

Becoming Verbal with
Childhood
Apraxia



MARSHALLA
SPEECH & LANGUAGE

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All citations from Jean Piaget were taken from *Piaget's Theory of Intellectual Development*, Herbert Ginsburg and Sylvia Opper, Prentice-Hall, Inc., Englewood Cliffs, NJ, 1969.

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Dedication

This book is dedicated to three fabulous women from the University of Illinois who permitted me to be an original thinker.

- To Dr. Joan Good Erickson, who taught me to be thorough in observation and assessment, and always to carry a broken toy in my diagnostic box.
- To Dr. Lillian Katz, who showed me how to see the world through the eyes of a preschool child.
- To Dr. Merle B. Karnes, who permitted me to be a teacher and a writer at an early age.

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Introduction

The Heart of the Problem

Let's face it: Apraxic children can be a puzzle. Although they can be bright, apraxic children don't start talking until two or three years of age or older. Each word they learn comes slowly and with tremendous difficulty. Articulation is always quite poor. Because it is difficult for them to say words and pronounce phonemes, apraxic children can remain minimally verbal and highly unintelligible for a long time. Those of us who live and work with apraxic children have to try awfully hard to get them to speak well.

Most speech and language pathologists approach the apraxic child with the assumption that he is able to imitate. We assume that if we present a specific sound or word often enough, the nonverbal apraxic child will eventually catch on and repeat it after us. But time after time we find we are met with a silent stare, a topic switch, a refusal, or a poor response that leaves us wondering whether the child actually heard us.

Based on the observations of Jean Piaget and his pioneering research into the development of imitation in young children, *Becoming Verbal with Childhood Apraxia* exposes the truth that apraxic children cannot imitate. It presents a methodology designed to facilitate verbal output in young children with severe apraxia of speech. These techniques have helped children begin to talk and use a wide variety of words and phrases.

We teach children *how* to assimilate new sounds and words by structuring individual therapy sessions around dialogue. Through this method, children become more active in their own therapy and discover how to:

- Talk more
- Pay attention to their own utterances
- Attend the speech of others
- Rehearse their sounds and words
- Master their own productions
- Say new sounds and words at will

Not all apraxic children will make it through the entire process. Some will fail to learn how to spontaneously imitate new sounds or words during the course of their childhood; others will not learn it at any time in their lives. Most apraxic children, however, can learn to imitate speech and language skills, and they become quite proficient at it.

If you are the parent of an apraxic child, I hope that the ideas presented here will help you understand your child's needs. If you are a therapist, especially a speech and language pathologist, it is my hope that these approaches rooted in the intelligence of Jean Piaget will revolutionize your therapy as much as it did mine.

PLEASE NOTE: The most current label for this disorder is *childhood apraxia*. This term has been used in addition to older terms. Also, male gender pronouns (i.e., *he, him, his*) are used throughout to refer to the client with childhood apraxia.

Chapter One

The Integral Relationship of Childhood Apraxia and Imitation

Imitation is a basic human ability, an essential element in general child development, and a critical component for learning to speak. Imitation is the ability to follow an action or manner, to copy, to duplicate, to mimic, to reproduce, or to assume the appearance of a variety of movements, including speech movements. Humans have the ability to imitate facial expressions, sounds, words, intonation patterns, accents, gestures, actions, and emotions. Early in life, we can repeat what others say with great precision, amazing accuracy, and simple ease. It takes most babies less than one year to learn the mature imitation skills necessary to say words like *momma*, *daddy*, or *bye-bye*. Most children learn to imitate the majority of sounds in our language, including thousands of words, before they enter elementary school.

Do you have a typical child who began to talk when he was about one year of age? What words did he say? How did he begin to say the words? A child's first words may include any number of possibilities:

Mamma	night	computer	shoe	meow
Dada	down	go	doggie	more
bye-bye	bottle	car	elephant	yea
hi	juice	eat	TV	no

If you have observed the emergence of first words in an average one-year-old child, you have witnessed the birth of mature imitation. What an achievement! The appearance of a child's first words is usually an exciting event that is met with great joy in the family. What did you do when you heard your child's first word? Perhaps you clapped, smiled, repeated the word excitedly, praised him, or looked for the first situation in which you could show off his skill to others.

Until he is able to read, all words that a youngster speaks are imitations of words he has heard from parents, siblings, friends, relatives, and neighbors, as well as those spoken in movies, television programs, commercials, musical recordings, and by talking toys and computers. That is a lot of words! The vocabulary expressed by the typical five-year-old numbers in the tens of thousands, and the ideas he can express with these words are quite complicated. Kindergarten children can be long-winded as they relate adorable stories and amusing events with words that they learned through speech imitation. By five years of age, most children can pronounce all the phonemes of their native language with great accuracy. All young children make a few simple errors, but overall the five-year-old is highly intelligible. We can understand him virtually all the time.

When we think of the word *imitation*, most of us think of mature imitation, such as when a one-year-old child can hear a modeled sound or word and repeat it. But children are not born with fully mature imitation skill. The skill begins primitively and evolves during the course of the child's first year of life. How does the ability to imitate begin, and how does it come to maturity? That information is what can help the young apraxic child learn to speak well.

The House of Imitation

In Jean Piaget's writings on childhood intellectual development, he described four basic stages in the development of imitation in infancy, beginning with primitive skills just after birth and mature skills at about one year of age. These stages might be equated to the steps one takes when constructing a house: from foundation and frame, to walls and roof.

Likewise, imitation is a linear construction of skills assembled in a certain order. These steps are called the Stages of Imitation. Each stage includes certain skills. By the first birthday, the average

child possesses all the skills necessary to engage in the most mature level of imitation and begins to say a small number of intelligible words. The child's "house of imitation" will have been built, and from that point forward he will not have to learn about the process any more. Instead, he will use that process to acquire a fully functional expressive speech and language system. We shall use Piaget's stages as the framework for the ideas in this book.

Childhood Apraxia and Imitation

Every speech and language pathologist knows that children with apraxia have great difficulty learning to imitate speech sounds and words like other children. Many apraxic children are almost silent as babies and toddlers, and they do not speak much at all until three, four, or five years of age—or even older. A serious delay in expressive speech can be frustrating or frightening for the parents. They might begin to ask, "Will he ever talk?" The joy they assumed would come with his first words becomes long overdue. Then, when the child finally does begin to talk, his utterances can be fleeting and difficult to understand.

The stages of imitation development that are observed in typical children can be relied upon to understand the difficulty with which apraxic children acquire speech. Still, there are differences. Whereas typical babies develop through these stages quickly and easily and complete the process by age one, children with apraxia have much more trouble, including:

- **LATE EMERGENCE:** Many apraxic children do not begin the process of imitation development on time.
- **SLOW MATURATION:** Most apraxic children take longer to advance from one stage of imitation to the next.
- **STAGNATION:** Most apraxic children get stuck at early stages and do not progress on to advanced stages
- **INABILITY:** Some severely apraxic children never do begin the imitation process at all
- **SCATTER:** Periodically, an apraxic child will advance too quickly to the higher stages of imitation, skipping the earlier stages or leaving them incomplete

Good builders know that each stage of building construction must be completed well or problems will appear later on. For example, a frame built on a shaky foundation will not stand, and a roof built on an insecure frame will not hold up. Although apraxic children can have problems in many areas of expressive speech and language development—including oral-motor skills, vocal development, and more—they do not have the ability to acquire mature speech-imitation skills. Thus, they cannot build their house of imitation in order to develop a fully functional expressive speech system.

Our Goal

The goal is to discover how to help young apraxic children become more vocal and to imitate speech. The following chapters will describe the essential elements of learning to imitate speech as it relates to “average” children up to one year of age. The problems apraxic children have at each stage will be discussed, including guidelines, techniques, and activities that are designed to help them acquire these skills. With an improved ability to imitate sounds and words, most, but not all, young children with severe childhood apraxia can begin to talk and become more intelligible.

Chapter 2

The Entertaining Variety of Sound

Babies spend an enormous amount of time rehearsing sounds before their words emerge. We call them *pre-speech vocalizations*. Pre-speech vocalizations are those spontaneous and self-generated sounds that are made without correspondence to a specific idea or meaning. For example, a grunt is a pre-speech vocalization. A grunt may be produced when the child is hard at work, like when he's filling his diaper, but it does not mean diaper, hard work, or, "Someone come and change my diaper." It is simply a spontaneous sound that accompanies a specific bodily function. Adults then interpret by adding meaning. For example, in response to a baby's grunt one might say, "Oh-oh. I think you need a new diaper."

Babies produce many such sounds spontaneously during this period including coos, goos, laughs, nasal sounds, grunts, growls, squeals, shouts, gurgles, raspberries, whispers, and several vowels (V). About six months of age, babies learn to say a few consonants (C) and a few simple consonant and vowel (CV) combinations. Between six and twelve months of age, babies learn to combine their consonants and vowels into increasingly complex sequences with the process known as *babbling*. Babies who are vocal enjoy making these pre-speech vocalizations, and they spend a significant amount of time rehearsing and experimenting with them by practicing them with a wide variety of pitch, intensity, intonation, resonance, tension, length, and loudness patterns. *Vocal play*, the rich rehearsal

and experimentation with a wide variety of sounds, helps them to learn the most primitive aspects of speech-imitation skill.

Have you ever observed babies making sounds by themselves? Babies typically repeat target sounds as a form of play and self-entertainment, embellishing each trial with increasing focus. In so doing, a baby begins to recognize his own voice through its tactile, proprioceptive, and auditory properties. He begins to experiment with these properties and to make specific sounds at will, recognizing the similarities and differences of sound sensation as he produces them.

Pre-speech vocal play is a child's self-expression and solo experimentation. It's the means by which the child puts together the ingredients he needs to make the foundation for the house of speech imitation. He experiments with his own voice and with a wide variety of speech features. In so doing, he discovers his capacity for speech production in the same way he discovers other movements: through play and systematic experimentation.

At this foundational level, it is the child's ability to engage in purposeful and repetitious sound play that begins the process of imitation development. Piaget called this process that teaches the child to perceive and repeat his own actions *circular reactions*. In a circular reaction, a baby does the same pattern over and over again until it becomes a learned habit that can be incorporated into other actions. In speech development, this is evidenced by the baby's ability to produce specific sounds spontaneously and consistently at will.

Children with Childhood Apraxia

How does pre-speech vocal play relate to the imitative abilities of children with apraxia? As was stated earlier, the apraxic baby or toddler tends to be quiet. As a result, most apraxic children:

- Spend little time rehearsing pre-speech vocalizations
- Spend little time discovering how to make sound consistently
- Spend little time listening to and developing good auditory discrimination of their own voice

- Spend little time “feeling” pre-speech vocalizations and developing the tactile and proprioceptive discrimination skills of sound-making
- Are slow in learning how to produce their own spontaneous sounds at will

Rehearsal of pre-speech vocalizations and the development of early imitation skills go hand-in-hand at this most primitive stage of imitation learning. Each affects the other in a reciprocal arrangement. Think of it this way: The fun of producing sound begets the rehearsal of more sound, which facilitates better attention to sound, which allows the child to discover similarities and differences between sounds, which encourages him to produce particular sounds consistently over time. The apraxic child lacks in those skills. He does not make much sound, therefore he does not learn to attend to sound well, discriminate sound well, or develop an ability to produce sounds consistently under his own volition.

Using Sound to Build Early Imitative Ability

The first task in the development of speech-imitation skill in apraxic children is to encourage the production of a wide variety of spontaneous speech sounds through the experience of vocal play. It is not specific consonants, vowels, or words that are the issue; those will arise later. The key sounds are those that babies produce before six months of age, or before babbling emerges. The goal is to help apraxic children learn to produce more pre-speech vocalizations, to experiment with them, and to begin to recognize the similarities and differences between them in a playful milieu.

The specific vocalizations the child produces aren't important. The primary concern is with his ability to make all kinds of sounds, to attend to them, to play with them by altering their features, and eventually to become consistent in their production. In essence, what is encouraged is the child's ability to produce sound, not his ability to imitate us. This helps him begin to regulate and control his own speech behavior.

Listen to Your Child

At this level of imitation development, it is important to discover what makes the apraxic child more vocal. Is it a car ride? Is

it while playing in the sand? Is it during fingerpainting? Is it while swinging and singing? Is it while chasing a huge ball around the back yard? Is it during bath time?

The notion of functional communication has dominated the field of speech and language therapy for more than twenty years. During those two decades the important process of rehearsing sound has been diminished. Much of our therapy today for young apraxic children is designed to stimulate verbal expression by focusing on the use of functional words and phrases in everyday communication routines. For example, we teach minimally verbal apraxic children to say “juice” when they want juice, and to say “bye-bye” when it’s time to go.

But, a child’s earliest form of sound production and imitation arises spontaneously as he engages in self-expressive vocal play for entertainment and experimentation. His intelligence is dominated by sensorimotor experiences that are reinforced as fun ways to discover the tactile, proprioceptive, and auditory sensations of sound productions. Little babies do make sound to satisfy pragmatic functions like showing, obtaining, refusing, or asking. But they make more sound purely for the sake of enjoyment.

There are many ways to provide vocal play experiences for the apraxic child. The following is a list of ideas.

Bath time

Bath time is one of the best times to work on pre-speech sound awareness and production. The child is in a small, acoustically reverberating little box of a room. He is being bathed in warm water and is surrounded by fun items like soap, bubbles, washcloths, pouring containers, and toys. During a bath, parents can shift their focus from “getting the child clean” to “having fun and vocalizing together while getting clean.” The idea is to create an open forum for free expression of sound and then to play with these sounds.

Bedtime and Wake Up

Bedtime is another wonderful opportunity to facilitate free and spontaneous sound play. Apraxic children who talk to themselves, whether using sounds or words, can be left alone to jabber away contentedly until they fall asleep or after they wake up. This is a perfect opportunity for pre-speech vocal play. This rich sound play activity, called *crib speech*, does not need to be curtailed. You might

even consider fastening an unbreakable infant mirror in the crib or on the wall next to your child's bed so he can watch himself make sounds.

Singing

Singing is a great way to model continuous speech behavior for sound discovery, experimentation, and entertainment. Sing anything—kids songs, oldies, commercials, or hymns. Dig through your memory for those songs you loved as a kid:

- “The Itsy-Bitsy Spider”
- “Old McDonald Had a Farm”
- “Mary Had a Little Lamb”
- “The ABC Song”
- “London Bridges”
- “This Little Light of Mine”

Sing along with the radio, sing together as a family, and sing alone to your child. Dance and sing, hop and sing, and cuddle and sing. Do finger puppets or games and sing. Don't worry about your child learning the words to the songs. Teach him to make sound and sing for fun.

Tickling and Roughhousing

Tickling and roughhousing are easy ways to encourage sound production and sound play in the apraxic child. This type of play typically facilitates a lot of sound output. During roughhouse play children usually laugh, squeal, scream, shout, giggle, pant, growl, whoop, and holler. Get the whole family involved so that everyone is making noise. This will encourage your apraxic child to make sound during the fun and afterward as he remembers the event and tries to initiate the play again.

Boxes, Forts, and Houses

Do you remember how much you loved to play inside large boxes or under blankets as a child? Part of the fun has to do with privacy and imagination, and part of it has to do with the dramatic acoustic changes that occur in an enclosed space. Sound coming from outside the box is muffled and quiet, but inside the box even the most quiet and insignificant sound made by the child become

salient and important. Children love to whisper in a large box because they can hear themselves so well. It is a great place to encourage pre-speech vocalizations in apraxic children.

Tubes, Hoses, Funnels, and Rolls

Children love to make sounds in these toys, and they are excellent for facilitating sound play with an apraxic child. Provide your child with empty paper-towel rolls, toilet-paper rolls, wrapping-paper rolls, rubber and vinyl tubes (aquarium tubing works great), kitchen funnels, new oil-changing funnels, huge empty carpet rolls, or a piece of hose. Teach the child to use them to make sound, especially vowel sounds. Teach him to play “telephone” by talking through tubes and rolls.

Blow Toys

Teach the apraxic child to blow through horns, whistles, harmonicas, and other blow toys, and to blow bubbles. Blowing is not speech, per se, and the purpose of these activities is not to teach the child to blow through the item. The purpose of blow toys is to teach the child to inhale and exhale with increasingly greater awareness and control so that he can do so during the production of speech sounds later. Teach him to inhale deeply and to blow long and short. Also, blow cotton balls, tissue balls, table tennis balls, and mommy’s hair. Blow out candles at home with adult supervision.

Kazoos

The kazoo is probably one of the greatest tools we have for encouraging vocalizations in apraxic children. Unlike a blowing toy, a kazoo forces a child to use his voice to make it work. For emphasis, play with kazoos in the large boxes or homemade houses and forts. Use kazoos to “sing” the happy birthday song, holiday songs, and general children’s songs before your child has enough words to sing them. Make loud and soft sounds in the kazoo, long and short sounds, and high and low pitches. Pretend to be a band by marching around the room while sounding your kazoos. A young, severely apraxic child who has few sounds and words at his disposal often finds great joy in using a kazoo for self-expression.

First Games Sounds

Most children enjoy saying the simple sounds associated with early games. Say, “Boo!” while playing Peek-a-Boo, or, “Wee-wee-wee” while playing This Little Piggy Went to Market. Again, the apraxic child often learns general sounds more easily. Once he can say them, provide multiple opportunities throughout the week to practice.

Animal, Monster, and Vehicle Sounds

Well before they say words, most children learn to say animal, monster, and vehicle sounds, like the *meow* of a cat, the *growl* of a monster, or the *vroom* of a car. These sounds can be easier for an apraxic child to say, so they also can be easier to stimulate. For young, severely apraxic children who have little means of vocal or verbal communication, motor, crashing, screeching, monster, and animal sounds can be an important means of self-expression.

Microphones

Real or play microphones are an outstanding way to play with sound. Teach the apraxic child to make sounds and to sing or talk into a microphone. Amplified speech, especially a child’s own speech, usually attracts his attention and keeps him focused on sound production. Use a Megamike™, an Echomic™, a Rock-n-Roll Microphone™, a “jam box” with microphone and amplifier, a stereo system, an Auditory Trainer™, or a Phonic Ear™.

Chapter **3**

The Power of Crowd Noise

Most nonverbal and minimally verbal young apraxic children will not speak on demand. When asked, “What’s your name?” or when told to say, “ball,” severely apraxic children often respond to these directives with silence, staring, ignoring, turning away, or simply refusing. Sometimes, it seems as if they aren’t listening, have no idea what was said, or are determined not to speak. We often hear the parents of young apraxic children say, “He can say some things, but he just won’t talk.” Or, “He used to say some words, but doesn’t anymore.” Does this make sense? Why would a child who can make sounds or words not say them when asked?

Piaget observed that babies make lots of sounds when engulfed in crowd noise. He called this process *vocal contagion*. Vocal contagion is the natural urge to speak that spreads in highly verbal environments. For example, in busy places like shopping malls, babies who are wheeled from one end to the other tend to increase vocalization. Babies seem to enjoy matching their voices to the sounds of the people around them. The story of Sara will bring some clarity.

Sara

One day, two of my old friends came over with their five-month-old baby girl, Sara. The mother proceeded to place the child on a couch and prop her up into a sitting position with pillows. Sara