




Origins of Language: Developmental Assessment to Intervention for Children with Autism Spectrum Disorder

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Developmental Language Intervention

- Developmental Language Intervention sees language as a process that occurs as the “whole” child interacts with their world in a dynamic way. Natural learning environments are encouraged and skills are not taught in isolation.

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Language Development

- When we begin to look at language development, we must see it as a dynamic process that is impacted and effected by other areas of growth and development.
- In other words, language doesn't develop in a vacuum.

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DEVELOPMENTAL

- Language Intervention should be based on the developmental sequence followed by typically developing children.
- Assessment and Intervention must take into consideration each child's developmental capacities and the strengths and weaknesses within each developmental level.

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Traditional or Behavioral intervention plans

- Focus mostly on Form – words and sentence structure. Words alone, without the meaning they express, are empty.
- Intervention goals are not based on what is known about typical language development.
- Production of language is often prompted with extrinsic rewards, rather than promoting natural consequences of communication.

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Why a developmental model based on typical language acquisition?

- Typical language learners follow a certain progression because it is most **EFFICIENT**.
- Typical language learners communicate using certain meaningful word combinations because they are both cognitively and linguistically easier.
- When we ask a child with a language disorder to produce forms out of sequence, we are asking them to do something harder than a child typically developing.

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Individual Differences

- As Speech and language pathologists, we must understand that just as each child's sensory profile is unique, so is their language profile. This knowledge will determine how to intervene in order to support further development.**

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Individual Differences in Language

- Some children have challenges formulating language to express themselves.
- Some children have challenges understanding language.
- Some children have challenges using language in social settings.
- Some children have all of the above challenges.

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Relationship Based Approach

- Relationships are the foundation for any meaningful learning or growth.
- This includes language learning.

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Role of Relationships in Language Learning

The knowledge of the baby or child that the caregiver brings to the relationship, allows for better and more cohesive shared attention, shared meaning and reciprocity.

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Relationships in Language Learning

The attunement of the caregiver to the child, brings meaningful moments for language learning and overall communication.

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What is Language?

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Language

- Language is the way that we make ourselves known to others and how we come to understand ourselves (Sima Gerber).
- Language is the vehicle by which we make meaning in our world.

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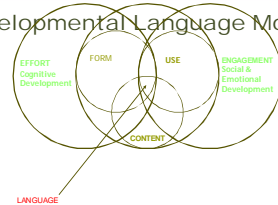
Language is the primary tool that humans use to go beyond attention to the exchange of meaning

- Sharing the meaning of experience appears to be a unique motivation of human cognition incorporating the intertwined motivations of MAKING SENSE and MAKING RELATIONSHIPS (Nelson, 2007)

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Developmental Language Model



THE INTENTIONALITY MODEL BLOOM & TINKER, 2001
Gerber, 2007



Components of Language

- Precursors to Language
- Pragmatics
- Comprehension
- Production

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Shared Attention and Co-regulation

- 6 week old
- 9 week old



Engagement and Relating

- 4 month old
- 5 month old



Two Way Purposeful Communication

- 9 month old
- 10 month old



Shared Social Problem Solving

- 14 month old



Creating Ideas

- 21 month old - typically developing



Building Bridges Between Ideas

- 36 month old - typically developing



Precursors to Language - Often a focus of Levels 1-3

- Shared Attention
- Affective Engagement
- Reciprocity
- Shared Meaning



Shared Attention

DMIC 2005 (Cawn, Gerber, Harrison, Lewis, Weatherby)
Refers to baby's ability to maintain a calm regulated state and, as the child develops, to use eye gaze, gestures and sound to coordinate attention, follow the caregiver's focus of attention, shift gaze between people and objects, and coordinate attention for long periods of time.



Affective Engagement DMIC 2005

Refers to the baby's ability to regulate his internal state in order to maintain interaction, and as the child develops, to engage in back and forth affective exchanges that become increasingly complex.



Reciprocity DMIC 2005

Refers to the baby's ability to participate in basic interactions with caregiver when regulated, and as the child develops, to participate in increasingly complex affective exchanges where there is a rhythm and flow to each interaction.



Shared Meaning

- Meaning...is whatever is perceived as relevant to the individual on the basis of needs, interests, present context, or prior history...that which has meaning---significance---for the individual.....
- Two people can share an experience but not a meaning. (Nelson, 2007)



Traditional Language Intervention Strategies for children at early levels.

- Direct the child's attention to adult-determined activities, actions, and behaviors
- Provide opportunities to 'take turns,' by indicating 'I go' and then 'you go'
- Ignore the child's actions and behaviors if they are unconventional



Traditional Language Intervention Strategies for Children at early levels

- Move the child through interactions with toys, such as demonstrating and encouraging the child to play with toys appropriately.
- Expect the child to communicate with gestures and words to obtain desired objects.
- Encourage the child to request items he wants.



Developmental Language Intervention Strategies

For shared attention, affective engagement, reciprocity, and intentionality:

- Interpret **all** of the child's behaviors as intentional
- Maintain a reciprocal flow by consistently taking your turn in the interaction - keep going!



Developmental Language Intervention Strategies

- Maintain the child-directed focus by treating all behaviors as communicative
- Treat unconventional behaviors as intentional.



How to promote precursors to language development?

- Coming as close to the child's interests while sharing the experience with them supports shared attention and referencing.
- Use affect and gestures to support your own communication.



- Respond to and imitate sounds that the child makes to support them becoming a "social sounder." (McDonald, James)
- Be responsive to the child in order to facilitate empowered communication. Don't play "too dumb."
- "Honor free will by treating the intentionality of the child sacred!" (Gil Foley, PhD, psychologist)



Examples of Developmental Intervention:

- Graham
- Adam
- Ryan



Shared Attention Graham - 5 years

- Notice the lengthy exchanges that Graham is able to share while maintaining shared attention, engagement and reciprocity.
- The clinician's natural responses within the interactive relationship give meaning to Graham's experience and provide the internal drive necessary for Graham to continue and expand the interaction.



Affective Engagement Adam - 2 years old

- Using the interaction and relationship of his primary caregiver to promote meaningful engagement.
- Use of native language of caregiver to promote match of affect and language.



Reciprocity Ryan – 3 years old

- Responding to Ryan's communicative attempts to promote his power as a communicator.
- Supporting the unfolding of his ideas without over questioning or prompting for further production.



Production

- Form
- Content



FORM

- Form – (1) the sounds, (2) combinations of syllables that contain meaning (-s, -ing, -ed), (3) the arrangement of words in which there is meaning.
- (Bloom and Lahey, 1978, 1988)



CONTENT

- Is the meaning expressed by a variety of categories of topics.
 - Actions (jump), Existence (this), Attribution (hot), Possession (mine), Temporal (before), Causal (because), Quantity (two), etc...
- (Bloom and Lahey, 1978, 1988)



Traditional Language Intervention Strategies for early production

- Respond to conventional linguistic form or give minimal response for non-linguistic communicative attempts
- Delay providing the child with desired intent unless production is clear or practiced several times.



Traditional Language Intervention Strategies for early production

- Play "too dumb", expecting child to have multiple attempts at communicating, when the child's intent is clear and communicated. Sending the message that communication is challenging and messages are not easily communicated.
- Focus on sounds versus meaning and intent.



Developmental Language Intervention Strategies for early production Developmental Levels 1-3

- Respond to all forms of communication: gestures, facial expressions, sound production, words
- Respond immediately when the intent of the child is clear, letting the child know that communication is easy and we've gotten the message.



Developmental Language Intervention Strategies for early production

- Treat all sounds as purposeful and respond to the meaning or intent behind the sounds
- Maintain a reciprocal flow by taking your turn in the interaction regardless of the "correctness" of the production



Early Production

- Jackson
- Anthony
- Ryan



Early Production – Jackson – 6 years old

- Child with history of traditional and behavioral therapy.
- Diagnosed with apraxia by all other Speech and Language pathologists. Heavy Focus on oral motor.
- Did not use any precursors or sounds to communicate.
- Lacked initiation and a demonstration of ideas.



Early Production – Anthony 2 years old

- Responding to all Communicative Attempts and not withholding if child doesn't say the word "right."
- Using Natural Context to Promote Learning of Language.
- Using Simple Words paired at the exact moment that the action is occurring.
- Choosing Developmentally appropriate targets.



Early Production – Ryan 2 years old

- Within meaningful relationship with his Dad Ryan plays a game of this little piggy and learns the meaning of "toe."
- He is able to share this excitedly with his parents.



Developing Production



Traditional Language Intervention Strategies for developing production

- Teach specific and isolated skills. For example – looking at cards of actions and teaching child to say "The boy is running."
- Teach language targets in unnatural contexts or environments.
- Respond to the words, rather than the meaning. Ask child to imitate the words if incorrect.



Developmental Language Intervention Strategies for developing production Developmental Level 4

- Model language while child experiences the action/experience at the moment it occurs.
- Model language targets that are developmentally appropriate while engaged in natural language learning moments.
- Respond to the meaning, rather than the words.



Developing Production

- Anthony
- Graham



Developing Production – Anthony 3 and 1/2

- Throwing and playing catch with ball.
- Emergence of words and ideas that are meaningful. Talking about what he is doing.
- Imitation of phrases with high affect.
- Supporting Anthony's ability to generate novel language by: engaging in meaningful activities, modeling the developmentally appropriate language that fits the actions/activity, providing adequate time to support his novel productions.



Developing Production – Graham – 5 years old

- Attempting to express his ideas.
- Therapist responds to meaning while modeling correct word and word order.



Pragmatics/Use Of Language

Pragmatics is knowing *when* to say *what* to *whom*



Pragmatics (Use of Language) Involves the following:

- It is WHY we speak and listen to one another.
- It helps us know WHAT to say to achieve our goals as speakers.
- It is the use of social interactions to help us begin, continue and end conversations.

(Lahey, 1988)



Shared Intentions DMIC 2005

- In the beginning, refers to the baby's ability to exhibit his readiness to engage and provide clues (through facial expressions) about his internal state, and as the child develops, to respond to others intentions and express his own intentions in an increasingly complex manner.



Traditional Language Intervention Strategies for Pragmatics

- Indicate the rules of conversation by explicitly presenting the child with a list of conventions
- During the interaction, remind the child to take his turn, look at his partner, respond to his partner, etc.
- Use structured games and activities as the contexts of intervention
- Reward the child each time he uses the desired behaviors
- Indicate to the child that we're not talking about that topic now.



Developmental Language Intervention Strategies for Pragmatics Developmental Levels 1-6

- Model typical conversation to promote typical conversation (discourse patterns)
- Create natural opportunities for promoting non-verbal pragmatic abilities such as body language, gestures, and facial expressions.
- Use a range of ways to communicate – commenting, questioning, protesting.
- Create 'turn-taking' opportunities through expectancy, waiting, and non-verbal communication.



Pragmatics

- Graham with balloon
- Casey at 5 years old
- Casey talking about Blackhawks



Graham

- Graham – 5 years old
- Play with balloon
- What are Graham's ideas about the balloon?
- What is he learning through play about balloons in this interaction?

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Pragmatics - Casey – 5 years

- Casey often communicates through questioning others.
- Supporting simple flow of typical discourse patterns without use of questions promotes interaction.
- Intonation patterns are more fluid during activities that promote the body.



Casey talking about the Blackhawks Later Pragmatic Intervention – Video

- Clinician and Casey work within the context of natural conversation.
- Clinician supports Casey's ability to review his opinions, compare his feelings, and determine similarities and differences between the way clinician and Casey think.
- Clinician models non-verbal pragmatic abilities such as body language, gesture, and facial expression.

Cervenka, Ricamato 2010



Language Comprehension

- The ability to interpret and make sense of spoken or written language. (Miller and Paul, 1995).
- The ability to understand words and sentences (derive meaning from combinations of words).
- The ability to use context when exposed to language beyond your linguistic level. (comprehension strategies)
Miller and Paul, 1995



When the World has Meaning...

- Jonathan - 8 months

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What is the Relationship between comprehension and production in typical and atypical development?

- In typical language acquisition, comprehension of language precedes production.
- In atypical language acquisition, comprehension does not always precede production.



Auditory Processing

- Auditory Processing Disorder (APD) is a complex disorder impacting about 5% of school aged children.
- Challenges with recognizing subtle differences between sounds in words, even when sounds are clear enough to be heard.



Auditory Processing

- Difficulty understanding the speech signal presented under less than optimal conditions – such as with background noise.
- Can often hear sounds in quiet environments.



Assessment of CAPD (Central Auditory Processing Disorders)

- Audiologists are the ones trained to determine if a child has CAPD.
- They are the only ones that can perform testing to determine if there really is an auditory processing disorder.
- Child must have skills adequate to test (7-8 years of age generally)



Children with Autism and Related Disorders

- While the children we treat may have challenges with CAPD, this is a challenge that is significantly outweighed by comprehension challenges and making meaning in the world.



Comprehension

- Language is the way that we make ourselves known to others and how we come to understand ourselves (Sima Gerber).
- Language is the vehicle by which we make meaning in our world.
- Comprehension is a critical bridge in making meaning in our world.

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Where Does the Ability to Comprehend Language Come From?

- Shared attention
- Shared Meaning
- Shared Intentionality

Gerber, Ricamato 2009



Shared Attention

- ...two people are directing their attention to the same aspects of the event....
-ensures that some aspect of the event is experienced by both participants.
- Sharing attention is a first step toward minimizing the difference between experiences (Nelson, 2007, p. 9)

Gerber, Ricamato 2009



Shared Attention in Early Comprehension of Words

- The child will develop meaning for certain words based on what has been observed in the interaction with the communicative partner.
- Without shared attention, observation and meaning will not be made. (Tomasello, 2003)

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Shared Meaning

- Meaning...is whatever is perceived as relevant to the individual on the basis of needs, interests, present context, or prior history...that which has meaning--significance--for the individual.....
- Two people can share an experience but not a meaning
- The enlargement of the boundaries of experience and meaning is at the heart of cognitive development and it begins in the first year (Nelson, 2007)

Gerber, Ricamato, 2009



Language is the primary tool that humans use to go beyond attention to the exchange of meaning

- Sharing the meaning of experience appears to be a unique motivation of human cognition incorporating the intertwined motivations of MAKING SENSE and MAKING RELATIONSHIPS (Nelson, 2007)

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More Traditional Comprehension Intervention Strategies

- Determine targets for comprehension based on age norms - focus on Wh-questions, locatives, pronouns, etc.
- Present comprehension work within 'therapy' contexts rather than 'natural' play contexts



More Traditional Language Intervention Strategies

- Minimize the non-linguistic support for comprehension (taking away use of gestures, facial cues/expressions)
- Present contrastive directions to the child - 'put it in the box' 'take it out of the box' - within the same context



Developmental Language Strategies for Comprehension Developmental Levels 1-6

- Reduce the complexity of your language input: maintain the 'grammar' of the language, the melody, and the interactive flow of communication.
- Target particular words and phrases for comprehension work based on developmental information
- Embed comprehension work in contexts that are familiar to the child and affectively strong (meaningful).



Developmental Language Strategies for Comprehension Developmental Levels 1-6

- Pair language with the child's actions - timing and contextual support (where these phrases naturally occur) are critical at early stages
- Use **gestures, facial expressions, affect, and visuals to augment** the linguistic input.
- Follow the **contents of the child's mind** as you use language. Talk about what the child is doing.
- Present targeted language in many familiar contexts to promote learning.



Typical Development

- Tyler - 13 months
- Trying to determine meaning of "hide on the stairs."
- What Strategies does he use to interpret the information?
- How do we know he doesn't understand?

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Typical Development

- Tyler – 3 years
- Learning the meaning of “high” and “low.” Trying it out within his own understanding – what’s meaningful for him.

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I Don't Understand....But I'm trying really hard!!!

- Video of Casey – 2 years, 8 months
- Mom is working in a traditional way as dictated by her traditional therapists.
- Many questions being asked.

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Drake

- 4 years old – with Michele
- Reduced language.
- Meaningful activity.
- Contingency a priority.
- Learning and language are based on what Drake is experiencing.

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Comprehension – Joshua (3 years of age)

- **Difficulty making meaning**
- **Does not understand multiple choice without visual supports.**
- **Lack of match between what Joshua is thinking about and what the clinician is talking about.**



Question/Response for Josh interaction

Question – Do you want a plate or a bowl?
 J – plate
 Q – What else do we need?
 J – a plate
 Q – What else? Do we need anything else?
 J – open



Question/Response for Josh interaction

Q – Should I get a spoon or a knife?
 J – open
 Q – Is it really, really sticky?
 J – No verbal response
 Q – Josh, would you like a spoon or a knife?
 J – okay



Question/Response for Josh interaction

Q – Which one?
 J – eh, ow, ow, ow
 Q – Do you want a spoon?
 J – ow, ow, ow
 Q – Do you want a spoon (while showing spoon)?
 J – okay



Question/Response for Josh interaction

Q – Is baby happy or sad?
 J – sad
 Q – Is he smiling?
 J – hide
 Q – Is Miss Carrie happy or sad?
 J – hide eyes



Comprehension – Casey – 4 years old

- Using real experience to support comprehension.
- Using reenactment with his body to develop more robust comprehension.
- Using visual supports to support comprehension.
- Reframing to support comprehension.



Casey and Linda

- Casey - 5 years
- Discovering all about Santa.
- Has never celebrated Christmas until this past year.
- Through play and conversation, is able to make meaning around this new concept.

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Later Production - Conversation

Consistent with Developmental Levels 5-6



How to promote later discourse?

- The early reading of stories that support a sequence (beginning, middle and end) for each stage of development are wonderful models for how to tell someone something.
- Planning and sequencing events to occur within play (using written words and visuals/objects).
- Teaching concepts through experience and meaningful exchanges.



Promoting later discourse

- Help the child to become aware of another's knowledge (use of books, natural interactions) in order to provide more specific information.
- Help the child when they get "stuck" in the interaction to learn to repair by making changes in their communication when necessary.
- Let play and affect continue to be a form of expression for the child.
- Use of experiential projects - crafts and cooking.



Promoting later discourse

- Help the child to maintain a topic by lively back and forth discussions around interests of the communicators. Model typical discourse.
- Use questions that expand the dialogue versus questions to obtain facts or knowledge. Questions should be posed at the "just right moment", not constantly throughout the dialogue.



Later Production - Discourse

- Graham
- Kevin
- Mason



Graham

- Graham - 6 years old
- Using language to mediate the idea of what "bad" or "mean" characters do.
- The Evil Queen from snow White is "mean" because.....
- Graham uses his language to express his growing and ever complex ideas.

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Kevin

- Kevin - 4.6 years old
- Using language to explain to the clinician how to get the key from the top of the cabinet.
- Demonstrates thinking and range of ideas and has ability to put those ideas into formulated utterances.

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Mason

- Mason - 6 years old
- Using language express ideas, plan his play and execute his ideas.

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Parents are the Best Language Teachers

“What you give to me, I can give to others.”

“Your love prepares me for the journey.”

“Nobody knows me better than you.”

Amy Hatkoff – *You are my World*



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