Jeanne M. Machado

early childhood

Experiences in Language Arts 11e

EARLY LITERACY

Early Childhood Education Standards Correlation Chart

This text highlights major early childhood standards with icons in the margin next to relevant text. The professionally recognized standards and practices in this text come from the National Association for the Education of Young Children (NAEYC) Program Standards and Accreditation Criteria, Developmentally Appropriate Practices: Focus on Infants and Toddlers, 2013, Developmentally Appropriate Practices: Focus on Preschoolers, 2013, and Common Core Standards for English Language Arts & Literacy. This handy correlation chart will help you determine where to find these key standards within each chapter.

Chapter	NAEYC Early Program Standards and Accreditation Criteria naeyc	Developmentally Appropriate Practices (DAP): Focus on Infants, Toddlers, and Preschoolers, 2013 DAP	Common Core Standards for English Language Arts & Literacy
SECTION 1, LANGUAGE DEVELOPMENT: EMERGING LITERACY IN THE YOUNG CHILD			
Ch. 1, Beginnings of Communication	**1A05** Teacher shares information with families about classroom expectations and routines. p. 2	**1A2** The infant's primary caregiver comes to know the child and family well, and so is able to respond to that child's individual temperament and needs and cues, and to develop a mutually satisfying pattern of communication. p. 2	**L.CCR 3** Apply knowledge of language to understand how language functions in different contexts. p. 2
	1B01 Teaching staff foster children's emotional well-being by demonstrating respect for children and creating a positive emotional climate as reflected in behaviors such as frequent social conversations, joint laughter, and affection. p. 2	**1B1** Caregivers talk in a pleasant, calm voice, making frequent eye contact. p. 2	
	1B11 Teaching staff engage infants in frequent face-to-face social interactions each day. p. 2	**1C1** Caregivers often talk about what is going on with the infant. p. 2	
	1B14 Teaching staff quickly respond to infants' cries or other signs of distress by providing physical comfort and needed care. p. 2	**1D2** Caregivers observe and listen and respond to sounds the infant makes. p. 2	
		1D3 Caregivers frequently talk to, sing to, and read to infants. p. 2	
		3B3 Appropriate games are played with interested infants. p. 2	
Ch. 2, The Tasks of the Toddler	**1C02** Support children's development of friendship; provide opportunities for children to play and learn from each other. p. 38	**1A2** Know the child and family well and respond to child's individual temperament, needs, and cues and develop a mutually satisfying pattern of communication with child and family. p. 38	**L.CCR 4** Determine or clarify the meaning of unknown and multiple meaning words and phrases. p. 38
	1B13 Adjust interactions to toddlers' various states and levels of arousal. p. 38	**1B1** Caregivers use pleasant, calm voices as well as simple language and nonverbal cues. p. 38	
	1B15 Talk frequently with children and listen to children with attention and respect. p. 38	**1B3** Caregivers frequently read to toddlers and sing, do finger plays, and act out simple stories and folktales with children participating actively. p. 38	
	1B15 Use strategies to communicate effectively and build relationships with every child. p. 38	**1B6** To satisfy toddlers' native natural curiosity caregivers give simple, brief, accurate responses. p. 38	
	2E02 Toddlers have varied opportunities to experience books, songs, rhymes, and routine games. p. 38	**1C1** Adults initiate conversations with a toddler giving ample time to respond. They attentively listen and respond verbally. p. 38	
Ch. 3, Preschool Years	**1C03** Teaching staff support children as they practice skills and build friendships. p. 68	**1A2** Teachers help children learn how to establish positive, constructive relationships with others. p. 68	**L.CCR 5** Demonstrate understanding of figurative language, word relationships, and nuances in meaning. p. 68
	1F01 Teaching staff actively teach children social, communication, and emotional regulation skills. p. 68	**2B3** Teachers help children acquire new skills and understandings using a range of strategies. p. 68	**SL.CCR 4** Present information, findings, and supporting evidence such that listeners can follow the line of reasoning and the organization, development, and style that are appropriate to task, purpose, and audience. p. 68

(*Continued on back cover*)

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Early Childhood Experiences in Language Arts 11e

EARLY LITERACY

Jeanne M. Machado
Emerita, San Jose City College

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CENGAGE Learning®

***Early Childhood Experiences in Language Arts: Early Literacy*, Eleventh Edition**
Jeanne M. Machado

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Brief Contents

Contents

Early Childhood Experiences in Language Arts: Early Literacy is a teacher-training text designed to help those working in the early childhood education field provide an opportunity-rich program full of interesting, appropriate, and developmental language arts activities that reflect current standards. It is both a practical "how-to" manual and a collection of resources that includes numerous classic, tried-and-true activities.

Because a comprehensive, dynamically planned early childhood language arts curriculum consists of four broad interrelated areas—speaking (oral), listening, writing, and reading—each is fully explored and described in separate chapters. Visual literacy is also covered, as it is closely tied to the other language arts areas, and because young children today have frequent interactions with visual technology.

The text recommends early childhood education students create, design, and prepare classroom activities and environments based on newborn through kindergarten-age children's assessed needs, interests, developmental level, and potential. Beginning teachers are urged to use their own unique teaching talents, skills, and creativity—along with their past memories of the enjoyed childhood language-related experiences—to help guide their instruction. It is hoped that the confidence and skills gained by readers will help to provide young children with enthusiastic, knowledgeable teacher-companions who enjoy and encourage children in their discovery of the language arts.

Organization and Content

Section 1

In Section 1, the first three chapters present a detailed account of language acquisition, young children's early communicative capacities, growth milestones, and age-level milestones (infancy through preschool), along with suggested professional techniques to promote each child's self-esteem and potential. In Chapter 1, the characteristics of attuned and sensitive caregiver behaviors have been highlighted to emphasize their significance. Infant and toddler chapters (Chapters 1 and 2) increase the reader's ability to both tailor and individualize his or her own actions, comments, and activity plans to suit the needs of diverse children. Educators become better equipped to identify child progress or suspected lags in language use and growth. Toddlers' physical development and concurrent mushrooming verbal skills appear in a predictable, yet individual, pattern. Chapter 3 provides the reader with an accurate portrait of preschoolers' emerging language and literacy accomplishments, and also covers other concurrently developing growth systems that affect language and literacy. These are physical, cognitive, perceptive, and socioemotional areas. Finding a typical or average preschooler may be an impossible task, as preschoolers, like adults, display infinite variety. The well-known and well-documented characteristics of the preschool-aged child are presented.

Section 2

Special attention is paid to second-language learners and children with special needs in Chapter 4, *Understanding Differences.* With the number of second-language learners and children with special needs continuing to grow, it has become more critical than ever for early childhood teachers to create language-rich environments and interact as enthusiastic, supportive, and observant companions and collaborators. Chapter 5 covers the basics of developing language arts programs based on identified goals, as well as assessment strategies, and includes information about children's literacy portfolios. Specific teaching strategies are addressed in Chapter 6, *Promoting Language and Literacy*, and Chapter 7, *Developing Listening Skills*, to aid a teacher's knowledge and practice of professional responses and interchanges in daily conversation and discussions. Tips and suggestions are designed to get the most "literacy-developing mileage" possible from daily happenings. Since listening well is a learned skill, Chapter 7 does not leave it to chance, but promotes the teacher's role as cultivator of each child's growing ability.

Section 3

Children's literature is introduced in Chapter 8 and begins with a brief history of picture book development and change over time. Readers are

urged to discover new and older classics and skillfully share them with children in a way that increases each child's love of story and joy in acquiring new knowledge and skill. This chapter is extensive and alerts readers to the many types of books available and their appeal to young listeners. Text discussions include teacher techniques that build children's comprehension of stories and also their understanding of books' connection to writing (print), viewing, reading, and oral expression. During book readings, educators are directed to share their thinking aloud and to define new words to increase children's vocabulary, analysis, and problem solving abilities.

Chapters 9, 10, and 11 concentrate on developmentally appropriate vehicles to widen children's background and knowledge and experience in storytelling, poetry, and flannel board activities. Teacher skill in the presentation of these language arts subsections is recommended, and suggested stories, poems, and flannel board sets give beginning teachers an initial collection to immediately try out and enjoy with young children. The use of puppetry and classroom dramatization is also included in these chapters.

Section 4

In order to increase children's ability to express their ideas and dramatize real life or fantasy experience, Chapter 12 discusses an early childhood educator's promotion of children's oral expression and symbolic (dramatic) play. The beginning teacher's ability to plan, conduct, and manage small and large groups in a competent and professional manner is the subject of Chapter 13, which also focuses upon the language and literacy producing aspects of children's group experiences. Again many circle time hints are provided, along with suggested games and activities, such as finger plays, poems, songs, chants and choruses, and body movements connected to words.

Section 5

Quality language arts programs in early childhood centers are increasingly focused on the promotion of each child's ability to learn to read with ease when formal reading instruction begins. The alphabetic principle, orthographic and print awareness, sight reading, and invented spelling are clearly explained in Chapter 14, *Print—Early Knowledge and Emerging Interest*. This chapter introduces and outlines the probable sequence of events that proceed a child's printing his first alphabet letter. Using the appropriate form of printscript letters is emphasized as teachers model and write alphabet letters. A number of print-related child activities are included, as well as sample print alphabets with construction arrows. Print-rich and print-appropriate classroom environments are suggested. Children's natural curiosity and their innate ability aids their emergence as competent readers when formal instruction begins in kindergarten. Chapter 15 describes the desirable skills, knowledge, and abilities that promote children's progress in learning to read. The differences in reading instruction methodology are discussed so that early childhood educators become aware of what types of instruction are used in the first grades of school.

Section 6

Chapter 16 looks at the physical features and equipment needed to enhance learning in a literacy-based classroom. Chapter 17 discusses the critical importance of increasing a family's ability to partner with their children's school and teachers. Suggestions are included to increase the beginning teacher's ability to establish fruitful school-home relationships. Parent tips to extend language and provide literacy-enriched home environments and activities are listed. The text urges educators to honor children's homegrown literacy knowledge and skills. Well-prepared educators recognize that families may use various and diverse vocabulary- and literacy-building strategies. Cultural differences are increasingly commonplace in America's classrooms, and each child's unique difference is respected and dignified as teachers promote the English language arts.

New Features

The eleventh edition includes a number of new features to aid the student's mastery of each chapter's content.

- **NEW Learning Objectives** at the beginning of each chapter now correlate with main headings within the chapter and the Summary at the end of the chapter. The objectives highlight what students need to know to process and understand the information in the chapter. After completing the chapter, students should be able to demonstrate how they can use and apply their new knowledge and skills.
- **NEW and improved integration of early childhood professional standards** helps students make connections between what they are learning in the textbook and the standards. This edition now contains a list of standards covered at the beginning of each chapter, including NAEYC's Early Childhood Program Standards and Accreditation Criteria, 2007; Developmentally Appropriate Practice (DAP): Focus on Infants and Toddlers (2013); and Common Core Standards for English language arts and literacy. These standards are called out with icons throughout the text; a complete list of the standards can be found in the standards correlation chart on the inside front and back covers.
- **NEW TeachSource Digital Downloads** are downloadable and sometimes customizable practical and professional resources, which allow students to immediately implement and apply the textbook's content in the field. Students can download these tools and keep them forever, enabling preservice teachers to begin building a library of practical, professional resources. Look for the TeachSource Digital Download label that identifies these items.
- **New MindTap for Education** is a first-of-its kind digital solution that prepares teachers by providing them with the knowledge, skills, and competencies they must demonstrate to earn an education degree and state licensure, and to begin a successful career. Through activities based on real-life teaching situations, MindTap elevates students' thinking by giving them experiences in applying concepts, practicing skills, and evaluating decisions, guiding them to become reflective educators.
- **NEW Brain Connection** boxes place additional emphasis on brain-based learning practices.
- **Updated coverage of technology and literacy learning** including information about the joint position statement from NAEYC, the Fred Rogers Center for Early Learning, and Children's Media at St. Vincent College.
- **Additional attention to children's oral language experience** has been included to help beginning teachers increase children's conversation and expression of ideas and discoveries.
- **Newly described teacher interaction behaviors** (Chapter 8) are used in the discussion of children's comprehension of storybook read-alouds and the promotion of their development of analytical thinking while enjoying literature.

Other Features

- **TeachSource Videos**—The TeachSource Videos feature footage from the classroom to help students relate key chapter content to real-life scenarios. Critical-thinking questions following each video provide opportunities for in-class or online discussion and reflection.
- **Discussion Vignettes**—Discussion Vignettes introduce chapters with real-life classroom teaching situations that promote student analysis. The Questions to Ponder that follow promote reflection and class discussion.
- **Additional Resources**—This section follows each chapter's summary. It presents readings for students wanting further depth, reinforcement of chapter topics, and/or pursuit of special interests. Resources such as commercial educational materials, professional organizations in which further information can be obtained, and helpful websites are also included.
- In addition to current research, the eleventh edition continues to use classic findings and recommendations.

Supplements

- **NEW MindTap™, The Personal Learning Experience, for Machado's, *Early Childhood Experiences in Language Arts: Early***

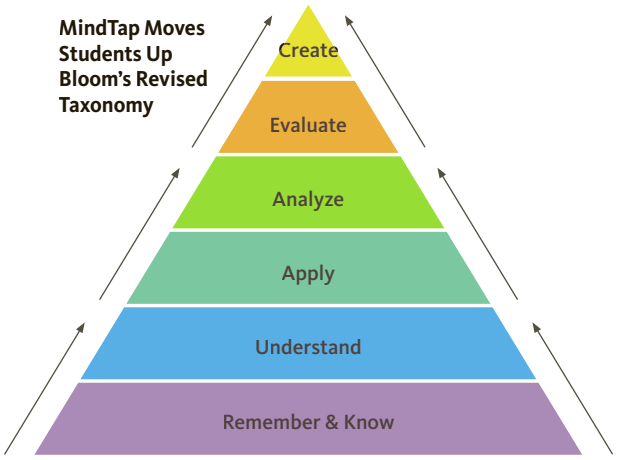
***Literacy*, Eleventh Edition**, represents a new approach to teaching and learning. A highly personalized, fully customizable learning platform, MindTap, helps students to elevate thinking by guiding them to:

- Know, remember, and understand concepts critical to becoming a great teacher;
- Apply concepts, create tools, and demonstrate performance and competency in key areas in the course;
- Prepare artifacts for the portfolio and eventual state licensure, to launch a successful teaching career; and
- Develop the habits to become a reflective practitioner.

As students move through each chapter's Learning Path, they engage in a scaffolded learning experience designed to move them up Bloom's Taxonomy from lower- to higher-order thinking skills. The Learning Path enables preservice students to develop these skills and gain confidence by:

- Engaging them with chapter topics and activating their prior knowledge by watching and answering questions about TeachSource videos of teachers teaching and children learning in real classrooms;
- Checking their comprehension and understanding through *Did You Get It?* assessments, with varied question types that are autograded for instant feedback;
- Applying concepts through mini-case scenarios—students analyze typical teaching and learning situations and create a reasoned response to the issue(s) presented in the scenarios; and
- Reflecting about and justifying the choices they made within the teaching scenario problem.

MindTap helps instructors facilitate better outcomes by evaluating how future teachers plan and teach lessons in ways that make content clear and help diverse students learn, assessing the effectiveness of their teaching practice, and adjusting teaching as needed. The Student Progress App makes grades visible in real time so students and instructors always have access to current standings in the class.



Anderson, L. W., & Krathwohl, D. (Eds.). (2001). *A taxonomy for learning, teaching, and assessing: A revision of Bloom's taxonomy of educational objectives.* New York: Longman.

MindTap for *Early Childhood Experiences in Language Arts*, Eleventh Edition, helps instructors easily set their course because it integrates into the existing Learning Management System and saves instructors time by allowing them to fully customize any aspect of the learning path. Instructors can change the order of the student learning activities, hide activities they don't want for the course, and—most importantly—add any content they do want (e.g., YouTube videos, Google docs, links to state education standards). Learn more at www.cengage.com/mindtap.

Online Instructor's Manual with Test Bank

An online Instructor's Manual accompanies this book. It contains information to assist the instructor in designing the course, including: sample syllabi, discussion questions, teaching and learning activities, field experiences, learning objectives, and additional online resources. For assessment support, the updated test bank includes true/false, multiple-choice, matching, short-answer, and essay questions for each chapter.

PowerPoint® Lecture Slides

These vibrant Microsoft® PowerPoint lecture slides for each chapter assist you with your lecture by providing concept coverage using images, figures, and tables directly from the textbook.

Cognero

Cengage Learning Testing Powered by Cognero is a flexible online system that allows you to author, edit, and manage test bank content from multiple Cengage Learning solutions; create multiple test versions in an instant; and deliver tests from your LMS, your classroom, or wherever you want.

Professional Enhancement Book

A new supplement to accompany this text is the Language Arts and Literacy Professional Enhancement booklet for students. This book, which is part of Cengage Learning's Early Childhood Education Professional Enhancement series, focuses on key topics of interest to future early childhood teachers and caregivers. Students will keep this informational supplement and use it for years to come in their early childhood practices.

About The Author

The author's experience in the early childhood education field has included full-time assignment as community college instructor and department chairperson. Her duties included supervision of early childhood education students at two on-campus laboratory child development centers at San Jose City College and Evergreen Valley College, as well as child centers in the local community. Her teaching responsibilities encompassed early childhood education, child development, and parenting courses.

She received her Master's Degree from San Jose State University and her community college life credential with coursework from the University of California at Berkeley. Her experience includes working as an elementary school teacher, preschool owner/director, work experience instructor/advisor, early childhood and family studies community college and university instructor, and an education consultant in public, private, and parent cooperative programs. Ms. Machado is an active participant in several professional organizations concerned with the education and well-being of young children and their families. She is a past president of California Community College Early Childhood Educators (CCCECE) and the Peninsula Chapter of the California Association for the Education of Young Children. In addition to *Early Childhood Experiences In Language Arts*, she co-authored with Dr. Helen Meyer-Botnarescue a text for student teachers called *Student Teaching: Early Childhood Practicum Guide,* Seventh Edition, ©2011. She also co-authored *Employment Opportunities in Education: How to Secure Your Career*, ©2006, with Romana Reynolds. Ms. Machado consults with parents, teachers, and administrators, and interacts with young children in classrooms in Cascade, Idaho, and San Jose, California.

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To The Student

Because you are a unique, caring individual who has chosen an early childhood teaching career or who is currently working with children, this text is intended to help you discover and share your developing language arts gifts and talents. Create your own activities using your college coursework and life experiences and an assessment of what would be valuable growing opportunities for the children you teach. Design and base your activities on an understanding of current research and theory. Consider the wisdom you have gained through your past experiences with children. Share your specialness and make your classroom memorable as a place where literature and communication thrive.

In this text, I urge you to become a skilled teacher who interacts, converses, and collaborates, and acts as "a subtle opportunist," getting the most possible out of each child–adult interaction. Make your joy in the language arts the children's joy. You can make a difference in young children's lives. Ideally, this text will help you become the kind of teacher who does. Because I am growing, too, I invite your suggestions and comments, so that in future editions I can refine and improve this text's value.

1 Beginnings of Communication

Objectives

After reading this chapter, you should be able to:

1-1 Discuss the reciprocal behaviors of infants, parents, and caregivers.
1-2 Name four important influences that may affect an infant's language growth and development.
1-3 Compare two theories of human language emergence.
1-4 Name two areas of particular importance to infant care addressed in Developmentally Appropriate Practice (DAP) guidelines.
1-5 Discuss the behaviors and vocalizing efforts that infants use to communicate their needs and desires.
1-6 Describe what caregiver actions should take place when infants develop joint attentional focus.
1-7 Name and comment upon early reading and writing activities in late infancy.
1-8 Identify how infant centers monitor each infant's language and communicating behaviors.

NAEYC Program Standards

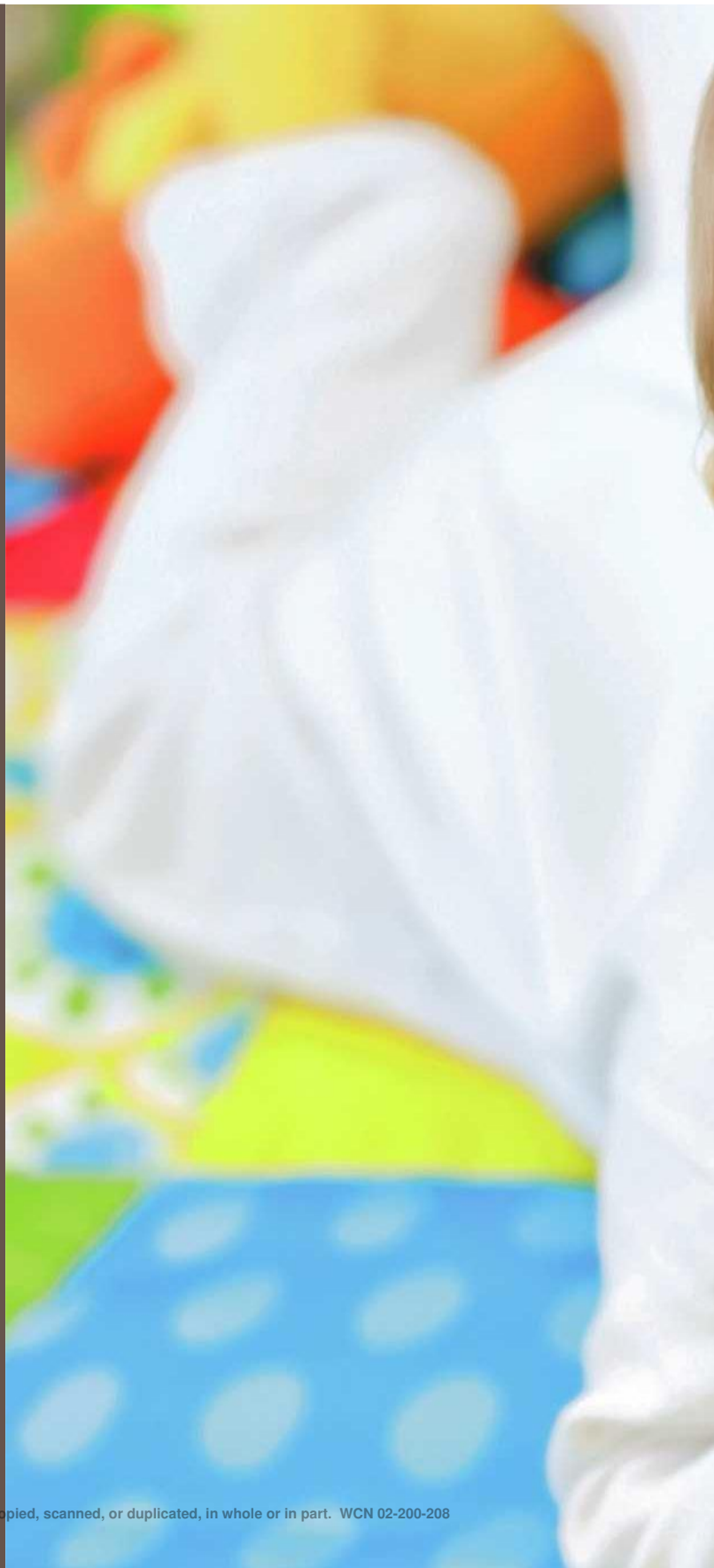
1A05 Teacher shares information with families about classroom expectations and routines.
1B01 Teaching staff foster children's emotional well-being by demonstrating respect for children and creating a positive emotional climate as reflected in behaviors, such as frequent social conversations, joint laughter, and affection.
1B11 Teaching staff engage infants in frequent face-to-face social interactions each day.
1B14 Teaching staff quickly respond to infants' cries or other signs of distress by providing physical comfort and needed care.

Developmentally Appropriate Practice (DAP)

1A2 The infant's primary caregiver comes to know the child and family well, and so is able to respond to that child's individual temperament and needs and cues, and to develop a mutually satisfying pattern of communication.
1B1 Caregivers talk in a pleasant, calm voice, making frequent eye contact.
1C1 Caregivers often talk about what is going on with the infant.
1D2 Caregivers observe and listen and respond to sounds the infant makes.
1D3 Caregivers frequently talk to, sing to, and read to infants.
3B3 Appropriate games are played with interested infants.

Common Core State Standards for English Language Arts and Literacy

L.CCR 3 Apply knowledge to understand how language functions in different contexts.



A New Sign

Noah, 10 months, had a new sign for "cracker" that he had used a few times during the day at the infant center. He was very pleased when his "sign" resulted in someone bringing him a cracker. At pick-up time, one of the staff believed it important to talk to Noah's dad. Mr. Soares did not really understand what the teacher, Miss Washington, was talking about when she said "signing." Miss Washington gave Mr. Soares a quick explanation. He smiled proudly and then said, "That's great. I'll talk to his mom and let her know."

Questions to Ponder

1. Miss Washington had a new language-related topic for the next staff meeting. What would you suspect it was?
2. Did this episode tell you something about the language-developing quality of the infant center?
3. What do you know about male infants and their signing ability compared with that of female infants? Could you describe infant signing behavior?

(If you are hesitating, this chapter provides answers.)

In this chapter the reader is acquainted with those elements in an infant's life that facilitate optimal growth in communication and language development. Socioemotional, physical, cognitive, and environmental factors that influence, promote, or deter growth are noted. Recommended interaction techniques and strategies are supported by research and reflect accepted appropriate practices and standards. As foundational aspects of infant communication are presented, *boxed* descriptions of the attuned and reciprocal behaviors caregivers make with infants are provided. Caregivers establish a relationship with each infant in their care, and the quality of that relationship serves to motivate each infant to engage in learning (McMullen & Dixon, 2006). Higher levels of warmth are connected to positive caregiver sensitivity. Gerber, Whitebook, & Weinstein (2007) note that the quality of caregiver practices has been linked to children's brain development and cognitive functioning.

For you to become the kind of educator children deserve, one who enhances language growth, you should begin by believing that most infants are able and natural communicators from birth onward unless some life circumstance has modified their natural potential. Infant care facilities with well-planned, positive, and growth-producing environments—that are staffed with skilled, knowledgeable, and well-trained adults who offer developmentally appropriate activities—provide a place where infants can and do thrive.

Each infant is a unique combination of inherited traits and environmental influences. Structural, hormonal, and chemical influences present before birth may have affected the growth and development of the fetus (Gould, 2002). Newborns seem to assimilate information immediately and are interested in their surroundings. Some suggest an infant possesses "the greatest mind" in existence and is the most powerful learning machine in the universe. During the third trimester of pregnancy, most mothers notice that their babies kick and move in response to music or loud noises. The sound of speech may draw a less spirited reaction, but there is little question that fetuses hear and react to a wide variety of sounds and seem to recognize the rhythm of their mother's voice.

Technology can now monitor the slightest physical changes in breathing, heartbeat, eye movement, and sucking rhythm and rates. Babies begin learning how to carry on conversations quickly and sucking patterns produce a **rhythm** that mimics that of give-and-take dialogues. Infants respond to very specific maternal signals, including tone of voice, facial changes, and head movements.

Greenspan (1999) suggests what may happen when interacting with a one- or two-month-old baby at a relaxed time after a nap or feeding:

> … when you hold him at arm's length and look directly into his eyes with a broad smile on your face, watch his lips part as if he's trying to imitate your smile. (p. 31)

Babies gesture and make sounds and seem to hold up their ends of conversations, but, at times, they appear to suppress output and channel their energy into seeing and hearing. Their eye contact with their caregivers, called **gaze coupling**, is believed to be one of their first steps in establishing communication. Infants can

rhythm — uniform or patterned recurrence of a beat, accent, or melody in speech.
gaze coupling — infant-mother extended eye contact.

shut off background noises and pay attention to slight changes in adult voice sounds.

An attuned adult responds with sensitivity and accuracy based on an understanding of an infant's (child's) cues.

an ATTUNED adult would:

- notice infant actions, including gestures, body positioning, noisemaking, eye gazing, and any shift from listening to watching.
- make face-to-face contact frequently.
- display admiration, affection, and pleasure and smile frequently.
- provide verbal and nonverbal communication.
- seek to maintain and prolong eye contact. <

McMillen (2013) posits babies are captivating, wondrous, and beguiling beings coming into the world fully equipped to enchant and draw us in. The qualities an infant inherits from parents and the events that occur in the child's life help shape the child's language development. Gender, temperament, and a timetable for the emergence of intellectual, emotional, and physical capabilities are all genetic givens. In the short four to five years after birth, the child's speech becomes purposeful and similar to adult speech. This growing language skill is a useful tool for satisfying needs and exchanging thoughts, hopes, and dreams with others. As ability grows, the child understands and uses more of the resources of oral and recorded human knowledge and is well on the way to becoming a literate being.

The natural capacity to categorize, to invent, and to remember information aids the child's language acquisition. Although unique among the species because of the ability to speak, human beings are not the only ones who can communicate. Birds and animals also imitate sounds and signals and are believed to communicate. For instance, chimpanzees exposed to experimental language techniques (American Sign Language, specially equipped machines, and plastic tokens) have surprised researchers with their language abilities. Some have learned to use symbols and follow linguistic rules with a sophistication that rivals that of some two-year-olds. Researchers continue to probe the limits of their capabilities. However, a basic difference between human beings and other species exists.

It is the development of the cerebral cortex that sets humans apart from less intelligent animals. Our advanced mental capabilities, such as thought, memory, language, mathematics, and complex problem solving, are unique to human beings. Humans have the unique species-specific ability to test hypotheses about the structure of language. They can also develop rules for a particular language and remember and use them to generate appropriate language. Within a few days after birth, human babies recognize familiar faces, voices, and even smells and prefer them to unfamiliar ones.

Infant research has advanced by leaps and bounds to reveal amazing newborn abilities. Long before they can talk, for example, babies remember events and solve problems. They can recognize faces, see colors, hear voices, discriminate speech sounds, and distinguish basic tastes. When you combine the psychological and neurological evidence, it is hard not to conclude that babies are just plain smarter

TeachSource Video 1-1

Observing and Monitoring Language Development in Infants: The Importance of Assessment

This video provides an example of a body motion play that is taking place with infants.

1. How long were the infants able to attend to the body play before they started turning away?
2. The babbling of a consonant was demonstrated by a child; do you know which consonant?
3. Did you notice infants imitating teacher actions?
4. Did teachers really understand why toddlers were distressed or did they have to guess?

than adults. This is especially true when it comes to learning something new.

Begley (2009) urges teachers to be aware that a child's genes (inherited DNA) in themselves do not determine intelligence or any other complex human trait. An infant or child's appearance and temperament may elicit particular parent and teacher behaviors. These can include the adult's responsiveness and ability to pay attention to, interact with, speak with, and provide intellect-building interaction to the child. naeyc

1-1 Infant Actions Prompt Caregiver Behaviors naeyc

The human face becomes the most significantly important communication factor for the infant, and the facial expressions, which are varied and complex, eventually will influence infant body reactions (interior and exterior). Caregivers strive to understand the infant's state of well-being by interpreting the infant's face and postures, as infants also search faces in the world around them.

Figure 1-1 identifies a number of signals infants use and their probable meanings. Response and intentional behavior become apparent as infants age and gain experience. Infants initially respond with various preprogrammed gestures, such as: smiling, intent and interested looking, crying, satisfied sucking, and snuggling. Soon these behaviors are followed by active demanding and attention-seeking patterns in which attempts to attract and solicit caregiver attention rapidly become unmistakable and intentional.

Figure 1-1 Born communicators.

Infant Acts	Probable Meaning
turning head and opening mouth	feeling hungry
quivering lips	adjusting to stimuli
sucking on hand, fist, thumb	calming self, feeling overstimulated
averting eyes	tuning out for a while
turning away	needing to calm down
yawning	feeling tired/stressed
looking wide-eyed	feeling happy
cooing	feeling happy
appearing dull with unfocused eyes	feeling overloaded, needing rest
waving hands	feeling excited
moving tongue in and out	feeling upset/imitating

Photo 1-1 "Wow, that is interesting!"

Researchers are studying the roles of facial expressions, gestures, and body movements in human social communication (Photo 1-1). Early expressions that look like smiling may occur minutes after birth and are apparent in the faces of sleeping babies, whose facial expressions seem to constantly change. When studying infant smiling during an infant's first week of life, observers note that infants smile during brief alertness periods, when drowsy, in active and quiet sleep, and randomly when nothing seems to provoke it. Many parents have noticed that smiling most often occurs in deep sleep.

Caregivers observe that infants search for the source of the human voice and face. An infant may become wide-eyed and crane his neck and lift his chin toward the source. His body tension increases as he becomes more focused and somewhat inactive. Most caregivers respond to these signals by picking up the infant and cuddling him. The National Association for the Education of Young Children in a 2013 publication, *Developmentally Appropriate Practice: Focus on Infants and Toddlers*, points out that it is a caregiver's responsibility to cultivate children's (infants' and toddlers') delight in exploring and understanding their world. They believe early childhood should be a time of laughter, love, play, and great fun.

an **ATTUNED** adult would:

- be aware of opportunities to soothe and touch and engage in some way with an infant.
- pick up and hold an infant gently while providing firm support.
- note an infant's well-being and comfort.
- attempt to interpret an infant's facial and body signals. <

1-1a Definitions

Language, as used in this text, refers to a system of intentional communication and self-expression through sounds, signs (gestures), or symbols that are understandable to others. Language also refers to a symbol-based, rule-governed, multidimensional system that is used to represent the world internally and to others through the process of communication (Pence, Justice, & Wiggins, 2008). The language-development process includes both sending and receiving information. Input (receiving) comes before output (sending); input is organized mentally by an individual long before there is decipherable output.

Communication is a broader term, defined as giving and receiving information, signals, or messages. A person can communicate with or receive communications from animals, infants, or foreign speakers in a variety of ways. Even a whistling teakettle sends a message that someone can understand. Infants appear to be "in tune," focused on the human voice, hours after birth.

Speech is much more complex than simple parroting or primitive social functioning. The power of language enables humans to dominate other life forms. The ability to use language secured our survival by giving us a vehicle to both understand and transmit language and to work cooperatively with others. Language facilitates peaceful solutions between people.

1-2 Influences on Development

A child's ability to communicate involves an integration of body parts and systems allowing hearing, understanding, organizing thoughts, learning, and using language. Most children accomplish the task quickly and easily, but many factors influence the learning of language.

Research suggests that babies instinctively turn their heads to face the source of sound and can remember sounds heard before birth. This has prompted mothers to talk to, sing to, and read classic literature and poetry to the unborn. Research has yet to document evidence of the benefits of these activities.

Of all sounds, nothing attracts and holds the attention of infants as well as the human voice—especially the higher-pitched female voice. "Motherese," a distinct caregiver speech, is discussed later in this chapter. Dietrich, Swingley, and Werker (2007) note:

> Infants begin to acquire their language by learning phonetic categories. At birth, infants seem to distinguish most of the phonetic contrasts used by the world's languages. However, over the first year, this "universal" capacity shifts to a language-specific pattern in which infants retain or improve categorization of native-language sounds but fail to discriminate many non-native sounds. (p. 16030)

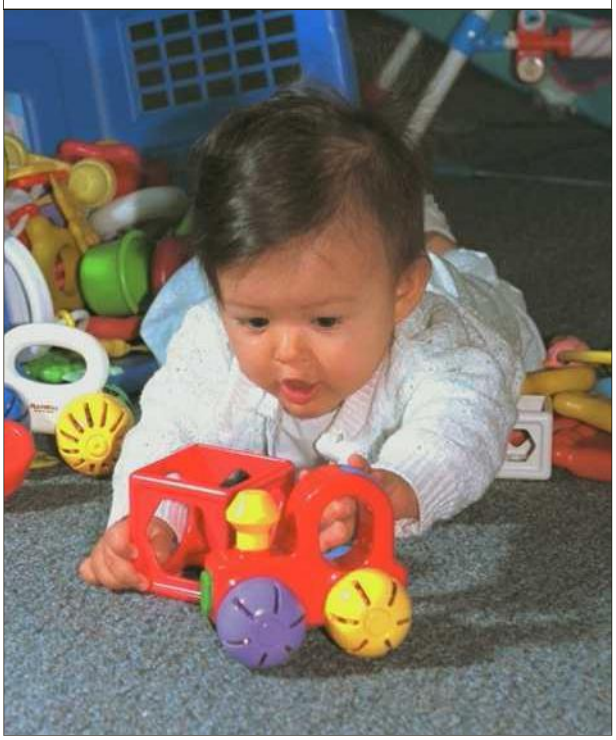
Rhythmic sounds and continuous, steady tones soothe some infants. A number of commercial sound-making products that attempt to soothe can be attached to cribs or are imbedded in plush stuffed animals. Most emit a type of static or heartbeat sound or a combination of the two. Too much sound in the infant's environment, especially loud, excessive, or high-volume sounds, may have the opposite effect. Excessive household noise can come from televisions or other sources. Many have described sensory-overload situations when infants try to turn off sensory input by turning away and somehow blocking that which is at the moment overwhelming, whether the stimulus is mechanical or human. This blocking includes falling asleep.

Although hearing ability is not fully developed at birth, newborns can hear moderately loud sounds and can distinguish different pitches. Newborns' auditory systems are better developed than their sight systems, so the importance of language and voices to children's development is evident from the start (Galinsky, 2010). During the last weeks of pregnancy, a child's auditory system becomes ready to receive and remember sounds.

language — the systematic, conventional use of sounds, signs, or written symbols in a human society for communication and self-expression. It conveys meaning that is mutually understood.

communication — the giving (sending) and receiving of information, signals, or messages.

Photo 1-2 Sound-making toys attract attention.



Auditory acuity develops swiftly. Infants inhibit motor activity in response to strong auditory stimuli or when listening to the human voice, and attempt to turn toward it. Some researchers see this as an indication that infants are geared to orient their entire bodies toward any signal that arouses interest (Photo 1-2). Infants' body responses to human verbalizations are a rudimentary form of speech development (Figure 1-2).

Sensory-motor development, which involves the use of sense organs and the coordination of motor systems (body muscles and parts), is vital to language acquisition. Sense organs gather information through seeing, hearing, smelling, tasting, and touching. These sense-organ impressions of people, objects, and life encounters are sent to the brain, and each **perception** (impression received through the senses) is recorded and stored, serving as a base for future oral and written language.

Newborns and infants are no longer viewed as passive, unresponsive "mini-humans." Instead, infants are seen as dynamic individuals, preprogrammed to learn, with functioning sensory capacities, motor abilities, and a wondrous built-in curiosity. Families and caregivers can be described as guides who provide opportunity and act *with* newborns, rather than *on* them.

1-2a Beginning Socialization

A child's social and emotional environments play a leading role in both the quality and the quantity of beginning language. Many researchers

Figure 1-2 Auditory perception in infancy.

Age	Appropriate Hearing Behaviors
birth	awakens to loud sounds startles, cries, or reacts to noise makes sounds looks toward then looks away from environmental sounds
0–3 months	turns head to hear parent's or others' speech reacts to speech by smiling opens mouth as if to imitate adult's speech coos and goos seems to recognize a familiar voice calms down when adult's voice is soothing repeats own vocalizations seems to listen to and focus on familiar adults' voices
4–6 months	looks toward environmental noise (e.g., barking, vacuum, doorbell, radio, TV) attracted to noise-making toys babbles consonant-like sounds makes wants known with voice seems to understand "no" reacts to speaker's change of tone of voice
7–12 months	responds to own name may say one or more under-standable but not clearly articulated words babbles repeated syllables or consonant- and vowel-like sounds responds to simple requests enjoys playful word games like Peak-a-boo, Pat-a-cake, etc. imitates speech sounds frequently uses sound making to gain others' attention

auditory — relating to or experienced through hearing.

acuity — how well or clearly one uses the senses; the degree of perceptual sharpness.

sensory-motor development — the control and use of sense organs and the body's muscle structure.

perception — mental awareness of objects and other data gathered through the five senses.

describe communicative neonatal behaviors that evoke tender feelings in adults. Human children have the longest infancy among animals. Our social dependency is crucial to our individual survival and growth. Much learning occurs through contact and interaction with others in family and social settings. Basic attitudes toward life, self, and other people form early, as life's pleasures and pains are experienced. The young child depends on parents and other caregivers to provide what is needed for growth and **equilibrium** (a balance achieved when consistent care is given and needs are satisfied). This side of a child's development has been called the **affective sphere**, referring to the affectionate feelings—or lack of them—shaped through experience with others (Photo 1-3). Most experts believe that each time an infant takes in information through the senses, the experience is double-coded as both a physical/cognitive reaction and as an emotional reaction to those sensations.

Photo 1-3 Care and attention in the early years influence language development.

Photo 1-4 An infant who feels comfortable and whose needs are satisfied is alert to the world.

Textbooks often speak indirectly about the infant's need to feel loved consistently, using words like *nurturance*, *closeness*, *caring*, and *commitment*. The primary goal of parents and caregivers should be handling the infant and satisfying the child's physical needs in a way that leads to mutual love and a bond of trust (Photo 1-4). This bond, often called **attachment**, is an event of utmost importance to the infant's progress. A developmental milestone is reached when a baby responds with an emotional reaction of his own by indicating obvious pleasure or joy in the company of a parent or caregiver (Figure 1-3). Attachment is formed through mutual gratification of needs

equilibrium — a balance attained with consistent care and satisfaction of needs that leads to a sense of security and lessens anxiety.

affective sphere — the affectionate feelings (or lack of them) shaped through experience with others.

attachment — a two-way process formed through mutual gratification of needs and reciprocal communication influenced by the infant's growing cognitive abilities. It is sometimes referred to as bonding or a "love affair" relationship.

Figure 1-3 Milestones in developing language behavior.

Infant's Age	Stages of Language Development
before birth	Listens to sounds. Reacts to loud sounds.
at birth	Birth cry is primal, yet individual—vowel-like. Cries to express desires (for food, attention, and so on) or displeasure (pain or discomfort). Makes eating, sucking, and small throaty sounds. Hiccups. Crying becomes more rhythmic and resonant during first days. Shows changes in posture—tense, active, or relaxed.
first days	Half cries become vigorous; whole cries begin to take on depth and range. Coughs and sneezes.
1 month	Three to four vowel sounds apparent. Seems to quiet movements and attend to mother's voice. Eating sounds mirror eagerness. Sighs and gasps. Smiles in sleep.
2–3 months	Coos and makes pleasurable noises (babbling) and blowing and smacking sounds. Most vowel sounds are present. Open vowel-like babbles may begin. Consonant sounds begin, usually the following—*b, d, g, h, l, m, n, p, t*. Markedly less crying. Smiles and squeals and may coo for half a minute. Peers into faces. Adults may recognize distinct variations in cries (i.e., cries that signal fear, tiredness, hunger, pain, and so on). Focuses on mother's face and turns head to her voice. May be frightened by loud or unfamiliar noise. May blow bubbles and move tongue in and out.
4–5 months	Sound play is frequent. Social smiling more pronounced. Can whine to signal boredom. May laugh. Reacts to tone of voice. Seems to listen and enjoy music. Likes adult vocal play and mimicking. Favorite people seem to induce verbalness. Babbles several sounds in one breath. Body gestures signal state of comfort or discomfort. Attracted to sounds. Approaching six months of age, may start to show understanding of words often used in household. Turns head and looks at speaking family members. Consonant sounds more pronounced and frequent.
6–8 months	Increased babbling and sound making; repeats syllables; imitates motions and gestures; uses nonverbal signals; vocalizes all vowel sounds; reduplication of utterances; more distinct intonation. Increases understanding of simple words. Enjoys making noise with toys and household objects. Repeats actions to hear sounds again. May blow toy horn. Delights in rhythmic vocal play interchange, especially those that combine touching and speaking. Twists and protrudes tongue, smacks, and watches mother's mouth and lips intently. May look at picture books for short period or watch children's television programs.
9–10 months	May make kiss sounds. Increasing understanding of words like *no-no*, *mommy*, *daddy*, *ball*, *hat*, and *shoe*. May play Pat-a-cake and wave bye-bye. May hand books to adults for sharing. Uses many body signals and gestures. May start jargonlike strings of sounds, grunts, gurgles, and whines. Listens intently to new sounds. Imitates.
11–14 months	Reacts to an increasing number of words. Speaks first word(s) (usually words with one syllable or repeated syllable). Points to named objects or looks toward named word. Makes sounds and noises with whatever is available. Imitates breathing noises, animal noises (like dog's bark or cat's meow), or environmental noises (like "boom" or train toot). Uses many body signals, especially "pick me up" with arms outstretched and reaching for another's hand, meaning "come with me." May understand as many as 40 to 50 words. At close to 15 months, one word has multiple meanings. Jargonlike strings of verbalness continue. The child's direction of looking gives clues to what the child understands, and the child may have a speaking vocabulary of 10 or more words. Uses first pretend play gestures such as combing hair with a spoon-shaped object, drinking from a pretend cup, pretending to eat an object, and pretending to talk with another on a toy telephone.

and reciprocal communication influenced by the infant's growing cognitive ability. The two-way nature of the attachment process is also referred to as bonding. The infant develops a beginning mental picture of the way people in his life interact with one another in systematic and loving relationships. Bardige (2009) describes early bonding in this way:

> Call it chemistry, natural attraction, or falling in love—babies lure adults from the start, and adults who tune in are easily lured. Bonding begins when parent and baby see each other for the first time—and it's a two-way street. With their large eyes and sweet expressions, babies are as cute as they are helpless. Adults naturally soften in their presence, and soon baby and parent are gazing into each other's eyes and forging a connection. (p. 20)

The special feelings an infant develops for a main caregiver later spread to include a group of beloved family members. If an attachment bond is evident and consistent care continues, the child thrives. Social interaction with an empathic and attuned caregiver plays the major role in the growth and regulation of the child's nervous system, and it helps the infant develop the strength needed to become socially competent (Gould, 2002).

Newborns seem to have an individual preferred level of arousal, a **moderation level**, neither too excited nor too bored. They seek change and stimulation and seem to search out newness. Each human may possess an optimal level of arousal—a state when learning is enhanced and pleasure peaks. Mothers and experienced caregivers try to keep infants at moderate levels of arousal, neither too high nor too low. One can perceive three states during an older infant's waking hours: (1) a state in which everything is all right and life is interesting; (2) a reactive state to something familiar or unfamiliar, when an observer can see an alert "what's that?" or "who's that?" response; and (3) a crying or agitated state. One can observe a switch from feeling safe or happy to feeling unsafe or unhappy in a matter of seconds (Photo 1-5). Loud noises can startle the infant and elicit distressed crying. Infants control input and turn away or turn off by moving their eyes and head or body and by becoming fussy or falling asleep.

Greenspan (1999) urges parents and caregivers of infants to improve their observational skills.

Photo 1-5 With tears still wet, this infant has moved on to observing another feature of his environment.

> As you sharpen your observational skills and pay attention to the times when your baby seems to have more trouble becoming calm and sharing attention with you, you'll begin to assemble a truly revealing developmental profile of your child. You'll start recognizing whether an unpleasant smell, an unexpected hug or cuddle, or a piercing noise overwhelms your child. Don't forget, though, that even a crying, finicky baby is capable of a lot of looking and listening. You may receive some very expressive looks from your three-month-old when he's got a gas bubble in his stomach! If you rub his back while murmuring sympathetically, he may be encouraged to keep his looking and listening skills even when he's not feeling so good. He may be able to use your soothing sounds and touches to calm him. Practicing under slightly stressful conditions will make him into a stronger looker and listener later on. (p. 201)

an **ATTUNED** adult would:

- observe closely.
- assess infants' needs and work to satisfy them.
- notice reactions to room sounds—sound intensity or rhythm or other features.
- calm infants when necessary by trying a variety of strategies.
- use an attention-getting voice, voice variety, and/or high-pitched tones. <

moderation level — an individual preferred state of arousal between bored and excited when learning and pleasure peak.

1-2b Parent and Caregiver Attitudes and Expectations

As mentioned earlier, research indicates that parent and caregiver attitudes and expectations about infants' awareness and sensory abilities may be predictive of developmental growth.

> Certainly there are many possible explanations for developmental differences. But the fact remains: The earlier a mother thought her baby would be aware of the world, the more competent her baby grew to be. Why was this so? It is because the mothers treated the babies according to their expectations. In home visits, researchers observed that mothers who knew more about their infants' abilities were more emotionally and verbally responsive to their babies. They talked to them more. They provided them with more appropriate play materials and initiated more stimulating experiences. And they were more likely to allow their babies to actively explore the world around them. (Acredolo & Goodwyn, 2000, p. 102)

How we perceive children (infants) shapes how we treat them and therefore what experiences we give them (Begley, 2009). Eliot, a neuroscientist and author of *Pink Brain, Blue Brain* (2009), believes there is little solid evidence that sex differences exist in young children's brains. She maintains the sex differences in adult brains are the result of parent actions and expectancies and life experiences in infancy and childhood.

Eliot points out baby boys are often more irritable than girls, making parents less likely to interact with their thought-to-be nonsocial sons. She notes that, at four months, infant boys and girls differ in amount of eye contact, sociability, emotional expressivity, and verbal ability they exhibit. This, she feels, is not an innate trait but a self-fulfilling prophecy arising from an expectation that males are nonverbal and emotionally distant. Eliot entreats educators to not act in ways that make these perceived characteristics come true.

1-2c Growing Intellect

Other important factors related to the child's mental maturity or ability to think are ages, stages, and sequences of increased mental capacity that are closely related to language development. Language skill and intellect seem to be growing independently, at times, with one or the other developing at a faster rate. The relationship of intelligence and language has been a subject of debate for a long time. Most scholars, however, agree that these two areas are closely associated. Researchers suspect the mind's most important faculties are rooted in emotional experiences from very early in life.

The natural curiosity of humans requires discussion here. Curiosity can be defined as a compulsion (drive) to make sense of life's happenings. Over time, exploring, searching, groping, and probing by infants shift from random to controlled movements. At approximately eight months of age, infants begin to possess insatiable appetites for new things—touching, manipulating, and trying to become familiar with everything that attracts them. Increasing motor skill allows greater possibilities for exploration. Skilled caregivers of infants are kept busy trying to provide novelty, variety, and companionship while monitoring safety. The curiosity of infants seems to wane only when they are tired, hungry, or ill, but even then they are learning. Galinsky (2010) notes:

> Some people think babies aren't learning about talking until they start to babble or say actual words, but that couldn't be farther from the truth. (p. 112)

Cultural Ideas Concerning Infant Communication. Cultural and social forces affect language acquisition. They influence young lives through contact with group attitudes, values, and beliefs. Some cultures expect children to look downward when adults speak, showing respect by this action. Other cultures make extensive use of gestures and signaling. Still others seem to have limited vocabularies or believe that engaging in conversations with infants is inappropriate.

1-3 Theories of Language Emergence

Many scholars, philosophers, linguists, and researchers have tried to pinpoint exactly how language is learned. People in major fields of study—human development, linguistics, sociology, psychology, anthropology, speech-language pathology, and animal study (zoology)—have contributed to current theory. The following are major theoretical positions.

1-3a Behaviorist/Environmentalist (or Stimulus-Response) Theory

As parents and main caregivers reward, correct, ignore, or punish the young child's communication, they exert considerable influence over both the quantity and quality of language usage and the child's attitudes toward communicating. Under this theory, the reactions of the people in a child's environment have an important effect on a child's language development. In other words, positive, neutral, and negative reinforcement play a key role in children's emerging communicating behaviors.

The child's sounds and sound combinations are thought to be uttered partly as imitation and partly at random or on impulse, without pattern or meaning. The child's utterances may grow, seem to reach a standstill, or become stifled, depending on feedback from others (Photo 1-6). This theory is attributed to the work of B. F. Skinner, a pioneer researcher in the field of learning theory.

1-3b Maturational (Normative) Theory

This theory represents the position that children are primarily a product of genetic inheritance and that environmental influences are secondary. Children are seen as moving from one predictable stage to another, with "readiness" the precursor of actual learning. This position was widely accepted in the 1960s, when linguists studied children in less-than-desirable circumstances and discovered consistent patterns of language development. Using this theory as a basis for planning instruction for young children includes (1) identifying predictable stages of growth in language abilities and (2) offering appropriate readiness activities to aid children's graduation to the next higher level.

Photo 1-6 Enjoyable conversational interactions occur early in life.

1-3c Predetermined/Innatist Theory

Under this theory, language acquisition is considered innate (a predetermined human capacity). Each new being is believed to possess a mental ability that enables that being to master any language to which he has been exposed from infancy. Chomsky (1968), a linguistic researcher, theorizes that each person has an individual language acquisition device (LAD). Chomsky also theorizes that this device (capacity) has several sets of language system rules (grammar) common to all known languages. As the child lives within a favorable family climate, his perceptions spark a natural and unconscious device, and the child learns the "mother tongue." Imitation and reinforcement are not ruled out as additional influences.

Chomsky notes that two- and three-year-olds can utter understandable, complicated sentences that they have never heard. More current theory also suggests that young children are equipped with an implicit set of internal rules that allows them to transform the sequences of sounds they hear into sequences of ideas—a remarkable thinking skill. Theorists who support this position note the infant's ability to babble sounds and noises used in languages the child has never heard.

1-3d Cognitive-Transactional and Interaction Theory

Under a fourth theory, language acquisition develops from basic social and emotional drives. Children are naturally active, curious, and adaptive and are shaped by transactions with the people in their environment. Language is learned as a means of relating to people. Others provide social and psychological supports that enable the child to be an effective communicator. L. S. Vygotsky's major work, *Thought and Language* (1986), suggests

that children's meaningful social exchanges prepare them for uniting thought and speech into "verbal thought." This inner speech development, he theorizes, promotes oral communication and is the basis for written language. Drives stem from a need for love and care, and the need prompts language acquisition.

Children are described as reactors to the human social contact that is so crucial to their survival and well-being. They are natural explorers and investigators. The adult's role is to prepare, create, and provide environments and events. Children's views of the world consist of their mental impressions, which are built as new life events are fit into existing ones or as categories are created for new events. Language is an integral part of living; consequently, children seek to fit language into some pattern that allows understanding. With enough exposure and with functioning sensory receiving systems, children slowly crack the "code" and eventually become fluent speakers. There is a wide acceptance of this theory by early childhood professionals.

Vygotsky (1980) argues that language learning is, in part, biological, but that children need instruction in the zone between their independent language level and the level at which they can operate with adult guidance. The early childhood practitioner adopting Vygotsky's ideas would believe both the teacher's behaviors and the child's active physical manipulation of the environment influence and mediate what and how a young child learns or "constructs" mentally. In other words, without the teacher's social interaction, a child does not learn which characteristics are most important or what to notice and act upon. The teacher's role is to find out through thoughtful conversation, observation, and collaboration what concept a child holds during a jointly experienced happening and to aid the child to further mental construction(s). Consequently, under Vygotskian theory, teachers can affect young children's cognitive processes—the way they think and use language. Other individual and societal features that affect children's thinking are family, other children and people in their lives, and society at large, including language, numerical systems, and technology. Children learn or acquire a mental process by sharing or using it in circumstances with others, and then move forward in an independent manner.

1-3e Constructivist Theory

Proponents of constructivist theory propose that children acquire knowledge by constructing it mentally in interaction with the environment. Children are believed to construct theories (hypothesize) about what they experience and then put happenings into relationships. Later, with more life experiences, revisions occur and more adequate explanations are possible. Constructivists point to young children's speech errors in grammar. Internal rules have been constructed and used for a period of time, but with more exposure to adult speech, these rules change and speech becomes closer to adult forms. The rules young children used previously were their own construct and never modeled by adult speakers.

Planning for language development and early literacy using a constructivist perspective would entail offering wide and varied activities while emphasizing their interrelatedness. Teachers and parents are viewed as being involved jointly with children in literacy activities from birth onward. The overall objective of a constructivist's approach is to promote children's involvement with interesting ideas, problems, and questions. Teachers would also help children put their findings and discoveries into words, notice relationships, and contemplate similarities and differences. Children's hands-on activity is believed to be paired with mental action. A secure, unstressed environment encourages the development of children's ability to cooperate, respect one another, exercise curiosity, gain confidence in themselves, and figure things out on their own. They become autonomous learners.

1-3f Other Theories

There is no all-inclusive theory of language acquisition substantiated by research. Many relationships and mysteries are still under study. Current teaching practices involve many different styles and approaches to language arts activities. Some teachers may prefer using techniques in accord with one particular theory. One goal common among educators is to provide instruction that encourages social and emotional development while also offering activities and opportunities in a warm, language-rich, supportive classroom, center, or home.

Educators believe children should be included in talk and treated as competent language partners.

This text promotes many challenging activities that go beyond simple rote memorization or passive participation. It offers an enriched program of literary experience that encourages children to think and use their abilities to relate and share their thoughts. The text is based on the premise that children's innate curiosity, their desire to understand and give meaning to their world, and their predisposition equip them to learn language. Language growth occurs simultaneously in different-yet-connected language arts areas and all other curriculum offerings. Children continually form, modify, rearrange, and revise internal knowledge as experiences, activities, opportunities, and social interactions are encountered. Children's unconscious mental structuring of experience proceeds in growth spurts and seeming regressions, with development in one area influencing development in another.

1-4 Developmentally Appropriate Practice—Infant Care

The National Association for the Education of Young Children's (NAEYC) 2013 Developmentally Appropriate Practice (DAP) guidelines for infants and toddlers are consistent with available research and have the acceptance and the consensus of most early childhood educators. The practice guidelines address the six areas of particular importance to young children's optimum development. These include: (1) relationships between caregivers and children, (2) environment, (3) exploration and play, (4) routines, (5) reciprocal relationships with families, and (6) policies. These guidelines have tried to capture the major aspects of practice that one might see in an excellent program rather than in a program that has not reached that level. Almost all recommended practice mentioned in the material affects young children's language development in some way. The author suggests teachers in training study the complete publication (NAEYC, 2013).

1-4a Research on Infants' Brain Growth

Researchers of **neurolinguistics** are making new discoveries about infants' and young children's brain growth and their early experience with their families and caregivers. Although awed by the brain's exceptional malleability, flexibility, and plasticity during early years and its ability to "explode" with new **synapses** (connections), scientists also warn of the effects of abuse or neglect on the child's future brain function. It is estimated that at birth, each neuron in the cerebral cortex has approximately 2,500 synapses, and the number of synapses reaches its peak at two to three years of age, when there are about 15,000 synapses per neuron.

A discipline called cognitive science unites psychology, philosophy, linguistics, computer science, and neuroscience. New technology gives researchers additional tools to study brain energy, volume, blood flow, oxygenation, and cross-sectional images. Neuroscientists have found that throughout the entire process of development, beginning even before birth, the brain is affected by environmental conditions, including the kind of nourishment, care, surroundings, and stimulation an individual receives. The brain is profoundly flexible, sensitive, and plastic and is deeply influenced by events in the outside world. The new developmental research suggests that humans' unique evolutionary trick, their central adaptation, their greatest weapon in the struggle for survival, is precisely their ability to learn while they are babies and to teach when grown-ups (Gopnik et al., 1999).

Early experience has gained additional importance and attention. New scientific research does not direct families to provide special "enriching" experiences to children over and above what they experience in everyday life. It does suggest, however, that a radically deprived environment could cause damage. Gould (2002) reports that various types of unpredictable, traumatic, chaotic, or neglectful environments can physically change the infant's brain by overactivating and/or stressing the brain's neural pathways. According to Gould, these changes may include a change in the child's muscle

neurolinguistics — a branch of linguistics that studies the structure and function of the brain in relation to language acquisition, learning, and use.

synapses — gap-like structures over which the axon of one neuron beams a signal to the dendrites of another, forming a connection in the human brain. They affect memory and learning.

tone, profound sleep difficulties, an increased startle response, and significant anxiety. Life experiences are now believed to control both how the infant's brain is "architecturally formed" and how intricate brain circuitry is wired. Infant sight and hearing acuity need to be assessed as early as possible given this new information. If a newborn's hearing disability is diagnosed and treated within six months, the child usually develops normal speech and language on schedule (Spivak, 2000). With new technology, hearing tests are far more accurate and can pinpoint the level of hearing loss in babies who are only a few hours old. (The American Academy of Pediatrics recommends that all infants be examined by six months of age and have regular checkups after age three.)

Infants are also far more sophisticated intellectually than we once believed. Babies, as young as four months old, have advanced powers of deduction and an ability to decipher intricate patterns. They have a strikingly nuanced visual palette, which enables them to notice small differences, especially in faces. This is an ability that adults or older children lose. Until a baby is three months old, he can recognize a scrambled photograph of his mother just as quickly as a photograph in which everything is in the right place.

Older debates about nature (genetic givens) versus nurture (care, experiential stimulations, parental teaching, and so on) are outdated (Figure 1-4). Nature and nurture are inseparably intertwined. Genetics lays out our neurological blueprints, but parents and life experiences wire infants' brain (Raftery, 2009).

Many scientists believe that in the first few years of childhood there are a number of critical or sensitive periods, or "windows," when the brain demands certain types of input. If a child's brain is not stimulated during a specific window of time, consequences occur. For example, researchers posit vision will not be normal if by approximately six months, an infant is not seeing things in the world around him. In neurobiological literature, these special periods are described as "critical periods" or "plastic periods," and they are believed to be one of nature's provisions for humankind to be able to use environmental exposure to change the anatomy of the brain and make it more efficient. A span of time from about nine months of age to roughly five years of age is believed to be a period when a natural human opportunity to acquire new skills and use higher cognition exists. This includes learning a second language. This silent and invisible infant language ability is used when a mother or family is bilingual and converses consistently in both languages around the infant. As the child ages he or she may become a functioning bilingual. Increasingly research is showing that the brains of people who know two or more languages are different from monolinguals. Bilinguals can be better at reasoning, multitasking, and grasping and reconciling conflicting ideas (Kluger, 2013). Kluger believes bilinguals are not smarter, they just have more flexible and resourceful brains.

Explosive language growth takes place during the early years and is scattered throughout the brain, but as early as toddlerhood, a pruning

Figure 1-4 Rethinking the brain.

Old Thinking . . .	New Thinking . . .
How a brain develops depends on the genes you are born with.	How a brain develops hinges on a complex interplay between the genes you are born with and the experiences you have.
The experiences you have before age three have a limited architecture impact on later development.	Early experiences have a decisive impact on the architecture of the brain and on the nature and extent of adult capacities.
A secure relationship with a primary caregiver creates a directly favorable context for early development and learning.	Early interactions do not just create a context; they affect the way the brain is "wired."
Brain development is linear: the brain's capacity to learn and change grows steadily as an infant progresses toward adulthood.	Brain development is nonlinear: there are prime times for acquiring different kinds of knowledge and skills.
A toddler's brain is much less active than the brain of a college student.	By the time children reach age three, their brains are twice as active as those of adults. Activity levels drop during adolescence.

Brain Connection

Brain Researchers' Recommendations

- Providing excellent child care for working parents.
- Talking to babies frequently.
- Cuddling babies and using hands-on parenting.
- Using **parentese**, the high-pitched, vowel-rich, singsong speech. The way we typically talk to infants—speaking more slowly, enunciating words, pausing between sounds, and varying the pitch of our voice—makes learning language much easier (Galinsky 2010).
- Giving babies freedom to explore within safe limits.
- Providing safe objects to explore and manipulate.
- Giving babies regular eye examinations and interesting visual opportunities.
- Providing loving, stress-reduced care for the child's emotional development.
- Believing an infant's brain is actively seeking meaning in speech sounds and is trying to understand the actions, intentions, and behaviors of others.

or scaling back action happens, making the brain more cognitively and categorically efficient. This is a "use it or lose it" phenomena and is important to bilingual parents who speak a language other than English. They should be continuing to use their native language around their children if they wish them to become true bilinguals. Many educators support programs for early second language learning. Second language learning creates new neural networks that increase the brain's capacity for all sorts of future learning, not just language learning.

Gopnik (2013) notes the newest research suggests infants and toddlers are designed to be especially open to experience and are not encumbered by the executive function of older children's and adults' brains. This makes very young children vividly conscious of every common sight that habit has made invisible to adults. Babies and toddlers are enchanted with the world around them, including things the adult doesn't find the least bit fascinating, like a water bottle, or a butterfly, or the sound of a small horn. Educators and families agree that infant care should be provided by knowledgeable adults who realize that early experiences and opportunities may have long-term developmental consequences (Photo 1-7). Caregivers should also provide rich, language-filled experiences and opportunities and recognize delayed development. Experts describe possible infant learning difficulties related to brain function:

- 0–3 months: Infant does not turn head toward a speaker or try to make vocal sounds.
- 4–6 months: Infant does not respond to *no* or note changes in other's tone of voice. Does not search for sources of sounds or babble and make consonant-like sounds.
- 7–12 months: Infant does not react to his name; imitate speech sounds, or use actions or sounds to gain attention.

Photo 1-7 Knowledgeable teachers respond with attention and warmth.

parentese — a high-pitched, rhythmic, singsong, crooning style of speech. It is also known as motherese or baby talk.

Greenspan's (1999) observations suggest that certain kinds of emotional nurturing propel infants and young children to intellectual and emotional health and that affective experience helps them master a variety of cognitive tasks. He states:

> As a baby's experience grows, sensory impressions become increasingly tied to feelings. It is the **dual coding** of experience that is the key to understanding how emotions organize intellectual capacities and indeed create the sense of self. (p. 78)

Coles (2004), a reviewer of brain research, also points out that growing evidence suggests that thinking is an inseparable interaction of both **cognition** and emotion (feelings, desires, enthusiasms, antipathies, etc.). Interactive emotional exchanges with caregivers and their reciprocal quality are increasingly viewed as being critical to human infants' growth and development, including language development. Early childhood caregivers realize:

> . . . the adult a baby will someday become is the end result of the thousands of times a parent or caregiver comforted her when she cried, helped her to play well with others in the sandbox and sang just one more lullaby before she finally closed her eyes for the night. Each of these seemingly simple acts gently shapes a child's growing sense of self. (Kantrowitz, 2000, p. 6)

The importance of environmental feedback is considerable. Feedback by caregivers includes giving words of approval and providing caregiver attention, and it promotes the emotional satisfaction an infant feels when he is successful in doing something he set out to do.

Some developers of infant materials, equipment, books, and services suggest they can speed brain development. Families may feel they need to find ways to accelerate early childhood experiences and believe that it is up to them to find products and services. Most educators believe this is unnecessary and suggest spending time with infants and providing natural parenting, such as playing, engaging in reciprocal talk, and simply putting plastic mixing bowls on the floor. Honig (2007) concurs and points out that when an infant shakes a bell or pulls a toy on a string to make it move, he is delightedly learning he can get a specific effect. She notes scientists use these same strategies in their laboratories every day.

1-5 Communicative Abilities in Infancy

COMMON CORE

Newborns quickly make their needs known. They cry and their parents or caregivers respond. Adults feed, hold, and keep infants warm and dry. The sounds of footsteps or voices or a caring touch often stops infants' crying. Babies learn to anticipate. The sense perceptions they receive begin to be connected to stored impressions of the past.

Infants are very powerful in shaping relationships with significant caregivers. They are a wonderful combination of development, potential development, and cognitive flexibility. An infant can perceive from caregivers' behavior a willingness to learn from the infant and respond to his patterns of behavior and rhythms of hunger. This is accomplished by a caregiver's close observation of the infant's vocal and body clues, which indicate the child's state of being. At some point, the caregiver notices that a pattern of mutual gazing is established. Then a type of proto-conversation begins with caregiver vocalizations followed by infant response and noisemaking. Two important developmental tasks that confront infants are: learning to regulate and calm themselves, and learning to interact and "play" with caregivers. The first may be difficult for some infants, but the second seems to come naturally.

The infant is a noisemaker from birth. The child's repertoire includes sucking noises, lip smacking, sneezes, coughs, hiccups, and, of course, different types of cries. As an infant grows, he makes vocal noises, such as **cooing** after feeding. During feeding, slurping and guzzling sounds indicate eagerness and pleasure. Cooing seems to be related to a child's comfort and satisfaction. Cooing consists of relaxed, low-pitched vowel sounds that are made in an open-mouthed way; for example, *e* (as in see), *e* (get), *a* (at), *ah*, and *o*, *oo*, *ooo*. The infant appears to be in control of this sound making. Discomfort, by comparison, produces consonant sounds, made in a tense manner with the lips partly closed and

dual coding — the belief that infants' experiences and emotions influence cognition.

cognition — the process that creates mental images, concepts, and operations.

cooing — an early stage during the prelinguistic period in which vowel sounds are repeated, particularly the *u-u-u* sound.

the tongue and the ridge of the upper or lower jaw constricting airflow.

Families who attend to infant crying promptly and who believe that crying stems from legitimate needs rather than attempts to control, tend to produce contented, trusting infants. Advice for families of colicky babies consists of holding and carrying the infant more frequently in an effort to soothe. Infants differ in numerous ways from the moment of birth. In speaking to parents about the unique differences in infants, Greenspan (1999) notes the following:

> For most babies, swaddling (gently but firmly bundling the baby's arms and legs in a receiving blanket wrapped around their bodies) is soothing. Other babies enjoy a body massage in which their limbs are gently flexed and extended.
>
> Up until recently, scientists assumed that all human beings experienced sensations in similar ways. We now know that individuals perceive the same stimulus very differently. Your feathery touch could feel tickly and irritating on your newborn's skin, while another baby might take delight in the same caress. (p. 91)

The individual pace of development varies. Whether an infant reaches developmental milestones on the early or late side of normal seems to bear little relation to either cognitive skills or future proficiency (Raymond, 2000). However, in most cases, milestones in language development are reached at about the same age and in a recognizable sequence (Figure 1-5 and Photo 1-8).

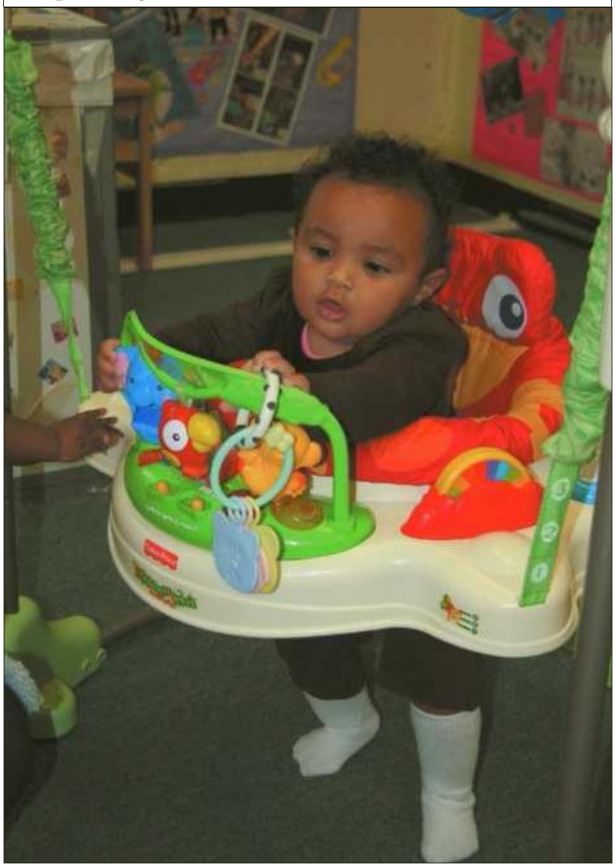
Babies learn quickly that communicating is worthwhile because it results in action on the part of another. Greenspan (1999) warns that unless a child masters the level we call two-way intentional communication, normally achieved by an eight-month-old infant, the child's language, cognitive, and social patterns ultimately develop in an idiosyncratic, piecemeal, disorganized manner. There is a high degree of relationship between a caregiver's responsiveness and a child's language competence. By 9 to 18 months of age, the more responsive mothers promoted greater language facility and growth.

Infants quickly recognize subtle differences in sounds. This helps infants to calm down and pay attention—in other words, to listen. Infants move their arms and legs in synchrony to the rhythms of human speech. Random noises, tapping sounds, and disconnected vowel sounds do not produce this behavior.

Figure 1-5 Examples of the typical order of emergence of types of nonword vocalizations in the first year.

Age	Nonword Vocalizations
newborn	cries
1–3 months	makes cooing sounds in response to speech (*oo*, *goo*) laughs cries in different ways when hungry, angry, or hurt makes more speechlike sounds in response to speech
4–6 months	plays with some sounds, usually single syllables (e.g., *ba*, *ga*)
6–8 months	babbles with duplicated sounds (e.g., *bababa*) attempts to imitate some sounds
8–12 months	babbles with consonant or vowel changes (e.g., *badaga, babu*) babbles with sentencelike intonation (expressive jargon/conversational babble) produces protowords

Photo 1-8 Infants often babble to toys: especially ones that make noise.



There is a difference between people in an infant's life. Some talk and touch. Others show delight. Some pause after speaking and seem to wait for a response. The child either "locks on" to the conversationalist, focusing totally, or breaks eye contact and looks away. It is almost as though the infant controls what he wants to receive. Of course, hunger, tiredness, and other factors also influence this behavior and may stop the child's interest in being social.

The special people in the infant's life adopt observable behaviors when "speaking" to him or her, just as the infant seems to react in special ways to their attention. Talking to babies differs from other adult speech in that the lyric or musical quality of speech seems more important than words. Infants listening to these long, drawn-out vowels experience an increase in heart rate. At the same time, it speeds up the brain's ability to recognize connections between words and objects. Educators believe "baby-talk" speech modifications can vary among cultures. The attention-holding ability of this type of adult speech may help the infant become aware of the linguistic function of vocalizations (Sachs, 1997). Mothers sometimes raise voice pitch to a falsetto, shorten sentences, simplify syntax and vocabulary, use nonsense sounds, use a slower tempo, and use longer pauses than in adult conversations. They maintain prolonged eye contact during playful interchanges. Most infants are attracted to high-pitched voices, but a few infants seem to overreact and prefer lower speech sounds. Infants can pick up higher-pitched sounds better than lower-frequency ones, which may be why they are entranced by the high-pitched coos and singsong nature of parent talk. Parents' voices when talking to their infants can be described as playful, animated, warm, and perhaps giddy. Falk (2004) proposes that parent talk forms a scaffold for infants' language acquisition, and caregivers often use vocal means to placate and reassure. They attempt to control their infant's state of well-being. Falk notes that vowels are lingered over, phrases are repeated, and questions carry exaggerated inflections.

A mutual readiness to respond to each other appears built-in to warm relationships. The infant learns that eye contact can hold and maintain attention and that looking away usually terminates both verbal and nonverbal episodes. They learn a great deal about language before they ever say a word. Most of what they learn at a very early age involves the sound system of language.

1-5a Crying

Crying is one of the infant's primary methods of communication. Cries can be weak or hearty, and they provide clues to the infant's general health. Crying may be the only way an infant can affect his situation of need or discomfort. Infants begin early in life to control the emotional content of their cries. Many parents believe they can recognize different types of crying, such as sleepy, frightened, hungry, and so on, especially if infant body actions are observed concurrently. Researchers have discovered that parents do indeed accurately infer the intensity of an infant's emotional state from the sound of the cry itself, even if the baby is not visually observed. Even adults inexperienced with infants seem to possess this ability.

Child development specialists advise adult alertness and responsiveness to minimize crying. Crying will take place in the best of circumstances, and research has indicated that there are some positive aspects of crying, including stress reduction, elimination of toxin in tears, and reestablishment of physical and emotional balance. However, although crying may have its benefits, it is not recommended that infants be left to cry, but rather that adults continue to attempt to soothe and satisfy infants' needs. Narvaez (2012) believes the "cry it out" strategy adopted by some parents and sometimes endorsed by infant pediatricians can have negative effects on a child's moral and cognitive development. She suggests the practice can threaten the child's sense of safety and security. Stepping in to comfort a crying infant every two or so minutes allows a child a period to calm down. This has been called the "every few minutes approach." It may result in reducing stress that allows sleep—a preferred alternative to crying it out. Most caregivers check for conditions that might cause discomfort or distress periodically as a preventative measure.

A baby's crying may cause strong feelings in some adults, including anger, frustration, irritation, guilt, and rejection. Successful attempts at soothing the infant and stopping the crying give the infant and the caregiver satisfaction, feelings of competence, and a possible sense of pleasure.

Photo 1-9 A child may fall asleep while being soothed.

When out-of-sorts infants cease crying, alertness, attentiveness, and visual scanning usually happen and/or the infants fall asleep (Photo 1-9). Infant-caregiver interaction has been described as a rhythmic drama, a reciprocal dance, and a family melody. All of these touch on the beauty and coordination of sound-filled moments between the adult and child.

Emotions are expressed frequently in crying as the infant nears his first birthday. Fear, frustration, uneasiness with novelty or newness, separation from loved ones, and other strong emotions can provoke crying through childhood and beyond. Infant care providers in group programs engage in frank staff discussions concerning infant crying. Normal and natural staff feelings concerning crying need to be openly discussed so that strategies can be devised in the best interests of both the infants and the staff members. Many techniques exist to minimize crying and also to monitor the crying levels of individual infants so that health or developmental problems can be spotted quickly.

1-5b Smiling and Laughing

True smiling can occur before six months of age and is usually associated with a caretaker's facial, auditory, or motor stimuli. Laughter may occur as early as four months of age and is believed to be a good predictor of cognitive growth. Some developmental experts suggest that the earlier the baby laughs, the higher the baby's developmental level is. In the second half of the first year, infants smile at more complex social and visual items. Laughter at this age may be full of squeals, howls, hoots, giggles, and grins. Incongruity may be noticed by the infant, and laughter follows. If an infant laughs when he sees the family dog in the driver's seat with its paws on the wheel, the child may be showing recognition of incongruity—the child has learned something about car drivers.

Responsive caregivers promote infant smiling. Ainsworth and Bell (1972) concluded that **responsive mothers**, those who are alert in caring for the infants' needs, had babies who cried less frequently and had a wider range of different modes of communication (Photo 1-10). These responsive mothers created a balance between showing attention and affording the infant autonomy (offering a choice of action within safe bounds) when the infant became mobile. They also provided body contact and involved themselves playfully at times.

Photo 1-10 A quick adult response to crying is appropriate and recommended.

responsive mothers — mothers who are alert and timely in responding to and giving attention to infants' needs and communications.

an **ATTUNED** adult:

- notices infant reactions to auditory stimuli.
- is aware of infant preferences.
- notices if an infant has an attachment to a caregiver and/or expresses pleasure in another's company.
- seeks to help the infant maintain a state of balance and a comfort level.
- is attentive and consistent in recognizing and satisfying a child's needs.
- has sufficient energy and seeks to engage frequently with an infant.
- monitors an infant's health and safety and observes closely.
- provides a variety of experience and sensory materials for exploration.
- uses words to accompany child and adult actions.
- records milestones in development and uses them to guide caregiver interactions.
- is playful, gives attention, and provides feedback to an infant's efforts. <

1-5c Infant Imitation and Babbling

Acredolo and Goodwyn (2000) suggest that infants as young as one or two days old may imitate parent head movements and facial behaviors; they explain:

> This inborn push to mimic others gets babies into a problem-solving mode from the very beginning. And as we mentioned earlier, babies thrive on problem solving. The payoff is such a pleasant one—Dad sticks around to interact some more, and baby is amused. Imitation is such an important developmental component that Mother Nature has not left it up to chance. She has made sure that each of us begins life's journey with a necessary tool in hand. (p. 185)

Early random sound making is often called **babbling**. Infants the world over babble sounds they have not heard and that they will not use in their native language. This has been taken to mean that each infant has the potential to master any world language. Close inspection shows repetitive sounds and "practice sessions" present. Babbling starts at about the fourth to sixth month and continues in some children through the toddler period. However, a peak in babbling is usually reached between 9 and 12 months. Periods before the first words are spoken are marked by a type of babbling that repeats syllables, as in *dadadada*. This is called **echolalia**. Infants seem to echo themselves and others. Babbling behavior overlaps the stages of making one and two or more words, and may end for some children at about 18 months of age.

Infants who are deaf also babble. In play sessions, they will babble for longer periods without hearing either adult sound or their own sounds, as long as they can see the adult responding. However, these children stop babbling at an earlier age than do hearing children. It is not clearly understood why babbling occurs, either in hearing or hearing-impaired children, but it is thought that babbling gives the child the opportunity to use and control the mouth, throat, and lung muscles. Researchers trying to explain babbling suggest that infants are not just exercising or playing with their vocal apparatus. Instead, they may be trying out and attempting to control their lips, tongues, mouths, and jaws to produce certain sounds. A child's babbling amuses and motivates the child, acting as a stimulus that adds variety to the child's existence. Meltzoff et al. (2009) suggest the language background of the home is continually being collected, digested, sorted, and analyzed by the infant's computer-like brain. Consequently, it is forming patterns of sounds that may be practiced or reproduced during later babbling periods.

In time, the child increasingly articulates clear, distinct vowel-like, consonant-like, and syllabic sounds. *Ba* and *da* are acquired early because they are easy to produce, whereas *el* and *ar* are acquired late because they require a sophisticated ability to articulate sounds. Although babbling includes a wide range of sounds, as children grow older, they narrow the range and begin to focus on the familiar language of the family. Other sounds are gradually discarded.

Physical contact continues to be important. Touching, holding, rocking, and engaging in other types of physical contact bring a sense of security and a chance to respond through sound making. The cooing and babbling sounds infants make may also draw caregivers into "conversations." Babies learn to wait for the adult's response after they have vocalized, and both infants and adults are constantly influencing

babbling — an early language stage in sound production in which an infant engages in vocal play with vowel and consonant sounds, including some sounds not found in his or her language environment.

echolalia — a characteristic of the babbling period. The child repeats (echoes) the same sounds over and over.

Photo 1-11 Infants' vocal and playful interactions with caregivers are the precursors of conversation.

one another in establishing conversation-like vocal interactions (Photo 1-11).

Bardige (2008) points out babies need to hear everyday language during their babbling period. She suggests adults talk about what the baby and they themselves are doing and continue to make language part of their daily care as they bathe, change, feed, play, and soothe the infant.

The active receiving of perceptions is encouraged by warm, loving parents who share a close relationship. Secure children respond more readily to the world around them. Children who lack social and physical contact or those who live in insecure home environments fall behind in both the number and range of sounds made; differences start showing at about six months of age. Sound imitation eventually becomes syllable imitation, and short words are spoken near the end of the child's first year.

1-5d Stages of Vocalization

There is a definite progression of infant production and vocalization ability that early educators focusing on their development notice. Progress may include a blending of steps as infants move forward. The reflective vocalizations of infants during their first few months include sound making such as fussing, crying, burping, miscellaneous sounds, and a few vowel like sounds that meld into a stage of sound production that indicates a mellowing during comfort and feeding satisfaction situations. This can include cooling, giggles, and laughs. In the next few months a wider repertoire of vocalization emerges. It is full of voice changes indicating a playful nature exists. Loud and soft sounds happen during the day along with squeals of delight and what seems to be vowel – making episodes. This is typical in the months before and infants' first half year of age.

The appearance of babbling takes hold next. This period produces an increase in the variety of sound making and includes sequences of both consonant and vowel blended episodes. Parents and educators may believe they recognize a few almost words in infants sound making. Deaf infants can appear to be limited in their babbling efforts while infants with normal hearing ability may be reinforced by the vocal enjoyment they share with others and increase babbling. Real words, though few at first, begin to appear.

1-5e A Shared Developmental Milestone

Almost immediately after birth, infants display a critical cognitive skill. It is their ability to focus their attention on the features of their environment, especially to voices and sounds. By the last half of the first year, children begin to take part in a new type of interaction with their caretakers. They share attention given to objects with another person by following that individual's gaze or pointing, responding to the individual's emotional reaction to an event, and imitating that person's object-directed actions (Nelson & Shaw, 2002). This gives adults who notice this behavior a chance to pair words with objects, actions, events, and people. First words or sounds are usually simple associates of objects or situations. The infant simply voices a shared reference. Nelson and Shaw note that the leap from shared reference associations to meaningful language requires the child to integrate skills with communicative patterns and conceptual knowledge. The child is then standing on a first communicative step.

1-5f Infant Signing (Signaling) and Beginning Understanding

At a few months of age some infants realize that some of their simple actions cause caregivers to focus their attention on them. Waving arms,

kicking legs, and banging objects may promote adult reactions, such as speaking to them. During the latter part of the first year, alert caregivers notice hand and body positions that suggest the child is attempting to communicate. Researchers suggest that parents pair words with easy-to-do gestures. At the age of one year, children cannot gain enough mastery over their tongues to form many words. Gesturing with their fingers and hands is simpler. For example, infants as young as seven months may bang on a window to get a family cat's attention or reach out, motion, or crawl toward something or someone they want. The use of signs continues until the child's ability to talk takes off. Some educators believe **signing** may spark other critical thinking skills and lead to better intelligence quotient (IQ) scores when testing begins. This has led to overeager commercial advertisers making unproven assertions and claims concerning signings' present and future educational advantages. Most educators believe that promoting the practice isn't harmful, in fact it seems to give infants confidence and satisfaction. They recognize that many parents are enthusiastic proponents. Only further research can substantiate signing benefits.

Toward the end of the child's first year, pointing becomes goal oriented—the infant will point to a desired object. As time progresses, more and more infant body signaling takes place. Signals are used over and over, and a type of sign language communication emerges. It can be a "signal and sound system" understood by caregivers. When caregivers respond appropriately, the infant easily progresses to word use and verbal aptitude. Signing by infants and young toddlers is believed to stimulate brain development, particularly brain areas involved in language, memory, and concept development.

Some studies of communication gestures note that infants with more advanced gestures have larger vocabularies and that girls seem slightly more advanced in gesturing than do boys. (This paragraph offered an answer to one of the questions in this chapter's beginning vignette. The next paragraph answers another.)

Well-meaning parents or caregivers may choose not to respond to infant gestures and signals, thinking this will accelerate or force the use of words. The opposite is thought to be true. Alert parents who try to read and receive signals give their infant the message that communication leads to fulfillment of wishes. Successful signaling becomes a form of language—a precursor of verbal signals (words). Some experts believe baby signers by age two are better at both expressing themselves and understanding others' speech and, on average, have slightly larger vocabularies than their peers who do not sign. Sitting down at the child's level at times when the infant is crawling from one piece of furniture to another may facilitate the adult's ability to pick up on signaling. Watching the infant's eyes and the direction the infant's head turns gives clues. Infants about eight months old seem fascinated with the adult's sound-making ability. They often turn to look at the adult's lips or want to touch the adult's mouth.

Early childhood educators employed by infant-toddler centers need to know their center's position regarding expected educator behaviors. Most centers expect educators to actively pair words with adult or child signs, encourage child use of signs, and learn and respond to each child's individual sign language.

Most babies get some idea of the meaning of a few words at about six to nine months. At about 10 months of age, some infants start to respond to spoken word clues. Somewhere between eight and 13 months, the child's communication, whether vocal or a type of gesture, becomes intentional. The child makes a connection between his behavior and the parent's or early childhood educator's response (Photo 1-12). Children seem to recognize a prime caregiver's change of voice tone and also that some of their caregiver's nonverbal behaviors may communicate a message. Infants are becoming aware of adult actions that may affect them. A game such as Pat-a-cake may start the baby clapping, and "bye-bye" or Peek-a-boo brings about other imitations of earlier play activities with the parents. The child's language is called passive at this stage, for he primarily receives (or is receptive). Speaking attempts will soon become active (or expressive). Vocabulary provides a small portal through which adults can gauge a little

signing — a body positioning, sound, action, gesture, or combination of these undertaken by an infant in an effort to communicate a need, desire, or message.

Photo 1-12 This infant has learned to respond to the adult's pointing gestures.

of what the child knows. There is a point at which children expand nonverbal signals to true language.

Older infants still communicate with their caregivers through many nonverbal actions; one common way is by holding up their arms, which most often means, "I want to be picked up." Other actions include facial expression, voice tone, voice volume, posture, and gestures such as "locking in" by pointing fingers and toes at attention-getting people and events.

Although infants at this stage can respond to words and changes in caregivers' facial expressions, voice tone, and voice volume, actions and gestures also carry feelings and messages important to infants' well-being. Understanding the tone of caregivers' speech comes before understanding the words used.

Gopnik et al. (1999) describe what happens when infants are about one year old.

> One-year-old babies know that they will see something by looking where other people point; they know what they should do to something by watching what other people do; they know how they should feel about something by seeing how other people feel. (p. 243)

Research suggests infants at 20 months have what Galinsky (2010) calls *language sense*. This means they can detect statistical patterns in which speech sounds go together in their native language (or languages) to determine the beginnings and endings of words (p. 2). She also suggests new research theorizes another infant sense, *people sense*, exists in infancy as infants focus on people's intentions rather than seeing what people do as random movements.

1-5g First Words

Before an understandable, close approximation of a word is uttered, the child's physical organs need to function in a delicate unison and the child must reach a certain level of mental maturity. Close to 12 months of age, the speech centers of the brain have developed the capacity to enable the infant to produce his first word—a great accomplishment and milestone. The child's respiratory system supplies the necessary energy. As the breath is exhaled, sounds and speech are formed with the upward movement of air. The larynx's vibrating folds produce

voice (called **phonation**). The larynx, mouth, and nose influence the child's voice quality (termed **resonation**). A last modification of the breath stream is **articulation**—a final formation done through molding, shaping, stopping, and releasing voiced and other-than-voiced sounds that reflect language heard in the child's environment.

Repetition of syllables such as *ma*, *da*, and *ba* in a child's babbling occurs toward the end of the first year. If *mama* or *dada* or a close copy is said, parents and caregivers show attention and joy. Language, especially in the area of speech development, is a two-way process; reaction is an important feedback to action.

The term *protoword* is often used for the invented words a child may use during the transition from prespeech to speech. During this transition, a child has acquired the difficult concept that sounds have meaning and is unclear only about the fact that one is supposed to find out what words exist instead of making them up.

Generally, first words are nouns or proper names of foods, animals, or toys; vocabulary may also include *gone*, *there*, *uh-oh*, *more*, and *dat* ("what's that?"). Greetings, farewells, or other social phrases, such as *peek-a-boo*, are also among the first recognizable words.

Monolingual (one-language) children utter their first words at approximately 11 months of age; the range is from about 9 months to about 16 months. At about a year and a half, the child learns approximately one new word every three days. Most experts believe that talking alone shows no link to mental development at age two, but a child's comprehension of words is paramount. Experts conclude that there is little scientific evidence to suggest that late talkers will become less fluent than early talkers. Some children acquire large numbers of object names in their first 50 to 100 words. The first spoken words usually contain *p*, *b*, *t*, *d*, *m*, and *n* (front of the mouth consonants), which require the least use of the tongue and air control. They are shortened versions, such as *da* for "daddy," *beh* for "bed," and *up* for "cup." When two-syllable words are attempted, they are often strung together using the same syllable sound, as in *dada* or *beebee*. If the second syllable is voiced, the child's reproduction of the sound may come out as *dodee* for "doggy" or *papee* for "potty."

At this stage, words tend to be segments of wider happenings in the child's life. A child's word *ba* may represent a favorite, often-used toy (such as a ball). As the child grows in experience, any round object seen in the grocery store, for instance, will also be recognized and called *ba*. This phenomenon has been termed *overextension*. The child has embraced "everything round," which is a much broader meaning for ball than the adult definition of the word.

Following is a list of words frequently understood between 8 and 12 months of age: *mommy*, *daddy*, *bye-bye*, *baby*, *shoe*, *ball*, *cookie*, *juice*, *bottle*, *no-no*, and the child's own name and names of family members.

A child finds that words can open many doors. They help the child get things and cause caregivers to act in many ways. Vocabulary quickly grows from the names of objects to words that refer to actions. This slowly decreases the child's dependence on context (a specific location and situation) for communication and gradually increases the child's reliance on words—the tools of abstract thought. Children learn very quickly that words not only name things and elicit action on another's part but also convey comments and express individual attitudes and feelings.

an ATTUNED adult:

- nurtures infant curiosity.
- uses words and gestures in communication.
- builds a sign language relationship with infants.
- tries to judge the intensity of infants' emotions.
- offers a choice of child actions and explorations within safe limits.
- responds to and promotes reciprocal communication.
- pairs words with actions and objects.
- observes the direction of infants' gazes for clues to infants' moment to moment interests.
- continues to be at eye level when possible.
- expects and recognizes invented words.
- encourages first word use by repeating word back to child and connecting the child's word to objects or actions as appropriate.
- guesses frequently about a child's meaning in communication.
- works toward a child's success at using words to fulfill his desires, needs, and interests. <

phonation — exhaled air passes the larynx's vibrating folds and produces "voice."

resonation — amplification of laryngeal sounds using cavities of the mouth, nose, sinuses, and pharynx.

articulation — the adjustments and movements of the muscles of the mouth and jaw involved in producing clear oral communication.

Figure 1-6 Approximate frequency of child utterances from 6 to 12 months.

Toddlerhood begins, and the child eagerly names things and seeks names for others. The child's single words accompanied by gestures, motions, and intonations are called **holophrases**. They usually represent a whole idea or sentence.

While the child is learning to walk, speech may briefly take a backseat to developing motor skill. At this time, the child may listen more intently to what others are saying. The slow-paced learning of new words (Figure 1-6) is followed by a period of rapid growth. The child pauses briefly, listening, digesting, and gathering forces to embark on the great adventure of becoming a fluent speaker.

1-6 Implications for Infant Center Staff Members

The importance of understanding the responsive, reciprocal nature of optimal care-giving in group infant centers cannot be overestimated. The soothing, calming, swaddling, rocking, sympathizing, and responding behaviors of infant care specialists help infants maintain a sense of security and a relaxed state, calmness, and equilibrium.

The emotional well-being of infants has been given increased attention as research on infant development uncovers its importance. Physician Chet Johnson (2005) points out:

> The research shows how powerful emotional well-being is to a child's future health. A baby who fails to meet certain key "emotional milestones" may have trouble learning to speak, read, and later, do well in school. By reading emotional responses, doctors have begun to discover ways to tell if a baby as young as three months is showing early signs of possible psychological disorders, including depression, anxiety, learning disabilities and perhaps autism. Instead of just asking if they're crawling or sitting we're asking more questions about how they share their world with their caregivers. (p. 35)

See Figure 1-7 for infants' emotional milestones.

At about four months, babies begin to gaze in the direction in which caregivers are looking. Caregivers are able to follow the line of vision of babies as well. Well-trained caregivers will naturally comment and offer language labels and a running commentary. This process is known as *joint attentional focus*. When adults know that the infant does not yet understand language,

holophrases — the expression of a whole idea in a single word. They are often found in the speech of children at about 12 to 18 months of age.

Figure 1-7 Emotional milestones and social skill characteristics.

Age	Emotional/Social Characteristics
Birth to around 3–4 months	At birth, the infant is able to feel fear and contentment and is self-absorbed. During first three to four months, infant becomes aware of the environment around him and is attentive and interested; seems able to calm self at times; develops deliberate responses; focuses on the faces of people and smiles at them; eyes may widen in anticipation; may react to strong scents or odors; has a developing sense of security; holding and touching may reduce stress, and rhythmic motion may soothe; may enjoy swaddling; pays attention and reacts to sounds (some infants are oversensitive to some types of sounds). Reacts to visual cues, especially from care provider's face.
Around 5–6 or more months	Displays emotions such as surprise, joy, and frustration. Falls in love with care provider; beams with delight at times; able to see the pattern formed by features on care provider's face; smiles in recognition; may display sorrow and annoyance; builds a stronger relationship with primary care provider; begins to realize he can make things happen; is comforted by physical closeness; develops feelings of being loved, valued, and esteemed by others; easy to tell when infant is happy; sense of self is a reflection of care provider's emotional interactions with infant; may experience jealousy.
Around 10 or more months	Initiates two-way communication; notices where care provider looks and often follows by also looking; tries to catch care provider's eye and gives physical cues to others to obtain a desired action, such as being held; may use signs and signals to make things happen; may respond to rhythm with rhythmic movements; expects his action will prompt a reaction; may mimic gestures; may express fear, anger, anticipation, caution, and surprise with strangers; responds to name, words, and sounds, and attempts to imitate them; Is curious and perhaps assertive and negative at times; May experience a sense of loss at something removed; May show fear if care provider looks angry, frowns, or stares (not recommended). Seeks pleasure and enjoys stimulating self (for example, touching toes and participating in adult-infant games that involve moving or touching body parts, such as "This Little Piggy." Note: This is not intended to be a complete inventory of emotional milestones; research in identifying infant emotional development and capacity is still in its infancy. Notice social skill and emotional response is intertwined and dependent on environmental and human experience.

most adults behave as if the child's response is a turn in the conversation. Adult caregivers need to read both nonverbal and vocalized cues and react appropriately (Photo 1-13). They need to be attentive and loving. Learning to read each other's signals is basic to the quality of the relationship. Liberal amounts of touching, holding, smiling, and looking promote language and the child's overall sense that the world around him is both safe and fascinating. Recognizing the child's individuality, reading nonverbal behaviors, and reacting with purposeful actions are all expected of professional infant specialists, as is noticing activity level, mood, distress threshold, rhythms of the body, intensity, sense of adventure, distractibility, adaptability, and attention span.

There are many skills that well-trained caregivers possess, beginning with holding the infant firmly yet gently and making soft, gentle sounds while moving smoothly and holding the infant close. Gillespie and Hunter (2011) suggest caregivers' laughter helps children form connections and signal a safe and loving environment. Leong and Bodrova (2012) note that as infant educators interact and react to infant's growing communication ability, emotional bonds form. Educators, consequently, prepare infants to learn from them. Adults in early childhood centers become play partners and perhaps become an infant's first play mentor other than their family members. Other caregiver skills are identified in the following list.

Photo 1-13 It is easy to tell these infants are focused and eager activity participants.

an **ATTUNED** adult:

- talks in a pleasant, soothing voice; uses simple language; and makes frequent eye contact.
- emphasizes and expects two-way "conversation"; hesitates; and pauses for an infant response.
- makes a game out of the infant's smiles, sounds, and movements when the infant is responsive.
- speaks clearly.
- explains what is happening and what will happen next.
- is consistently attentive.
- does not interrupt the infant's vocal play, jargon, or self-communication.
- engages in word play, rhyme, chants, and fun-to-say short expressions.
- is an animated speaker and a responsive companion.
- may, with an older infant, attempt to offer simple finger plays.
- plans real and concrete participatory activities with textures, sights, and sounds.
- encourages sound making and provides noisemaking and musical toys.
- labels objects, happenings, actions, and emotions.
- uses highly intonated speech that may be high pitched at times with very young infants.
- speaks distinctly with clear enunciation to help children identify phonemes.
- emphasizes, at times, one word in a sentence.
- uses repetition but avoids overdoing it.
- gives feedback by responding with both words and actions.
- creates and pursues game-like strategies and techniques.
- serves as a co-explorer. <

Being playful and initiating singing conversations with infants can be enjoyable and may lay the foundation for later musical activities. Both recorded and live musical sounds are part of an auditory-rich environment for infants. For identified early childhood goals and additional caregiver activities, see Figure 1-8.

Williams (2008) urges caregivers to explore the world outside the classroom or home with older infants and toddlers. Children are born with a desire to understand the environment around them, and they possess incessant curiosity that compels them to explore it (Medina, 2008). Their discoveries can bring joy. Like an addictive drug, Medina believes, exploration creates the need for even more discovery. Think about watching or feeling raindrops, experiencing mud, touching a caterpillar, smelling flowers, or hearing birds. The reality and beauty of natural landscapes surrounds us, and there are multiple ways to experience it safely.

Remember that infants are alike yet uniquely different. Some sensitive infants may appear overwhelmed and require little stimuli to maintain equilibrium. Others will thrive in an environment that provides a multitude of people, sights, sounds, and new activities. Each infant provides a challenge one must "puzzle out" to decide best courses of action—what works, what does not work, and what is best. Bardige (2009) suggests adult-infant connection may not always go smoothly.

> Some babies are fussy and hard to soothe, some are so sensitive that they have to be approached carefully and given lots of support before they can engage, and some are challenged in one modality (e.g., hearing or sight) but hyperacute in another. Some babies are flexible by nature, but others are fearful or feisty. Babies also differ in their natural activity levels and in their rates of development. Some babies give clear signals when they need food or play or comfort or rest; others are much harder to read. (p. 23)

Figure 1-8 Adult goals and activities for language development during infancy.

Age	Adult Goals	Adult Activity
birth to 2 months	1. to create a trusting, intimate relationship 2. to take pleasure in the reciprocal infant-adult interactions 3. to help infant calm and regulate himself 4. to verbally communicate and promote a two-way pattern of responses 5. to maintain eye contact and spend time face to face 6. to seek to create an appropriate environmental moderation level	1. anticipate and satisfy infant needs 2. show interest and provide positive reactions and joy in the infant's presence and communicative attempts 3. provide sights, sounds, touches, and playful companionship 4. talk, croon, whisper, sing, and mimic infant gesture 5. repeat infant sounds 6. provide a comfortable environment that satisfies the child's needs
2–6 months	1. to keep alert to infant attempts to communicate distress or needs 2. to strengthen growing bond of enjoyment in adult-infant "together time" and explorations 3. to recognize child individuality, moods, likes and dislikes, uniqueness 4. to encourage "you talk" and "I talk" behaviors 5. to see infant gestures as possibly purposeful 6. to hold child's eye contact when speaking and gain child's attention with animated speech 7. to use clear and simple speech	1. provide adult-infant play time and joint new experiences 2. provide infant exploring of sights, sounds, music, and play materials and indoor and outdoor environments 3. offer "talking" opportunities with others 4. name child's actions, toys, happenings while changing, bathing, and feeding 5. play baby games such as Pat-a-cake 6. use talk and touch as a reward for the child's communication attempts 7. repeat child sounds and gestures
6–12 months	1. to pursue infant interests, tailoring your talk to child focus 2. to promote the idea that language is used for naming and describing 3. to play with rhythm and rhyme in adult-infant communications 4. to speak clearly, emphasizing new words when appropriate 5. to show delight in child's verbal and physical accomplishments 6. to pair your words with actions, happenings, and objects 7. to recognize and respond appropriately to child signaling and words 8. to make sure sound level and noise is appropriate 9. to listen for intent, not perfection 10. to provide safe environment conducive to child exploring and action	1. expand the child's world with neighborhood trips, people, playthings, and experiences 2. name and describe happenings, emotions, actions, and environments as things take place 3. introduce and read board books to the child, letting child explore them himself 4. sing songs, perform finger plays, play word games with visual and touching actions 5. listen and pause for infant response 6. name body parts, colors, and objects 7. tell simple stories 8. delight in the world and its joyful pursuits with the child

Because infants' first sensory experiences are part of emotional relationships with caregivers, caregivers' efforts to provide developmental care go hand in hand with providing positive emotional support in daily reciprocal exchanges between the child and adult. The terms *child-centered* and *child-focused* need to be coupled with reactive, observant, playful, and nurturing adult behaviors. This type of infant care is nearly impossible when adult-infant ratios are inadequate.

Generally, the types of adults who promote language are those who are alert to the child's achievements, notice them, and enjoy interacting, as well as adults who can offer novelty, assistance, and enthusiasm in addition to focusing on the child's interests. Mangione (2010) believes the emotional security infants derive from positive caring relationships with primary and secondary care providers, provides infants with a buffer for the negative stresses he might encounter in daily experiences.

1-6a Baby Games and Explorations

Almost daily, infants seem to increase the ways they can explore and enjoy verbal-physical games. Birchmayer, Kennedy, and Stonehouse (2008) urge caregivers to explore creative ways to communicate with infants to sustain their interest.

> For very young children, spoken language can be extended through face and body games and rhymes. Though infants still will not understand many or even most words used, they will nevertheless enjoy the sound, rhythm, and tone of the language and other creative elements of the experience. (p. 31)

Most adults know that holding an infant and singing or dancing with him are good ways to comfort the fussy child or to foster interest in place of boredom. Since some infants are newly experiencing game play at a center, watching for stress signs and tenseness is important. Some infants adapt readily and enjoy immediately. Others are more cautious and need a slow introduction to any bouncing or other baby movements. Infants may also register boredom or tiredness when the game is no longer fun signaling they will need a new activity or rest.

Infant educators create their own games and activities that are enjoyable to both infants and caregivers. They become aware of their infants' focus and reactions. Games that deal with child anticipation often elicit smiles or giggles. Playing classics such as Peek-a-boo or Johnny Jump Up or hiding an object under a cloth has delighted generations of children. More newly devised activities include tying a soft tinkling bell to the wrist or leg of an infant or connecting a soft ribbon from an infant's ankle to an overhead mobile (under adult supervision).

Experts recommend that, from a baby's earliest days, caregivers begin with simple imitation games during face-to-face interaction, making sure to pause long enough for the infant to take in the information and mount a response. The best distance for these games is 8 to 12 inches away from the child's face. Imitation of the baby's movement or vocal efforts is also suggested, as is rewarding the baby's effort with attention or smiles.

The following classic language and body action play has brought delight to generations of infants. The most enjoyed play activities include tickling, bouncing, and lifting with accompanying words and rhymes.

This Little Piggy

(Each line is recited while holding a toe, moving toward the pinkie.)

This little pig went to market. This little pig stayed home. This little pig had roast beef. This little pig had none. This little piggy cried, "Wee, wee, wee, wee!" all the way home.

(First published in 1728.)

Pat-a-Cake

(Recited while helping the child with hand clapping.)

Pat-a-cake, pat-a-cake, baker's man.

Bake me a cake as fast as you can.

Pat it and prick it and mark it with a "B."

And put it in the oven for baby and me.

So Big

Say, "Look at you—so big!" Slowly raise both of the infant's arms up, extending them over the child's head while saying, "[child's name] is so-o-oh big" and then slowly bring the arms down.

Repeat.

Say the child's name slowly as you raise the infant close to your face at eye level. Then say, "So-o-oh big." Then gently say, "Wow, wow, wow—what a baby. A so-o-oh big baby!" with a big smile.

1-6b Musical Play

Music, singing, and musical expression appear to be a central part of the crucial interaction that occurs between caregivers and infants as infants develop over the first year of life. Two types of musical or singing interaction take place: (1) a soothing go-to-sleep lullaby-style interaction and (2) a playful, upbeat adult behavior that might be described as rhythmic and joyful. The first style is seen as caregivers attempt to regulate or promote a particular infant state (such as relaxation, contentment, or sleep), and the second style, the communication of emotional information (such as mutual enjoyment and love of music).

Experts believe babies as young as three months can distinguish between certain melodies. Musical infant babbling has been described as tonal and rhythmic babble. Tonal babble is babbling in a single pitch, the babble sounding like a monotone singer. In rhythmic babble the child's body or voice displays a rhythmic beat or quality. Geist, Giest, and Kuznik (2013) believe research implies that even the youngest children have the potential to inherently respond to music and also mathematical constructs. Music contains beats, rhythm, tempo, and steady beats, which often make up a rhythmic pattern that infants and toddlers pay attention to. Often caregiver's rock infants to soothe them using an accompanying music or song. This can involve simple to complex musical patterns. These patterning experiences support later literacy learning, it is believed.

Nursery, cultural, and folk tunes can be introduced in intimate and pleasant settings. Simple, safe musical instruments are enjoyed, and moving to music is natural to young children. Wolf (2000) suggests that educators start with songs they love, ones sung to them as children. Others suggest using children's music recorded by well-known performers. Some educators recommend Bach preludes and Vivaldi's *Springtime* Symphony along with other classical pieces. Yet others recommend popular children's bouncy selections. Two benefits of musical activities for some older preschoolers and primary children are believed to be enhanced abstract reasoning and **spatial-temporal reasoning**.

Scientists are finding that the human brain may be "prewired" for music. They suspect that some forms of intelligence are heightened by music. Although controversial at present, some researchers believe learning musical skills in childhood can help children do better at mathematics.

Schmid (2010) confirms the beliefs of many educators.

> Words and music are such natural partners that it seems obvious they go together. Now science is confirming that those abilities are linked in the brain, a finding that might even lead to better stroke treatment. (p. A6)

Only more studies with more children will prove whether music produces specific or lasting benefits in cognition.

See Additional Resources at the end of this chapter for favorite musical and movement activities and song books.

1-7 Early Reading and Writing Practices

Common Core State Standards in the English Language Arts and Literacy in History /Social Studies, Science, and Technical Subjects (2010) are affecting language and literacy instruction at all educational levels and may modify or change how caregivers interact with children in Pre-K programs, as well as the curriculum to be planned for them. Although the standards are designed for grade levels K–12, they are sure to prompt Pre-K programs to examine how they align to preschool practices. The standards have been adopted by most states and the recommended instructional goals are being exercised in almost all curriculum areas, including the English language arts.

Giving young children the idea that they are capable communicators starts with alert infant caregivers who provide attention to and are aware of the infant's nonverbal communicative actions. What is at first an infant caregiver's guesswork concerning an infant's state of being, be that

spatial-temporal reasoning — the mental arrangement of ideas and/or images in a graphic pattern indicating their relationships over time.

hunger, tiredness, or distress or well-being, leads to the adult's ability to spot infants' communicating behaviors and act effectively and in a reciprocal manner. The infant soon begins to understand that he can influence how others (mother and teachers) interact with him. He becomes even more successful at communicating his wants or needs.

Educators' and early childhood caregivers' goals include more than teaching language and literacy. They aim to create a child's learning habit and disposition that develops from the joy and excitement of learning. This is encouraged by the exploring, engaging, and discovering that happens in activities and experiences during his early years. Hopefully, a love of learning will be retained in future schooling. Many early childhood centers are developing new ways to equip children to be successful when they enter common core kindergarten classrooms.

1-7a Reading to Infants

Some parents read books aloud during a mother's later stages of pregnancy, believing the practice will produce some positive results. Some infants remember and give greater attention to stories read to them before their birth. Conclusive research evidence has yet to verify this. Zambo and Hansen (2007) suggest that from birth to three months, read-alouds are purely an emotional connection between the infant and caregiver.

> Being held, feeling good, and having a familiar, comforting voice are more important than the kind of book or the content of the story. Lullabies, singsong stories, and other repetitive, rhythmic experiences bring joy and comfort to infants and establish a special time together for child and caregiver. (p. 34)

Between 6 and 12 months, some infants will sit and look at a picture book with an adult. It is the sound of the reader's voice that gets the young child's attention, even before the child's focus shifts to the pictures. The warmth and security of being held and the reader's voice make for a very pleasurable combination.

The child may want to grab pages and test the book in his mouth or try to turn pages. His head may swivel to look at the adult's mouth. If the child has brought a book to the adult, he will usually want to sit on the adult's lap as both go through the book. Children get ever more adept at turning pages as their first birthday nears (Photo 1-14). Familiar objects in colorful illustrations set on white or plain backgrounds and large faces seem to be particularly fascinating. Infants seem to respond well to and enjoy the rhyme they hear.

Photo 1-14 Ryan is trying to turn a page.

Adult-reading to infants younger than 12 months of age is increasingly recommended, for researchers believe the infant is learning about the sound patterns in words and how words are formed. Book-reading techniques include reading something the adult enjoys with average volume and expression, using gesturing or pointing when called for, promoting child imitation, letting the child turn sturdy pages, and making animal or sound noises. A good rule of thumb is to stop before the child's interest wanes. Adults may find that many infants enjoy repeated reading of the same book. Some parents are very adept at sharing picture books. These parents find **cues** in book features, such as familiar objects, events depicted, sounds, colors, and so on, that give the infant pleasure, as may be evidenced by the adult saying, "It's a dog like our Bowser!" Skilled early childhood educators realize it is the colorful illustrations that attract, so they name and point to features and when possible relate words to like objects found in the classroom. They also attempt to make illustrations relevant to the child's past experience.

Colorful books with sturdy or plastic-coated pages or cardboard books are plentiful. Books of cotton fabric and ones with flaps to lift and peek under, soft furry patches to feel, rough sandpaper to touch, and holes to look through or stick a finger through are books that include enjoyable sensory exploration. Homemade collections of family photographs have delighted many young children. Faces and common household objects in illustrations catch infants' attention. Picture books with simple, large illustrations or photos that are set against a contrasting background and books that are constructed to stand on their own when opened are also popular.

There are a number of literary classics (although not all experts agree to the same titles) that most children in our culture experience. Many of these involve rhyme and rhythm. They have, over time, become polished gems passed onto succeeding generations.

1-7b Recordings

Growing numbers of CDs, tapes, tablet activities, and videos are being produced for infants. Infants watch, listen, and sometimes move their bodies rhythmically. Research has yet to confirm the educational or language-developing benefits claimed by manufacturers of audios or visuals. In *The Journal of Pediatrics*, Interlandi (2007) reports on a new study that included a group of 1,000 families and reviewed the use of infant DVDs; this report suggests that babies who watch recordings fared worst with DVDs than with several other types of programming in terms of educational or language-developing benefits.

> Exposure to educational shows, like "Sesame Street," and noneducational ones, like "SpongeBob SquarePants," had no net effect on language, researchers said—but for every hour that infants 8 to 16 months spent watching the baby DVDs, they understood six to eight fewer words, out of a set of 90, than infants who didn't watch. (p. 14)

1-7c Early Experiences with Writing Tools

As early as 10 to 12 months, infants will watch intently as someone makes marks on a surface or paper. They will reach and attempt to do the marking themselves. Large chalk, thick crayons, or large crayon "chunks" are recommended for exploring, but caregivers are reminded to supervise closely because of infants' tendency to put small objects in their mouths. Large-sized paper (for example, torn flat grocery brown bags) taped at the edges to surfaces and chalkboards work well. The child may not realize the writing tool is making marks but may imitate and gleefully move the whole arm. Many believe it is simply not worth the effort to supervise very young children during this activity and save this activity until the children are older.

1-8 Monitoring Infant Development

Stark, Chazen-Cohen, and Jerald (2002) point out that normal paths of development within various domains serve as reference points to assess infant competence. Infant assessments undertaken by educators try to identify strengths and developmental areas where the infant and/or family may need supportive assistance to

cues — prompts or hints that aid recognition, such as a parent pointing to and/or saying "teddy bear" when sharing a picture book illustration. This is done because the infant is familiar with his own teddy bear.