



Early Social Behavior and Features of Social-Communication in Autistic Toddlers

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Objectives

Review the definition and features of social behavior



Examine how we acquire early social behaviors



Evaluate social behaviors in toddlers, with and without autism



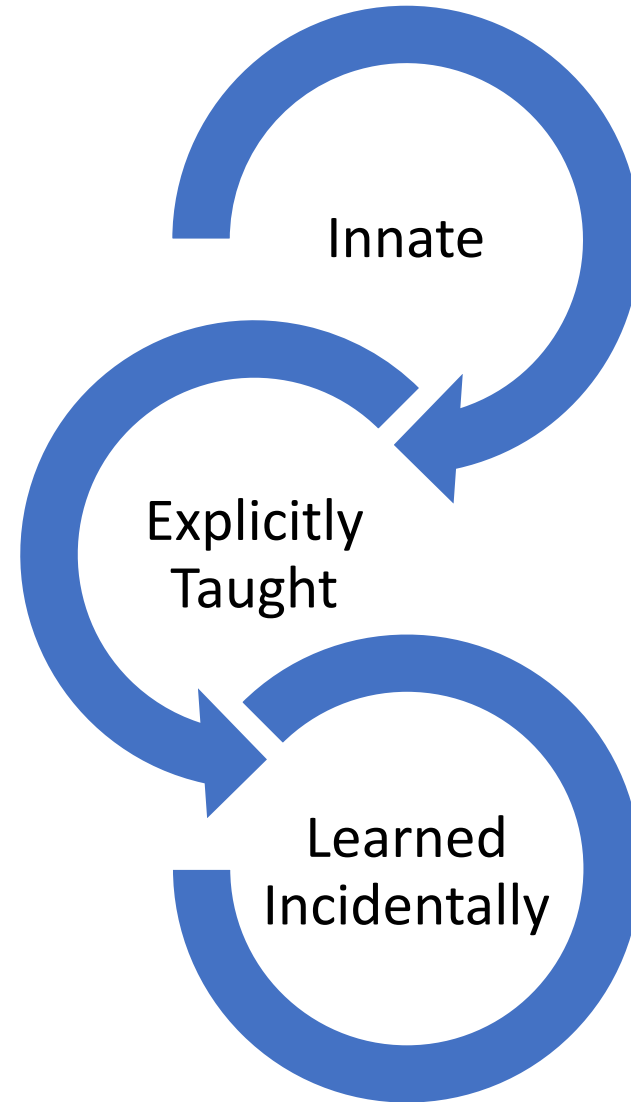
Analyze the difficulties and strategies on how we measure social behavior

What is Social Behavior?

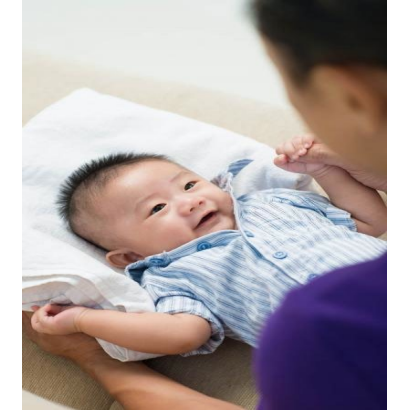
Adherence to culturally-defined expectations (or rules)
for guiding behavior within interpersonal contexts or interactions

- Similarities across cultures in the types of social rules and behavioral expectations (e.g., be considerate, play fairly, show respect to elders)
- Differences across cultural and ethnic groups in the specific behaviors that fulfill these expectations
- Person-situation interaction: how characteristics of the person and characteristics of the social situation interact to determine behavior

How is Social Behavior Acquired?



- Infant social smiling; early imitation of sounds or movements (neural underpinnings)



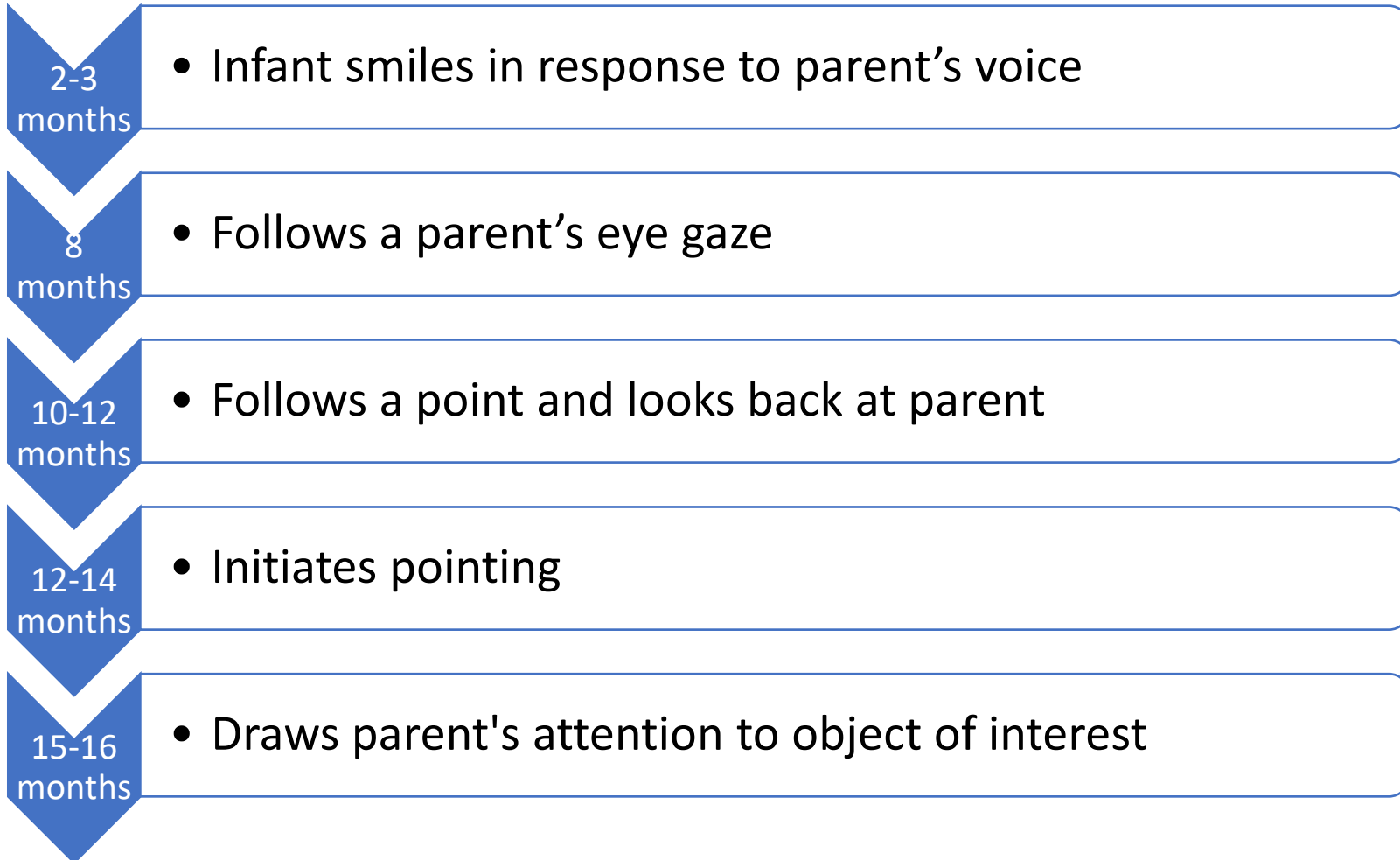
- Saying 'please,' taking turns, sharing toys with siblings



- Everyday experiences and interactions with others (e.g., siblings, peers)

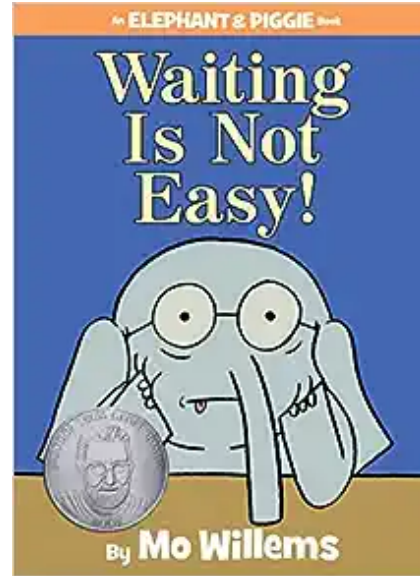


Innate Social Behavior



Explicitly Taught

- Salutations
- Manners
- Waiting
- Following Directions
- Listening



Guidelines for **MANNERS** TO TEACH KIDS



IN GENERAL		WITH ADULTS	WITH FRIENDS
Say hello & good-bye	Be on time	Look people in the eye	Wait your turn
Say please & thank you	Know how to make a phone call	Use respect when talking to adults	Don't make fun of anyone
Hold the door open for people	Sit properly	Don't interrupt	Give compliments
If you bump into someone say sorry	Be appreciative	Say "excuse me" to get attention	Use kind words
Cover your mouth when you sneeze	Clean up after you make a mess	No foul language	

AT THE DINNER TABLE	
Wash your hands before food	Wipe your mouth with your napkin
Place your napkin on your lap	Lean over your plate
Chew with your mouth closed	Use the right utensils
Don't talk with your mouth full	Learn to set the table appropriately
Don't slurp	Say please & thank you

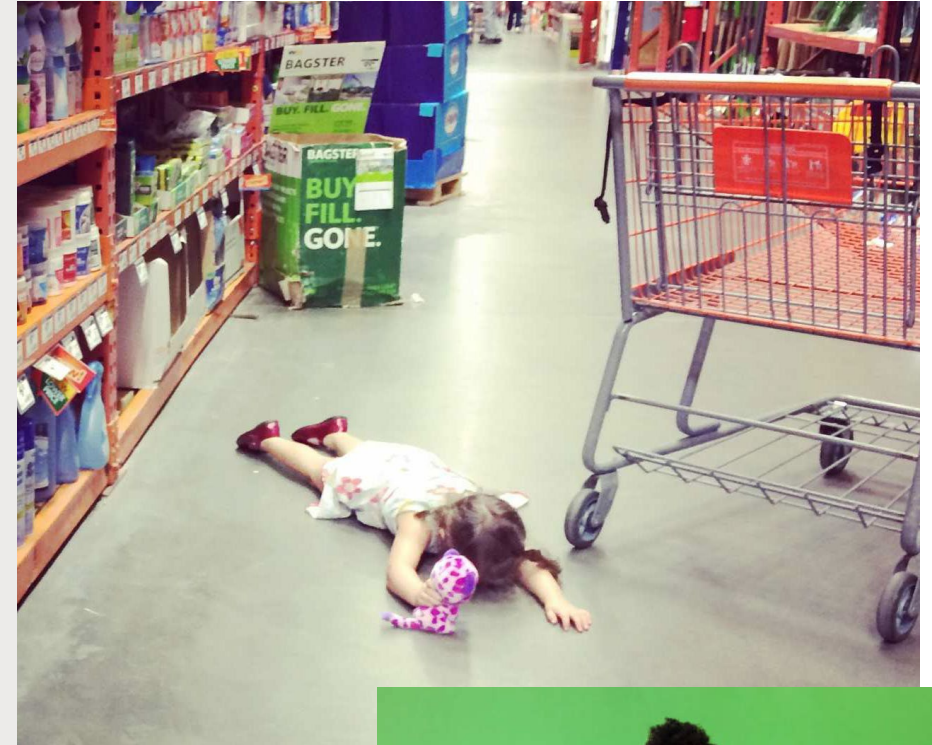
Please and thank you are still magic words.

'Incidental' Social Learning

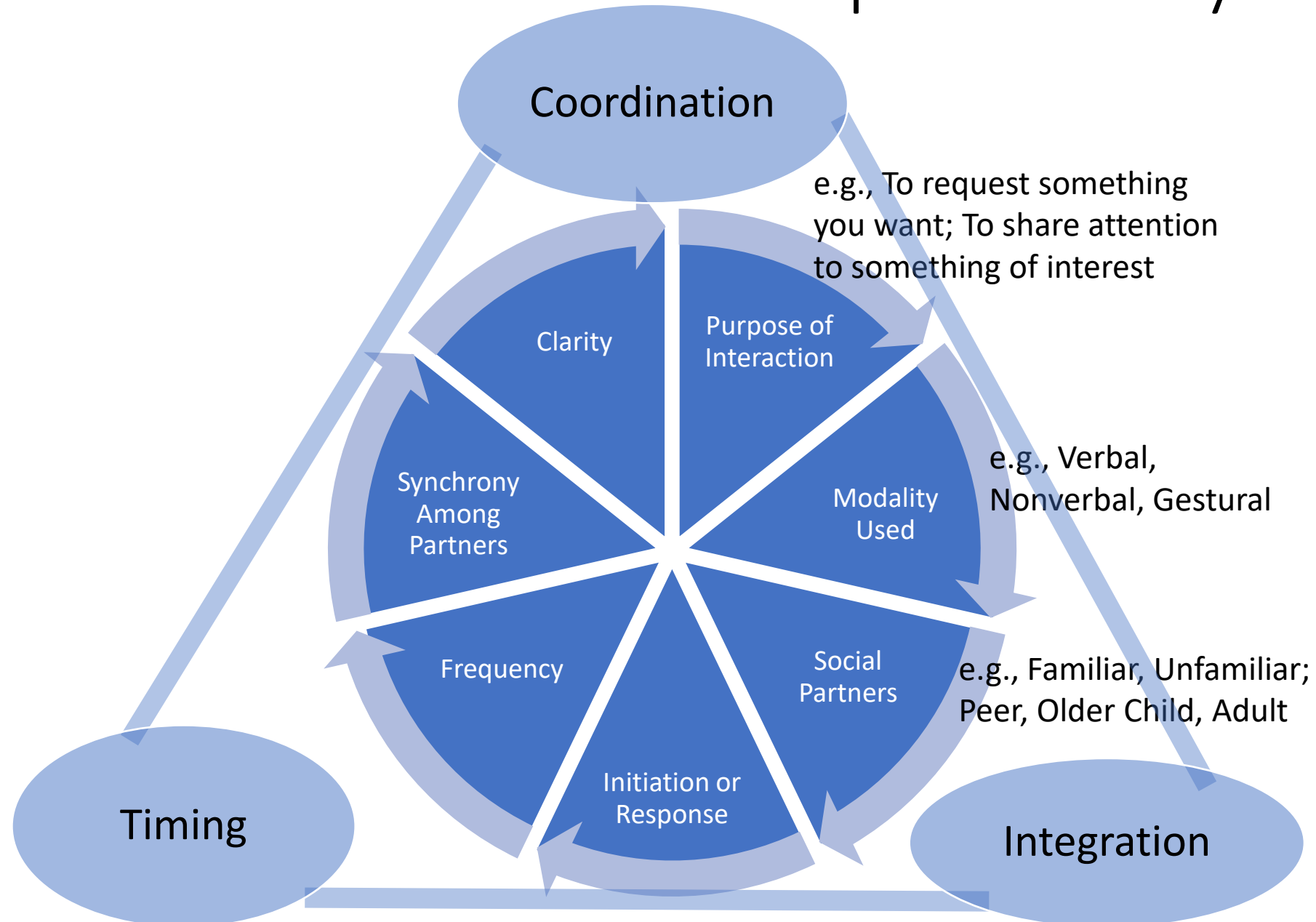
- **Learning within the context of everyday social interactions**
 - Experiential, organic
 - Watching and imitating the behaviors of peers
 - Observing the consequences of positive/negative behaviors
- **Learning the meaning and use of nonverbal social cues, such as:**
 - Facial expressions (e.g., rolling eyes)
 - Tone of voice (e.g., anger; sarcasm)
 - Gestures and body language (e.g., shrugging one's shoulders)

and also...

- **Decoding the different ways these cues are expressed across interactive partners**
- **Understanding how to adapt one's own behavior based on this knowledge**



Social interactions are complex ... Why?



Purpose of Interaction

- 1) The child **responding to** another person's bid for joint attention



Purpose of Interaction

2) The child **initiating** joint attention – this is more important because it shows that the child is socially motivated

- ✧ Pointing to request (12 m)
- ✧ Pointing to show (14-16m)



*Responding is easier than initiating

Social-Emotional/Communication Milestones

Age	Social Emotional	Communication
4 months	Smiles, looks, and makes sounds to get attention	<u>Cooing, Orients to sound of parent voice</u>
6 months	Laughs	<u>Reciprocal vocalizations</u> , Blows “raspberries”
9 months	<u>Shows several facial expressions, looks when you call name, smiles and laughs with peek-a-boo</u>	<u>Babbling, reciprocal</u> gestures (waving, showing)
12 months	Plays games, pat-a-cake	Waves “bye-bye”, calls a parent “mama” or “dada”, understands “no”
15 months	<u>Shows object</u> , claps when excited, hugs doll, shows affection,	Tries to say 1-2 words, looks at object when parent names it, follows 1-step direction with gesture, <u>points to request</u>
18 months	<u>Checks in with parent, points to show</u> , looks at book with parent	Tries to say >3 words, follows 1-step direction without gesture, Gestural combination
24 months	Notices when others cry, looks at parent for their reaction	Points to things in a books, 2-word <u>meaningful</u> phrases, points to 2 body parts, <u>uses gestures</u> ,
30 months	Shows you what she can do by saying <u>“Look at me!”</u> , Follows simple routines	Says about 50 words, names things in books, says I, me, we
36 months	Plays with other children	Asks questions, says first name, uses action words

Challenges in the Measurement of Social Behavior

Developmental milestones for social behavior are much more nuanced and subjective than those for other areas

CDC Developmental Milestones

Child Age	Motor Milestones	Social Milestones
12 months	Pulls up to stand	Plays games with you (e.g., pattycake)
15 months	Starts walking	Shows you an object they like
18 months	Walks independently	Points to objects of interest
24 months	Runs	Looks at your face to see how you react in a new situation

More concrete:
Yes/No

More Qualitative/Subjective:
How often? How consistently? In which contexts? With whom? With eye contact? With positive affect?

Evidence-Informed Milestones for Developmental Surveillance Tools

Learn the Signs. Act Early.

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They are not...

- Validated screening tools
- Standards or CDC guidelines
- Used to diagnose delays

They are...

- Evidence-informed
- Communication tools/checklists for developmental monitoring
- Helpful with surveillance
- Intended to prompt conversations, review developmental history and progress, and elicit concerns

Why Revise?

- Used 15 years of feedback
 - Where are 15- and 30- month checklists?
 - Vague language “may” and “begins”
 - How many milestones can be missing without being concerned?
 - Are only the “warning signs” important?
 - Are these milestones “most” children do by this age?
 - Gaps in developmental data were identified for social-emotional and cognitive milestones.

Autism Overview

- A neurodevelopmental condition characterized by two primary features:
 - Challenges in social communication and social interaction
 - Specialized, focused, or intense interests
- Presents early in life
 - Expressed differently from child to child and across time

Optimal Outcomes

- Early identification and access to appropriately specialized services/supports are important for optimizing learning and development

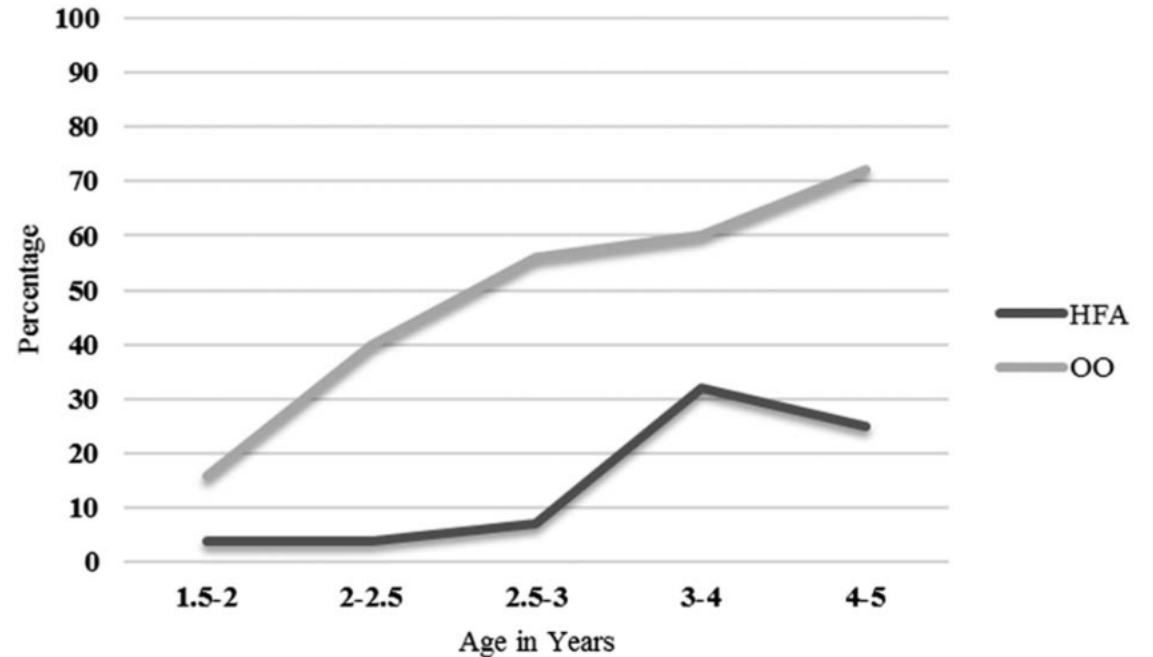


Figure 1. Percent of participants receiving ABA therapy, by age.

Persistence of Autism Spectrum Disorder From Early Childhood Through School Age

Table 2. Baseline and Outcome Functional Assessment Measures for Total Sample and by ASD Status

Standard scores	Diagnostic group, mean (SD) score			Statistical analysis ^a	Effect size, Cohen <i>d</i>
	All (n = 213)	Nonpersistent ASD (n = 79)	Persistent ASD (n = 134)		
Baseline clinical measures at 12-36 mo of age					
Cognitive ^b	81.67 (14.03)	85.99 (11.39)	79.11 (14.84)	t = 3.785	0.50
Bayley-III Language ^c	65.49 (16.02)	70.91 (16.47)	62.25 (14.90)	t = 3.533	0.56
Vineland Adaptive Behavior Scales composite ^d	73.52 (10.20)	77.81 (9.77)	71.04 (9.64)	t = 4.587	0.70
Research-administered outcome measures at 5-7 y of age					
Cognitive ^e	89.83 (26.42)	105.22 (12.73)	80.76 (28.18)	t = 8.657	1.12
Score <70	46	0	46	χ ² = 34.589	0.88
Score >70	167	79	88		
Vineland Adaptive Behavior Scales					
Composite	82.39 (18.34)	94.68 (12.08)	75.14 (17.55)	t = 9.597	1.24
Communication	82.27 (22.46)	95.39 (12.55)	74.53 (23.43)	t = 8.454	1.03
Daily living skills	82.78 (15.85)	92.73 (12.50)	76.92 (14.68)	t = 8.015	1.14
Socialization	85.52 (20.85)	99.66 (10.40)	77.18 (20.98)	t = 10.418	1.26
Motor ^f	87.11 (12.23)	94.53 (8.84)	82.71 (11.84)	t = 8.270	1.09
PLS-5 standard scores					
Total language ^g	91.05 (24.35)	108.33 (12.20)	80.71 (23.97)	t = 11.059	1.36
Auditory comprehension ^h	89.60 (22.40)	105.09 (11.26)	80.33 (22.31)	t = 10.678	1.31
Expressive communication	91.55 (25.12)	108.80 (12.37)	81.23 (25.18)	t = 10.617	1.29

Increased odds of being in the nonpersistent ASD group at 6 years of age were higher baseline adaptive skills and female sex.

Features of Social-Communication in Autistic Toddlers

- **Delays in the development and use of spoken language**
 - Using conventional words to convey their needs, interests, desires, or dislikes
 - Understanding the language used by others (e.g., verbal directions, questions, explanations “why”)
- **Delays in the development and use of nonverbal forms of communication**
 - Using conventional gestures to communicate (e.g., pointing, nodding head)
 - Understanding the gestures and social-emotional cues used by others (e.g., tone of voice, facial expressions, body language)
- **Differences in the reasons for communicating**
 - To obtain something they want or need (i.e., requesting)
 - To indicate dislike/no (i.e., protesting/rejecting)
 - To greet (i.e., salutations)

vs.

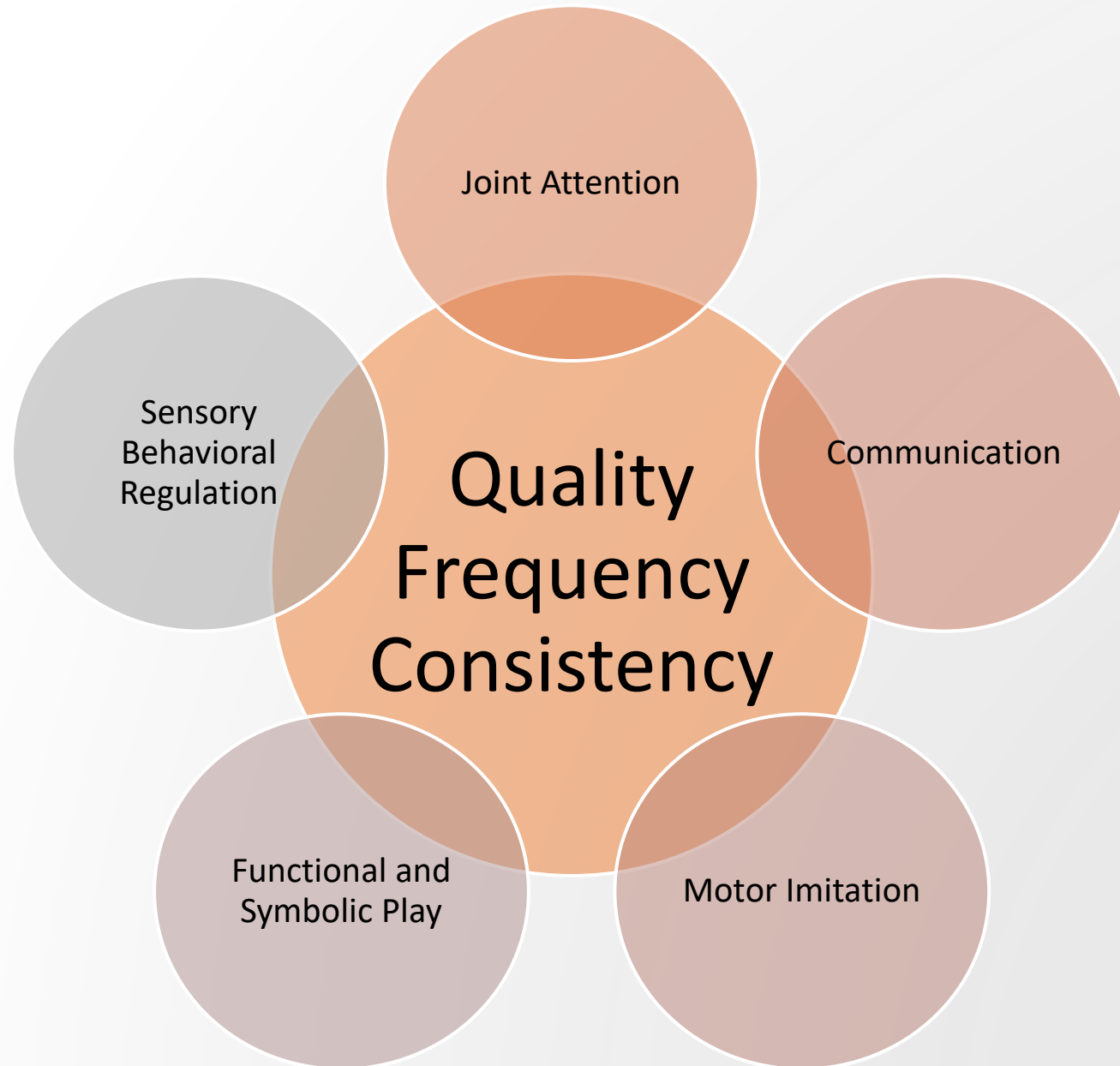
 - To share their interest or enjoyment with another person (i.e., Joint Attention)
 - To comment
 - To ask for information

Social behavior is not an all-or-nothing skill

- Social behaviors are not completely absent in toddlers in autism
- Considerable variability in their levels of social interest and engagement
- Autistic toddlers do demonstrate social behaviors (e.g., attachment, affection, eye contact, imitation)

BUT...

- These behaviors may be used less consistently across people and settings (e.g., more situation-specific or routinized)
- Caregivers may have to work harder to elicit them
- There may be qualitative differences in the timing, flexibility, clarity, and coordination or **integration of behaviors within interactions**



Why is Joint Attention Important?



LEARNING



COMMUNICATION



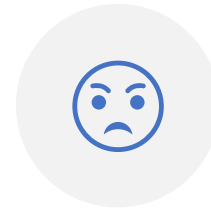
POSITIVE
LANGUAGE
DEVELOPMENT



BETTER
OUTCOMES IN
COGNITION,
LANGUAGE, AND
SYMBOLIC PLAY



SAFETY



LESS TANTRUMS

How do we measure social attention in toddlers?

- Informal/Practical Strategies
 - Observing videos of child in everyday activities
 - Setting up situations or “presses” to elicit social communication
 - **Asking caregivers (the right types of) questions!!!!**
- Formal diagnostic measures
 - ADI-R (caregiver interview)
 - Screening Tools (questionnaires)
 - Diagnostic Tools (standardized assessments)

Caregiver Interview Strategies: Requesting Behavior

Do/Does...	How/What
Does your child let you know they want something?	How does your child usually let you know that they want something, like food or a toy?
Does your child request objects?	What kinds of objects or activities do they request?
Do they request something in a different room? Do they let you know when they wake up in the morning?	How do they request something that is in a different room? How do they let you know they are awake?
Do they request things out of reach?	How do they request things that are out of reach?
Do they let you know they want more of something?	How do they let you know when they want more of something? (e.g., snack, play activity)
Do they let you know when they need help?	How do they let you know when they need help?
Does your child request from other people?	Other than yourself, who else will your child make requests to?



Caregiver Interview Strategies: Directing Attention Behavior

- How does your child try to get you look at something they're interested in? (not because they want it)
- What are some examples of this? (i.e., airplanes, moon)
- What types of behaviors do they use to direct your attention? (i.e., pointing, showing, eye gaze, smiling)
- When your child point to show you something, how often do they look back at you to see if you're looking at it too? (demo 3-point eye gaze)
- When you point to show your child something, how often do they follow your point to look at it? (demo point and shift in eye gaze)
- Other than yourself, who else will your child direct attention with?

Caregiver Interview Strategies: Play

What does your child like to play with?

How does he play with them? What does he do?

How does your child play pretend or make believe with his toys?

How does your child invite you to play with them?

How does your child imitate your play actions?

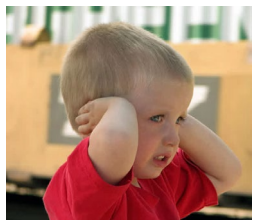




Strong Interests
B3

Verbal Language
A1/A2/B1

Social Interaction
A3



Sensory Processing
B4

Gestures
A2



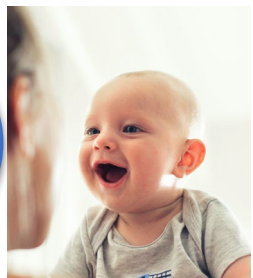
Shared Pretend Peers
A3

Behavior Regulation
B2



Imitation
A1

Facial Expressions
A2

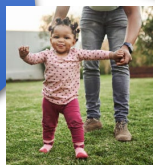


Fine Motor
B1

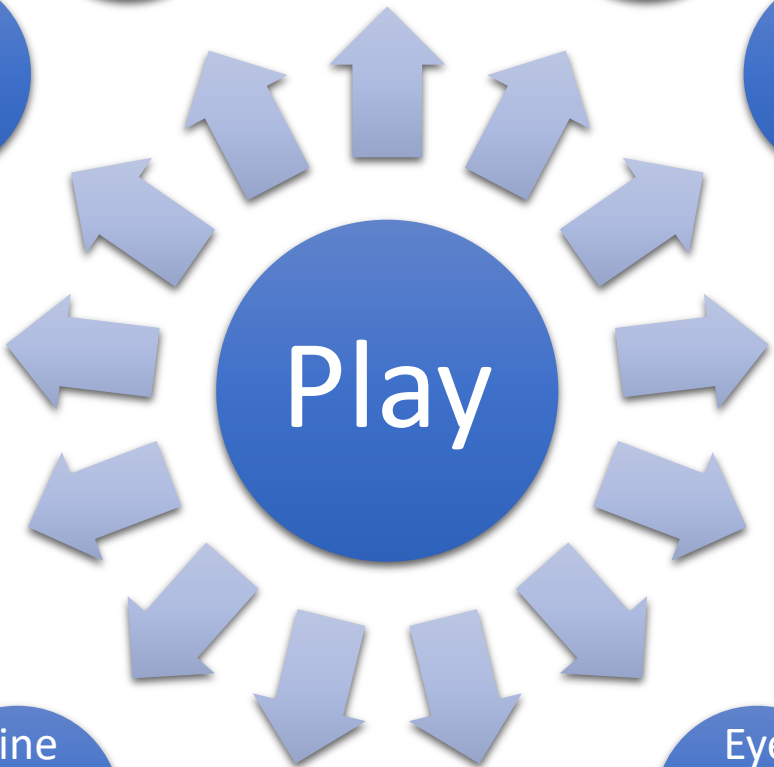
Giving Showing Sharing
A1

Gross Motor
B1

Eye gaze
A2



Play





New Autism Diagnostic Interview-Revised Algorithms for Toddlers and Young Preschoolers from 12 to 47 Months of Age

So Hyun Kim · Catherine Lord

- Social Affect/Communication
 - Attention to Voice
 - Direct Gaze
 - Seeking to Share Enjoyment
 - Range of Facial Expressions
 - Appropriateness of Social Response
 - Interest in Children
 - Response to Approaches of Children
- RRBs
 - Repetitive Use of Objects
 - Hand/Finger Mannerisms
 - Other Complex Mannerisms
 - Unusual Sensory Interests
- Imitation, Gestures & Play
 - Pointing to Express Interest
 - Showing and Directing Attention

Table 2 Algorithm mapping for groups defined by chronological age and expressive language level

12-20/NV21-47	Factor Loadings		SW21-47	Factor loadings		PH21-47	Factor loadings	
	EFA	CFA		EFA	CFA		EFA	CFA
Social affect			Social affect			Social communication		
C. Attention to Voice*	0.69	0.79	C. Attention to Voice*	0.75	0.74	C. Attention to Voice*	0.71	0.81
C. Direct Gaze*	0.76	0.77	C. Direct Gaze*	0.85	0.76	C. Direct Gaze*	0.79	0.74
C. Social Smiling†	0.95	0.84	C. Social Smiling†	0.87	0.75	C. Nodding to mean yes	0.58	0.6
C. Seeking to Share Enjoyment*	0.47	0.85	C. Seeking to Share Enjoyment*	0.78	0.71	C. Seeking to Share Enjoyment*	0.82	0.71
C. Range of Facial Expression*	0.56	0.69	C. Range of Facial Expression*	0.63	0.72	C. Range of Facial Expression*	0.51	0.59
C. Inappropriate Facial Expression†	0.58	0.64	C. Inappropriate Facial Expression†	0.41	0.64	C. Offers Comfort	0.43	0.61
C. Appropriateness of Social Response*	0.87	0.84	C. Appropriateness of Social Response*	0.68	0.69	C. Pointing to Express Interest*	0.59	0.71
C. Interest in Children*	0.91	0.81	C. Interest in Children**	–	0.76	C. Showing and Directing attention*	0.77	0.76
C. Response to Approaches of Children*	0.93	0.77	C. Response to Approaches of Children**	–	0.81	C. Quality of Social Overtures†	0.80	0.76
			C. Quality of Social Overtures†	0.71	0.72	C. Social Chat	0.57	0.73
						C. Use of Other’s Body to Communicate	0.32	0.3
Repetitive & Restricted Behaviors			Repetitive & Restricted Behaviors			Repetitive & Restricted Behaviors		
E. Repetitive Use of Objects*	0.55	0.8	E. Repetitive Use of Objects*	0.53	0.76	C. Stereotyped Language*	0.5	0.84
E. Hand and Finger Mannerisms *	0.46	0.67	E. Hand and Finger Mannerisms *	0.67	0.53	E. Hand and Finger Mannerisms *	0.6	0.47
E. Other Complex Mannerisms*	0.55	0.74	E. Other Complex Mannerisms*	0.64	0.63	E. Other Complex Mannerisms*	0.41	0.61
E. Unusual Sensory Interests*	0.65	0.72	E. Unusual Sensory Interests*	0.34	0.65	E. Unusual Sensory Interests*	0.53	0.71
			E. Unusual Preoccupations†	0.25	0.38	E. Unusual Preoccupations†	0.43	0.62
			E. Compulsions/Rituals†	0.44	0.44	E. Compulsions/Rituals†	0.49	0.64
Imitation, Gestures & Play			Imitation, Gestures & Play			Reciprocal and Peer Interaction		
C. Pointing to Express Interest*	0.72	0.86	C. Pointing to Express Interest*	0.59	0.71	C. Appropriateness of Social Response*	0.5	0.89
C. Conventional/Instrumental Gestures†	0.68	0.88	C. Conventional/Instrumental Gestures†	0.69	0.79	C. Interest in Children*	0.86	0.84
C. Spontaneous Imitation of Actions†	0.77	0.83	C. Spontaneous Imitation of Actions†	0.84	0.78	C. Response to Approaches of Children*	0.73	0.8
C. Offering to Share†	0.71	0.83	C. Offering to Share†	0.5	0.62			
C. Imaginative Play†	0.82	0.69	C. Imaginative Play†	0.58	0.58			
C. Showing and Directing Attention*	0.63	0.89						
	EFA	CFA		EFA	CFA		EFA	CFA
	CFI			CFI			CFI	
	0.991	0.952		0.988	0.943		0.988	0.96
	RMSEA			RMSEA			RMSEA	
	0.064	0.069		0.047	0.062		0.054	0.053

Typical children have a strong motivation to communicate when they can!

- At 13-14 months babies make it clear they do not “want” something or do not want “to do” something

Eye Contact + Gesture + Word = Refusal

Using Behavioral 'Presses' to Elicit and Observe Social Communication

Presses	Child Behaviors to Look For
Child-led play without interacting, sit back and watch	Do they initiate social interaction?
Call the child's name (when they're not looking at you)	Orient body/eye contact/social attention?
Call the child's name, point to an object in the room, and say "Look at the _____!"	Following a point/looking at the object; looking back at you (3-point gaze)?
Try to join in the child's play activity or take turns with them	Social attention; turn-taking?
Demonstrate a new way to play with a toy	Imitation?
Play a back-and forth game (e.g., rolling a ball/car) and then stop and hold the ball instead of rolling it	Eye contact; reaching to request continuation?
Snack food or toy in a container out of the child's reach, encourage them to choose, then give them the chosen one	Reaching or pointing to request; eye contact?
Play peek-a-boo, tickle game	Eye contact; change in affect; share enjoyment; imitation?

It takes time...

- Pattern Recognition Software



Characteristic Variability

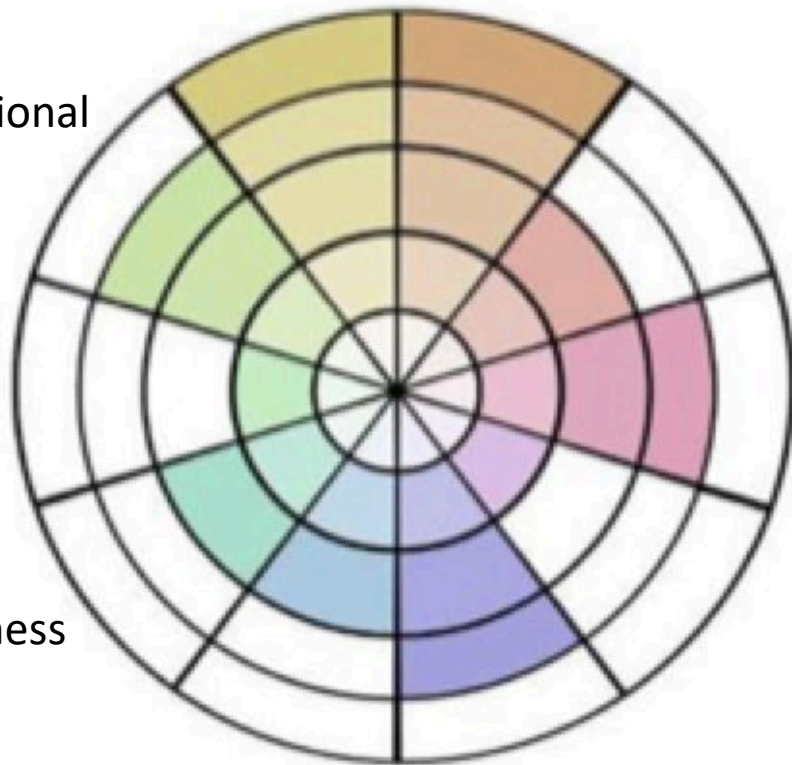
Social Motivation

Social emotional reciprocity

Nonverbal Communication

Social Awareness

Initiation and maintenance of social relationships



Child 1

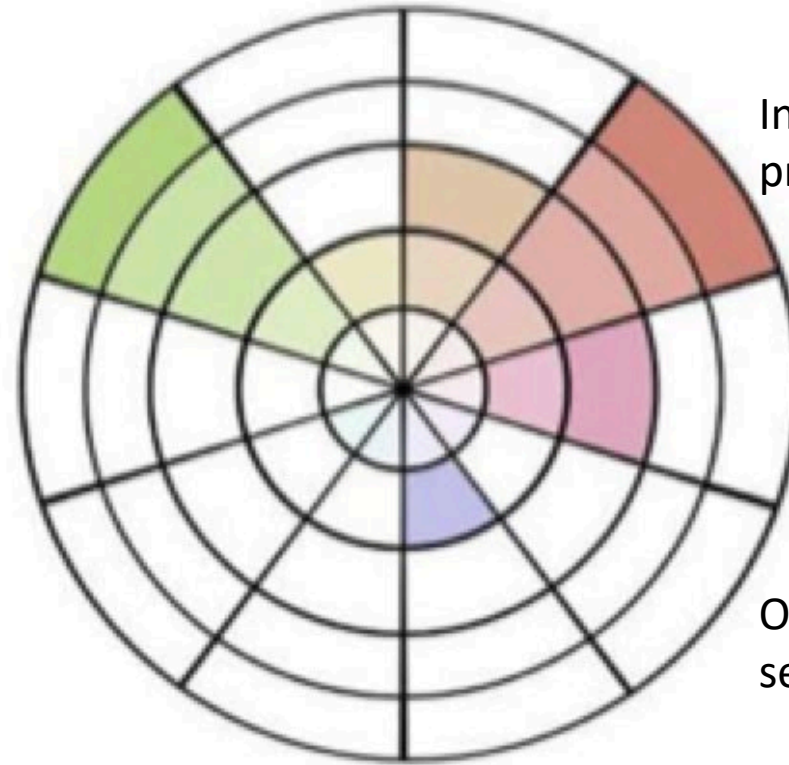
Repetitive movements, speech, or play

Insistence on sameness, preference for routines

Enthusiasms, strong areas of interest

Over-responsive to sensory stimuli

Under-responsive to sensory stimuli



Child 2

Thank you!



Session Resources

- Session resources coming soon!



Check back after the session for resources that were referenced in the presentation or session chat and patient case recommendations.