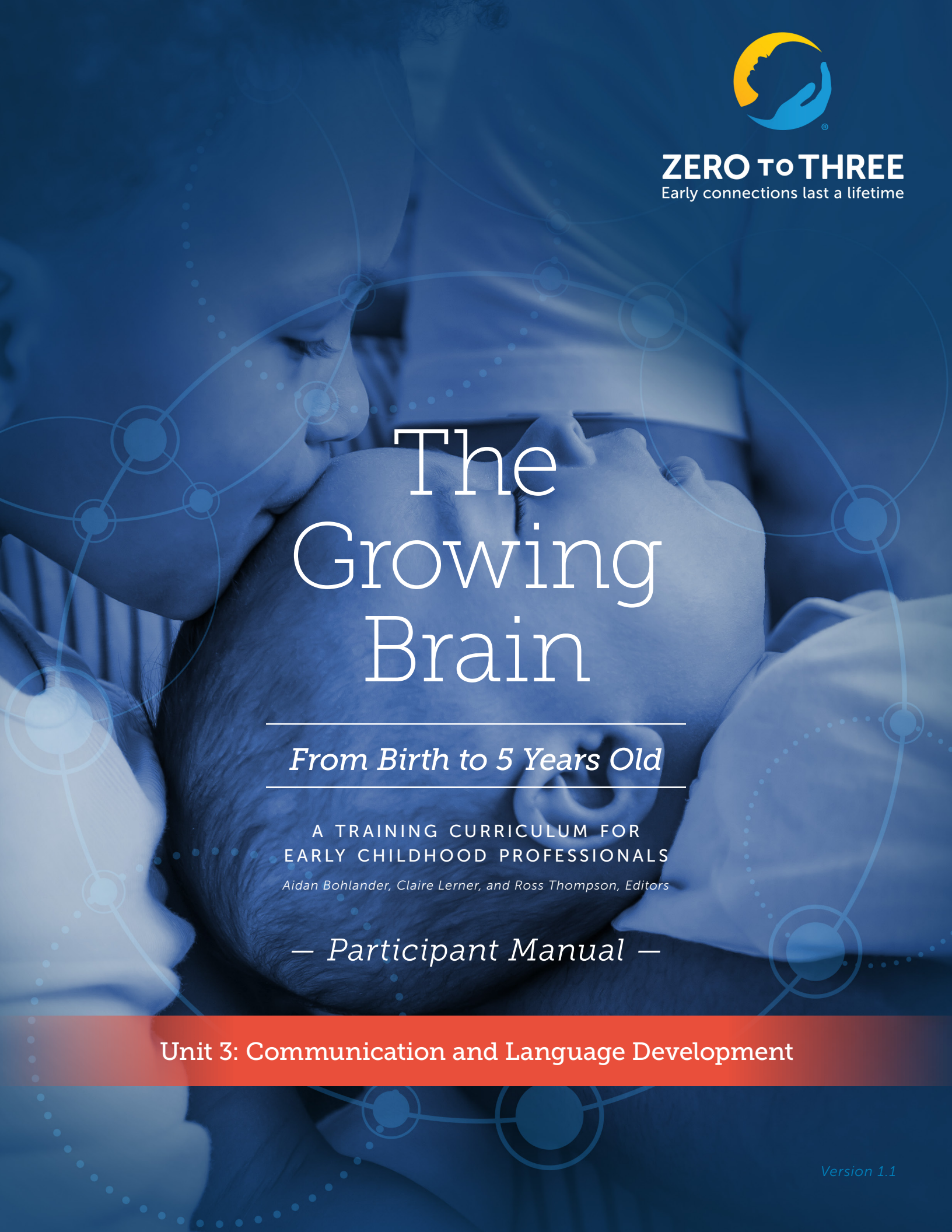

ZERO TO THREE
Early connections last a lifetime

The Growing Brain

From Birth to 5 Years Old

A TRAINING CURRICULUM FOR
EARLY CHILDHOOD PROFESSIONALS

Aidan Bohlander, Claire Lerner, and Ross Thompson, Editors

— Participant Manual —

Unit 3: Communication and Language Development

Version 1.1

Published by
ZERO TO THREE
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Washington, DC 20037
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Printed in the United States of America

Suggested citation:

Bohlander, A., Lerner, C., & Thompson, R. (Eds.). (2018). *The Growing Brain: From Birth to 5 Years Old, A Training Curriculum for Early Childhood Professionals. Participant manual.* Washington, DC: ZERO TO THREE.

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Preface

"The brain is a social organ of adaptation built through interactions with others." (Cozolino, 2014, p. xvi)

The development of the growing brain is one of the most important topics in early childhood development, with significant implications for early childhood professionals. Research on infant brain development is exploding. With the advent of the magnetoencephalography (MEG) for infants, researchers can now see more clearly into a young child's brain activity and learn what impact interactions have on certain aspects of development.

The greatest rate of brain growth and development is during the first few years of life. This rapid development occurs at the same time a child is making critical connections with his or her outside world. Because of such rapid brain growth during the first few years, early experiences have a disproportionately greater impact on the newly growing brain's development.

Often, an early childhood professional provides one of the earliest human interactions an infant or young child will experience. The professional will play a significant role in determining the experiences and environment that shape and influence the construction of the early brain. When an early childhood professional and an infant interact together, each is inducing the other's internal states of being. It's the basic day-to-day experiences, be they nurturing or non-nurturing, that set the young child on his or her course of brain development.

It is for these reasons that ZERO TO THREE, in partnership with the University of Arkansas Early Care and Education Projects, developed The Growing Brain (TGB) curriculum for early childhood professionals. Since 1977, ZERO TO THREE has been translating research that helps us understand how the young¬est children think, learn, and interact with the important adults in their lives. We turn that scientific knowledge into helpful tools and practical resources for parents, policymakers, and professionals, like yourself, to help make the lives of babies, toddlers, and their families better.

This Participant Manual, along with the other curriculum materials you've received, is intended to support your learning experience. In the Manual you will find key points from each presentation as well as discussion questions. Please use this Manual as a workbook during the course to record presentation and discussion highlights. Together with the other TGB materials, we hope it will serve as a valuable record of your learning and resource on early brain development that you will return to again and again as you work with young children.

Thank you for what you do each and every day to support the youngest and most vulnerable members of our society. Each interaction that you have with each young child is helping to shape the very structure of his or her brain. That is an incredible responsibility and privilege! Thank you for your participation in this course and your commitment to be a positive influence on the children and families you serve.

Reference

Cozolino, L. (2014). *The neuroscience of human relationships: Attachment and the developing social brain* (2nd ed.). New York, NY: WW Norton & Company.

Introduction

How wonderful to have this new resource on the brain and child development! I remember when we wrote our curriculum, *Early Development and the Brain: Teaching Resources for Educators* (Gilkerson & Klein, 2008), a colleague asked: "Is the brain a fad? What will be next?" The brain has hardly been a fad; as one of the central regulators of the body and of our experience with the world, its critical importance in understanding young children's development and how best to nurture their growth will always be supremely important for anyone who cares about young children and is invested in nurturing their healthiest development.

We wrote the former curriculum for early childhood faculty and trainers so they could confidently teach about the brain and its role in early development to their students. While early educators had long focused on the whole child, brain imaging brought a seismic shift in our understanding about biopsychosocial development. Now students in early childhood development, as well as faculty, fully appreciate the power of brain health and functioning and are eager to learn how they can best build the brainpower of the children they serve.

This new curriculum, *The Growing Brain (TGB),* addresses the same vital areas that we covered: the structure and function of the brain; factors and experiences that can harm the growing brain, especially stress, and how to protect the brain from harm; and the connections between the brain, language development, and sensory functioning.

In the 9 years since we wrote our curriculum, much more has been discovered about the brain, especially regarding emotional regulation, the role of caregiving relationships, and the impact of trauma. Evidence that young children's early experiences shape the actual architecture of the brain and how it functions has grown dramatically, and it has put a spotlight on the importance of the interface between the brain and the environment and on the centrality of human interaction and relationships in brain development. Accordingly, *TGB* focuses heavily on the growing field of "affective neuroscience"—the science of emotions and the brain—and how the earliest interactions shape lasting patterns of relatedness. The link between brain, body, and behavior is ever clearer. Unmediated adverse childhood experiences (ACEs) are linked with problems in adult physical and mental health in ways we might not have imagined. Synchrony in mother-infant behavioral interactions also has a significant influence on the growing brain, as this synchrony is mirrored physiologically in the child's heart rate synchrony—heart to heart and brain to brain. This early synchrony relates to self-regulation in infancy and toddlerhood and even shapes the adolescent's capacity for empathy. In this *TGB* curriculum, you will learn about the impact of disrupted synchrony and how factors such as maternal depression affect the child's ability to read emotions. *TGB* also includes very important content on the impact of stress on the developing brain, which is heavily influenced by the availability of a caring adult to help mediate the stress—to provide protection and help make the experience manageable. One of the most powerful features of this curriculum is that it translates very complex concepts in a way that is digestible, is meaningful and relevant, and provides a range of interactive exercises that enable trainees to integrate and apply these concepts in their daily work supporting young children. In short, it engages trainees' brainpower in active learning!

Further, while professionals must be critical consumers of neuroscience, how do we help parents absorb this new information from science and build their confidence in what *they know* about their child? How can we help protect and grow parents' intuitive competence—a concept well-documented decades ago in studies of parenting? While brain and behavior research will continue to bring new discoveries, we are reminded of one of the most fundamental ideas of early care and education: the essential value of observation as a way of knowing. A child's behavior is one of the best windows into brain functioning. Our role is to encourage parents, teachers, and other caregivers to pause, watch, and truly notice the child's responses to his world—to see what this child can take in at this moment on this day. What experiences does he approach? What experiences does she pull away from—even a bit? What is too much input for him? What is too little for her? Where is the sweet spot—the space for moderate novelty in which the brain thrives?

The science of early development is an integrated science, and you are an integrated professional. Enjoy deepening your understanding of child development and the brain and sharing that knowledge with others!

Linda Gilkerson, PhD
Professor, Erikson Institute

Note for Participant Manual: Unit 3

This section of the participant manual is comprised of important content and reflections related to Unit 3, Communication and Language Development of *The Growing Brain.* All 7 Units are available separately from ZERO TO THREE, as well as available as a complete publication package. Please see the participant manual table of contents on page 3 for a list of all 7 Units.

We are proud of the participant manual as a way of enhancing participants' understanding of *The Growing Brain* as an interactive curriculum: it is a fully designed and functional workbook for learners to explore and exchange ideas. They can be purchased individually, or as a group purchase. Your learners can make the purchases or you can on their behalf.

Unit 3 covers:

- how adults play a critical role in early communication through back-and-forth interaction;
- how communication begins with observation; how children build on language to develop more complex communication, including dual- and multilanguage learning; and
- how books and stories are crucial aids in enhancing children's growing communication skills.

The participant manual is available from the ZERO TO THREE bookstore as a digital download. This download is a single-use license for either you or your learners to print—in order to make best use of the workbook features.

Teaching *The Growing Brain: Birth to 5 Years Old*

The Growing Brain: From Birth to 5 Years Old is a 21-hour course. The following is a suggested time schedule for teaching each unit based on the field test. Times may vary from trainer to trainer and based on the needs of participants.

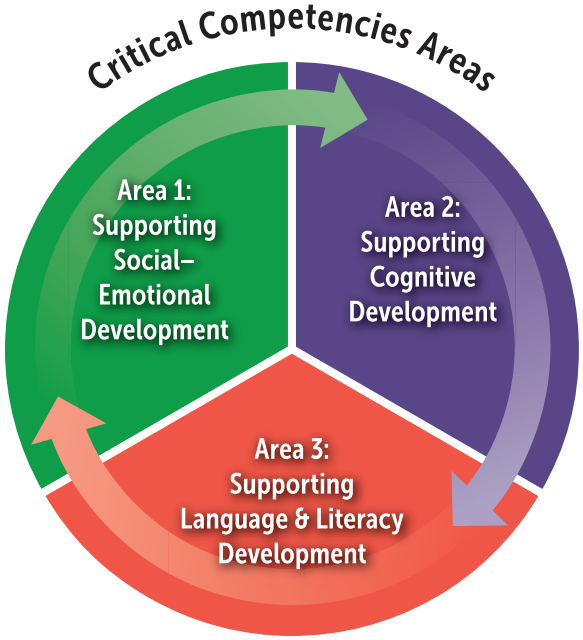
Unit 1: The Growing Brain: The Basics	3 hours
Unit 2: The Growing Brain: The Factors Affecting Brain Growth and Development	3 hours
Unit 3: The Growing Brain: Communication and Language Development	3 hours
Unit 4: The Growing Brain: Cognition and Executive Function	3 hours
Unit 5: The Growing Brain: Social-Emotional Development	3 hours
Unit 6: The Growing Brain: Understanding Behavior	3 hours
Unit 7: The Growing Brain: Everyday Play	3 hours

*Note: The 21 hours is training time and each unit includes only one 10-minute break. *Additional time must be scheduled for additional breaks of any kind.*

Critical Competencies Areas and Sub-Areas

The *ZERO TO THREE Critical Competencies for Infant-Toddler Educators™* define the specific evidence-based teaching methods and practices that support and nurture young children's social-emotional, cognitive, and language and literacy development and learning.

ZERO TO THREE has completed a crosswalk between the *ZERO TO THREE Critical Competencies for Infant-Toddler Educators™* and *The Growing Brain: From Birth to 5 Years Old* training curriculum. Significantly for learners, these two professional development curricula and resources now closely align and complement each other. For more information on the *Critical Competencies* and how you can use them to inform your professional development goals, visit www.zerotothree.org/criticalcompetencies.



Critical Competencies Sub-Areas

Area 1: Supporting Social–Emotional Development

- SE-1 Building Warm, Positive, and Nurturing Relationships
- SE-2 Providing Consistent and Responsive Caregiving
- SE-3 Supporting Emotional Expression and Regulation
- SE-4 Promoting Socialization
- SE-5 Guiding Behavior
- SE-6 Promoting Children's Sense of Identity and Belonging

Area 2: Supporting Cognitive Development

- C-1 Facilitating Exploration and Concept Development
- C-2 Building Meaningful Curriculum
- C-3 Promoting Imitation, Symbolic Representation, and Play
- C-4 Supporting Reasoning and Problem Solving

Area 3: Supporting Language & Literacy Development

- L&L-1 Promoting Communication Exchange
- L&L-2 Expanding Expressive and Receptive Language and Vocabulary
- L&L-3 Promoting Early Literacy

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Unit 3

UNIT 3

Communication and Language Development

Goal: To understand how communication and language skills develop in the first 5 years, the brain's role in the development of these skills, and how to support them

Objectives

1: Understand Communication Milestones From Birth to 12 Months
2: Understand Communication Milestones From 12 to 36 Months
3: Understand Communication Milestones From 3 to 5 Years
4: Learn Strategies for Supporting Early Communication Skills
5: Understand Multilanguage Learning

1 Understand Communication Milestones From Birth to 12 Months

Communication Without Words

Communication starts from birth. Children use facial expressions, gestures, and sounds that let us know how they are feeling. Communication skills begin to emerge in the earliest months of life but take years to fully develop.

During this period, children often face challenges and frustrations in their attempts to have their needs, ideas, and questions understood. Adults, too, are challenged to interpret the wide range of sounds, expressions, and body movements that very young children use to communicate.

The complexity of language input—how rich and descriptive our language is during interactions with children—is a significant factor that influences the development of the areas of the brain related to language. SE-4 L&L-1

Think About It: Communication skills begin long before young children speak their first word. In fact, the fetus can hear external sounds in utero and recognize and prefer the sound of the mother's voice starting when she's about 7 months (30 weeks) pregnant (Kisilevsky et al., 2008).

Communication and Language Development

Reflexive Communication

When babies are born, they are not yet able to communicate with intention. They use **reflexive communication** to share their needs and emotional state with caregivers.

➡ What is the difference between **intentional communication** and **reflexive communication?**

Intentional Communication	VS.	Reflexive Communication

➡ What are some of the reflexive communications that young babies use?

Cues and Communication

Parents learn to recognize the unique sounds and cues of their own infants through daily caregiving activities. This takes time and careful observation because babies are using different sounds in these early months to communicate.

Although babies appear to be helpless and dependent, they are actually very engaged in back-and-forth interactions with their caregivers. Learning that your sounds and actions can elicit a response from another person is the foundation of intentional communication.

Communication and Language Development

Adult Responses Are Critical

By as early as 5 months old, babies have learned that not just their cries but other sounds elicit a response from their parents. This means they now know that their sounds have a social effect on their caregivers—that by making a sound, they can get their parents to do something in return, such as smile, say something, or make physical contact.

This type of back-and-forth "conversation," with the baby producing non-cry sounds and the parent responding, has an effect on children's long-term developmental outcomes.

Think About It: In general, the more responsive parents are to their babies' vocalizations, the larger babies' vocabularies are at 15 months (Goldstein, Schwade, Briesch, & Syal, 2010).

➡ What are other ways that parents support their infants' growing communication skills?

Parentese

Parentese is the type of speech patterns that parents and caregivers naturally use most frequently with young babies. Although we call it parentese, anyone can use this type of speech with babies—including teachers, home visitors, and family members such as grandparents. Researchers also refer to it as **infant-directed speech** (Golinkoff, Can, Soderstrom, & Hirsh-Pasek, 2015). L&L-1

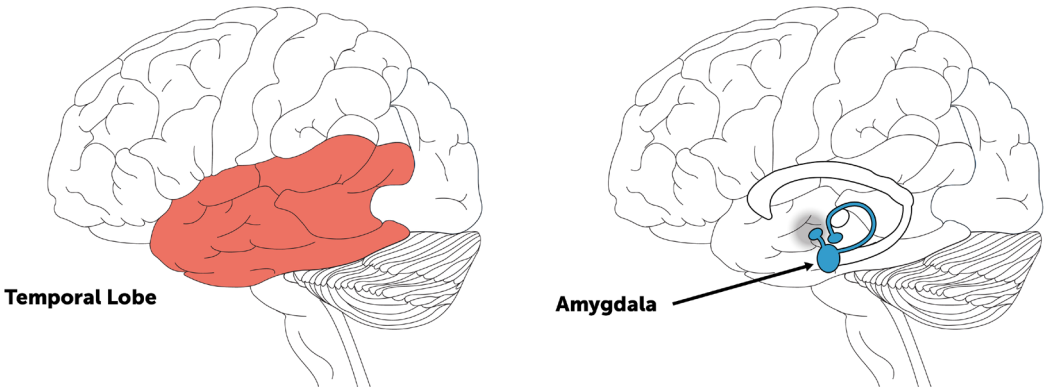
About Parentese:

- Parentese is used around the world, yet no one teaches adults to talk like this (Kuhl et al., 1997).
- Babies who listen to their mothers using parentese—even while they are asleep—experience increased blood flow to the frontal area of their brains (Saito et al., 2007).
- Parentese typically peaks between 4 and 6 months old and gradually decreases over time until children are about 2 years old (Saint-Georges et al., 2013).
- The more babies heard parentese at 12 months old, the more they babbled, and the larger their vocabulary was at 24 months old (Ramirez-Esparza, García-Sierra, & Kuhl, 2014).

Communication and Language Development

Gaze and Joint Attention

Another important communication strategy that babies use is their gaze. Many parts of the brain are involved in processing what we see when we gaze at a person or object, including specific regions of the **temporal lobe** and the **amygdala** (Hooker et al., 2003).



The ability to follow an adult's gaze begins at approximately 6 months old. By 10 to 11 months old, babies master **joint attention.**

➡ Record the definition for joint attention:

When talking to babies, adults often refer to nearby people, objects, and animals by looking, or gazing.

- Adult gaze gives a good cue about meaning to the baby.
- Joint attention: Sharing something of interest with another person at the same time. L&L-1 L&L-2

Benefits of joint attention:

- Supports the development of cognitive skills such as social referencing.
- Enhances learning through imitation.
- Linked to children's vocabularies at 2 years old (Brooks & Meltzoff, 2008).

Communication and Language Development

What are some strategies for supporting language skills from birth to 12 months old?

Think About It: How adults respond to babies' communications in the early months of life helps build the strong foundation they'll need to be great communicators.

Communication and Language Development

2 Understand Communication Milestones From 12 to 36 Months

Communication Milestones From 12 to 36 Months

Communication skills really begin to take off in the second year of life.

➡ Use the boxes below to note the milestones that emerge during each period.

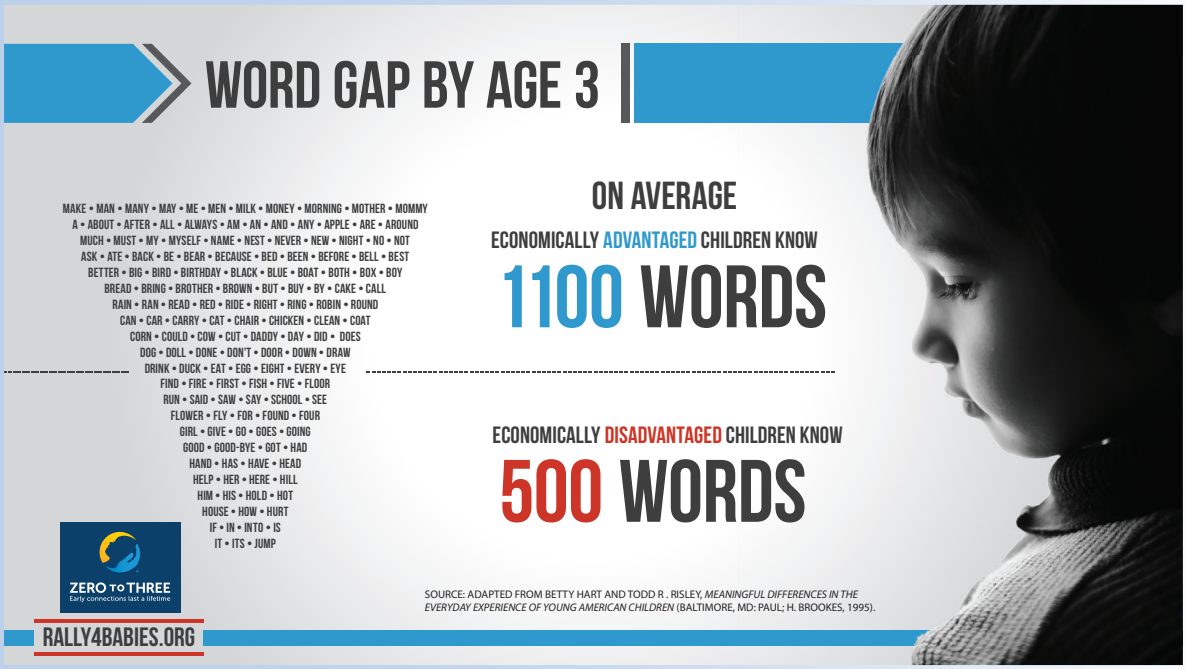
12-Month Milestones

18-Month Milestones

18–24-Month Milestones

24–36-Month Milestones

The Word Gap



In 1995, researchers Hart and Risley identified a gap between the quantity and quality of words children from different income levels were exposed to. On average, by 4 years old, children from professional families would have heard almost 30 million more words that children living in poverty (Hart & Risley, 1995). In 2012, a small study found that the language gap was apparent in even younger children beginning at 18 months (Fernald, Marchman, & Weisleder, 2012).

➡ How do you think everyday experiences might be different for very young children and their families from low-income and high-income families? How might this affect parents' ability to engage in language-rich interactions with their children?

➡ What are some strategies to support increasing the quality and quantity of language?

Think About It: Providing a rich language environment and loving family context for young children is important for language development. All parents and caregivers can support children's language skills and a healthy brain overall by making communication an integral part of their everyday interactions with young children.

Communication and Language Development

3 Understand Communication Milestones From 3 to 5 Years

Communication Milestones From 3 to 5 Years

Between 3 to 5 years old, there is a fine-tuning and deepening of the communication skills that have developed.

At 3½ years old:

Receptive Language	• Follow three-step instructions. • Identify most common objects and their pictures. • Understand terms for family relationships, such as "grandfather," "aunt," or "cousin." • Understand words for basic shapes and sizes. • Understand descriptive words, such as "soft," "bumpy," or "scratchy." • Understand spatial descriptors, such as "in front of," "behind," and "next to." • Understand "how many" and "who" questions.
Expressive Language	• Uses "but," "and," and "because" to combine sentences and produce more complex statements. • States gender and age when asked. • Produces pronouns appropriately and uses possessives, such as "mine." • Asks "Is . . ." and "Do . . ." questions. • Counts to three, also an early math skill.

At 4 years old:

Receptive Language	• Has an understanding of opposites. • Understands time concepts such as "before" and "after" or "yesterday" and "today." • Able to identify primary colors and shapes. • Able to understand "how" and "when" questions.
Expressive Language	• Asks "when," "why," and "how" questions. • Uses regular past tense, such as adding "-ed" to make "fix", "fixed." • Uses irregular past-tense verbs correctly, such as "fell" or "broke."

At 5 years old:

Receptive Language	• Understand approximately 13,000 words. • Understand "some," "more," and "less". • Able to respond to "What happens if . . ." questions.
Expressive Language	• Retell a story in sequence. • Describe how to do something, such as play a simple game. • Give a description of a past experience. • Produce simple rhyming words. • Ask questions about how another person feels. • Answer questions about a story. • Produce longer, more complex, and grammatically correct sentences. • Enjoy arguing, debating, and reasoning. • Use relational words such as "first," "then," and "next."

4 Learn Strategies for Supporting Early Communication Skills

Strategies for Supporting Early Communication Skills

Take some notes about what we mean when we say:

➡ Tuning in:

➡ Talking more:

➡ Taking turns:

Communication and Language Development

Research has found that there are specific strategies adults can use that appear to facilitate children's language acquisition and development in the years before school (Shiel, Cregan, McGough, & Archer, 2012).

Contingent Responses:	
Follow the Child's Lead:	
Expansions and Recasts:	
Shared Reading:	

5 Understanding Multilanguage Learning

Multilanguage Learners: **Multilanguage learners** are children learning two (or more) languages at the same time, as well as those learning a second language while continuing to develop their first (or home) language.

There are many developmental benefits to learning two languages at an early age. These include:

- Improved **executive functioning** skills, including the ability to think flexibly, demonstrate self-control, focus attention, and tune out distractions (Bialystok & Martin, 2004; Zelazo, Carlson, & Kesek, 2008);
- Bilingual children have also been found to have better **working memory** than children who speak only one language.

Circle the appropriate response for each statement about multilanguage learners.

- Statement 1: Babies are born with the ability to distinguish the unique sounds of any language in the world. True False
- Statement 2: Exposure to more than one language in the early years causes confusion for young children. True False
- Statement 3: Young children who are learning two languages typically have a smaller vocabulary than their peers who are learning only one language. True False
- Statement 4: Using words from both languages in the same sentence is a normal part of multilanguage development. True False
- Statement 5: When learning two languages, it doesn't matter how much of each language the child is exposed to as long as the child hears words in both languages each day. True False
- Statement 6: Children with a language delay or impairment have greater difficulty if they are multilanguage learners. True False
- Statement 7: The earlier that a child is exposed to a second language, the better the child is likely to become in speaking it. True False

Communication and Language Development

Strategies for Supporting Multilanguage Learners

Take notes on the key strategies for supporting multilanguage learners.

Learn key caregiving words:	
Teach "Can I play?" in words or signs:	
Preteach key vocabulary words:	
Make connections between words:	
Label objects and locations:	

Use both languages:	
Translate materials:	
Learn key caregiving words:	

Communication and Language Development

Let's Review! Key Messages:

- Adults play a critical role in supporting early communication development through back-and-forth interactitons with children, beginning from birth.
- Communication begins with observation—noticing babies' and young children's cues and nonverbal communications.
- Building on, expanding, and extending children's language helps them develop more mature and complex communication abilities over time.
    - For dual- and multilanguage learners, this type of rich back-and-forth should be happening equivalently in both languages.
- Sharing books and stories with young children promotes the development of communication skills.

➡ Any additional key messages that you are taking with you?

Notes

Communication and Language Development

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Handout 3.1

Communication Skills From 6–12 Months

Note whether you think each communication skill listed below begins to emerge at 6–9 months or 9–12 months old.

1. Looks for family members or pets when named

   Age range: _____

2. Strings together a chain of babbling that sounds like language

   Age range: _____

3. Understands words for familiar people and familiar objects in the home

   Age range: _____

4. Responds to simple verbal requests (e.g., an adult says, "Drink your water" while baby is holding a cup)

   Age range: _____

5. May say first word

   Age range: _____

6. Begins to wave and point

   Age range: _____

7. Begins to communicate with a purpose and goal in mind (intentional communication)

   Age range: _____

8. Responds to name

   Age range: _____

Handout 3.2

Strategies to Support Communication Skills From Birth to 12 Months

1. Use higher pitched voice; young babies seem to prefer this higher intonation.
2. Talk with babies; respond with words to their sounds, gestures, and expressions. Pause and give babies an opportunity to participate in the conversation with sounds, actions, or gestures.
3. Sing songs to babies.
4. "Listen" with your eyes. Watch to see how a baby might be trying to get your attention. Observe to notice the meaning behind each baby's unique cues, movements, and vocalizations. For example, how does a baby tell you she wants to play? Or that he is tired?
5. Use the baby's name when you talk with him or her.
6. Label common objects. This helps children learn new words.
7. Narrate, or describe aloud, routines and activities that you share with babies. This is sometimes referred to as "sportscasting."
8. Play turn-taking games like peek-a-boo or rolling a ball back and forth.
9. Read books one-on-one with each baby. Talk about the pictures. Let babies decide how long to gaze at each page, and determine when they are done.
10. Play games with your mouth, like making a sound while tapping your hand over your mouth, running your finger over your lip, or making a "raspberry" sound. See if the baby will imitate you.
11. Use gestures and words together—wave as you say "hello" and "bye-bye." Point when you say, "That's a dog."
12. Take turns. After you talk to the baby for a bit, pause. Give him a chance to make a sound, make a gesture, or do something in response.
13. Respond to a baby's behavior as if it is intentional communication. This helps babies learn, over time, that their sounds and movements lead to responses from others.
14. Use shorter sentences and simple vocabulary. Repeat key words: "Oh, it's a bird! The bird is flying. Look at the bird!"
15. Use lots of repetition. Do not hesitate to repeat what you are saying, gesturing to, or pointing to in order to help the baby understand your meaning.

Handout 3.5

Key Terms

- **Amygdala:** A structure located in the temporal lobe of the forebrain that perceives and evaluates a potentially threatening event or circumstance. Its functioning can be affected by an increase in stress-induced cortisol. The amygdala matures early in life and plays a critical role in the body's learned response to fear (National Scientific Council on the Developing Child, 2010; Society for Neuroscience, 2016).
- **Cerebellum:** The part of the brain at the back of the skull that is responsible for the coordination and regulation of muscular activity.
- **Cognates:** Two words that have the same root and, as a result, sound similar.
- **Contingent responses:** Responses that immediately follow the child's utterance, are related to and build on the child's statement, and either match or are tuned in to the child's current level of communication skills.
- **Executive functioning:** A set of cognitive skills that controls impulses and filters out distractions. Executive functions allow children to focus their attention, organize information, put a plan into action, and also have a back-up plan if necessary. (Diamond, 2006).
- **Expansions:** When adults respond to a child's statement by modeling a longer, more complex statement.
- **Expressive language:** Communicating with awareness of a purpose and goal, or working to get a specific message across to one's conversation partner.
- **Infant-directed speech (also known as "parentese"):** The type of speech patterns that parents and caregivers use most frequently with young babies, characterized by: a high, "sing-song-y," exaggerated voice; shorter, simpler, and repetitive statements; and a tendency to use the third person.
- **Intentional communication:** Speaking with awareness of a purpose and goal. Working to get a specific message across to a conversation partner.
- **Joint attention:** The use of behaviors (gazing, pointing, vocalizing) to respond to or initiate an interaction with another person about a toy, object, or activity.
- **Maternal responsiveness:** Describes a parent following her young child's lead and providing additional information and support around the child's interests (Tamis-Lemonda, Bornstein, & Baumwell, 2001).
- **Multilanguage learners:** Children who are learning two (or more) languages at the same time, as well as those learning a second language while continuing to develop their first (or home) language.
- **Orbitofrontal cortex:** A prefrontal cortex region in the frontal lobe that is involved in the cognitive processing of decision making.
- **Parentese (also known as "infant-directed speech"):** The type of speech patterns that parents and caregivers use most frequently with young babies, characterized by: a high, "sing-song-y," exaggerated voice; shorter, simpler, and repetitive statements; and a tendency to use the third person.
- **Prefrontal cortex:** The front part of the frontal lobe. This region of the brain is widely considered the center of executive functions and is responsible for regulating thought, emotions, and actions.
- **Recasts:** A strategy in which adults respond to a child's language error by repeating the child's statement in a corrected form.
- **Receptive language:** The ability to understand language heard or read.
- **Reflexive communication:** A child's vocalizations, body movements, and facial expressions in response to their experiences in the world. Initially, these are involuntary and in response to a stimulus, like being cold or wet, or experiencing gas pains.

- **Social referencing:** When a baby looks toward a caregiving adult for information about how to interpret a situation.
- **Superior temporal sulcus:** Situated in the temporal lobe, it processes cues about the direction of other people's attention.
- **Temporal lobe:** The temporal lobe has a variety of important functions that include (Society for Neuroscience, 2016):
    - processing auditory information—such as hearing different pitches of sound,
    - language recognition—understanding what words mean,
    - storing visual memory—such as remembering a familiar face,
    - short-term and long-term memory—through a structure called the hippocampus, and
    - emotional responses—through a structure of the temporal lobe called the amygdala.
- **Working memory:** The capacity to temporarily hold and manipulate information necessary to complete a task.

Speak, Listen, and Have Fun With Words

What? Five tips to have fun with language

Who? You and your child, from birth through 5 years old

When? Every day!

Why? Language builds the brain power kids need to succeed in school! It's never too early to start.

Tip 1: Be a "color commentator." Put words to your experiences together. "Here's your red shirt." "These pears are so sweet and juicy!" "You are kicking your legs. Are you excited to see Aunt Jessie?"

Tip 2: Model the back-and-forth of conversation. Take turns. Even before your child can use words, give her time to respond with facial expressions, sounds, and gestures. Ask a question, and then wait for your child to respond.

Tip 3: Expand your child's vocabulary. If she says, "Look, dog," you can respond: "Yes, that's a big, brown dog."

Tip 4: Read aloud. Make books come alive.

- Make reading fun by using different voices for different characters.
- Ask simple questions as you read, like: "What do you think will happen next?"
- Read the story as many times as your child would like. Repetition is an important strategy for learning.

Tip 5: Have fun with language. Use silly rhymes and songs during playtime with your child. Tell stories about what happened that day, or make up stories together.