembly supports to remind the child with ASD which words to select when creating sentences during literacy activities and past events.*

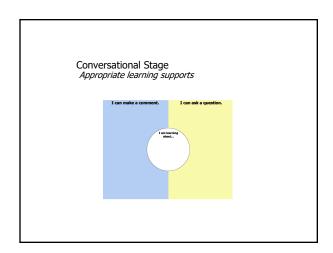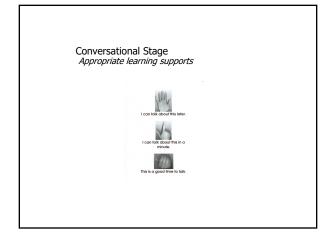- *Objective: initiating communication using creative sentence structures.*

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- *As children with ASD have difficulty predicting the actions of others, providing visual supports to illustrate when to talk, when to wait, and how to balance comments & questions is helpful.*
- *Objective: reciprocity in speaker & listener roles.*

I can make a comment.     I can ask a question.

I am learning about...

I can talk about this later.

I can talk about this in a minute.

This is a good time to talk.

A word (or two) on emotional regulation…..

**Emotional Regulation**

Individuals who display a greater capacity to self-monitor their physiological arousal and emotional state are more able to maintain social engagement, to problem solve, and to communicate effectively.

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## Your Emotions Decide What is Worth Paying Attention to

- Think about a distressing experience you have had.
  - Auto accident (or near miss)
  - Health Scare
  - Nightmare
  - Animal attack

- How did you feel?
  - Anxious?
  - Frightened?
  - Confused?
  - Aggressive?

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## Your Emotions Decide What is Worth Paying Attention to

- How did you respond?
  - Cry?
  - Shut down?
  - Run away?
  - Scream?
- In that moment were you 'ready to learn'?

Consider that a child with ASD may experience such extreme responses multiple times each day and that they may occur as a result of everyday events.

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**ER – Emotional Regulation**

Difficulty predicting the actions of others impacts the ability to attend to the most relevant information, process that information, and problem solve within social settings.
Heightened anxiety and social withdrawal often results.

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## Summary

- Social emotional development is unique in children with autism and early deficits may have a cascading effect on later social competence
- Social and emotional skills are critical for being successful in school and beyond.
- Learning best occurs in contexts supporting high levels of social emotional engagement.
- When selecting strategies for promoting classroom engagement consider:
  - Communication stage
  - Emotional regulation
  - The 'Three I's

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## Questions?

LINDEE.MORGAN@EMORY.EDU
MICHAEL.SILLER@EMORY.EDU