



Early Speech and Language Development

Processes, Benchmarks and the
Impact of Disability

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Outcomes

Participants will:

- review the research base on early speech and language development
- apply this research to the task of identifying children who may have a language delay or disorder
- consider the impact of language differences
- gain resources for learning more about early speech and language development

Agenda

9:00-12:00

Early speech and language development:

What the research tells us

Language Benchmarks

Speech/Language Disability

Language Differences

Early Speech and Language Development

Speech, Language, Communication

(What is the difference?)

- **Communication**: the exchange of information or ideas
- **Language**: a symbol system with rules that govern the use of the symbols
- **Speech**: the production of vocal sound patterns

The Importance of Speech and Language in Preschool

- Speech/language ability is related to academic success
- Speech/language delays or disorders may be the earliest indicator of other problems
- Most young children with disabilities have a need for intervention in the area of speech or language
- Preschool offers almost continuous language learning opportunities

Of the children served in Preschool Special Ed in 200-2001:

- 28% exited to general ed
- 40% were educated primarily in the regular classroom (<20% out of reg class)
- 7% were educated outside of the regular class from 21-79% of the time
- 25% were out of the regular class more than 80% of the time

Language Research

- We can describe early language acquisition in great detail.....
(But we do not know exactly how children learn language)
- Research can serve as a guide for evaluating child language and identifying teaching targets

Theories of Language Acquisition

- Behavioral (Skinner, 1957)
- Psycholinguistic (Chomsky, 1965)
- Semantic/Cognitive (Bloom, 1970)
- Sociolinguistic (Bates, 1976)
- Interactionist (Bloom & Lahey, 1978)

The Major Systems of Language

- Phonology
- Semantics
- Morphology
- Syntax
- Pragmatics

Phonology

The study of the sound system of language including:

- What the sounds are
- The system of rules for combining and sequencing the sounds
- Phonology is the study of language **form**

Phoneme

- The smallest unit of sound that signals a change in meaning

Early Perception of Speech Sounds

- infants can discriminate between some speech sounds as early as 1 month
- infants seem to be able to discriminate between phonetic contrasts from many languages
- over time, however, they lose the ability to discriminate between some contrasts that are not in their language

Early Production of Speech Sounds

- 0-3 months: reflexive vocalizations
- 3-6 months: cooing and early consonant–vowel combinations
- 6-10 months: repetitive consonant-vowel sounds (da-da)
- 9-12 months: conversational babbling
- 12 months: first words

Speech

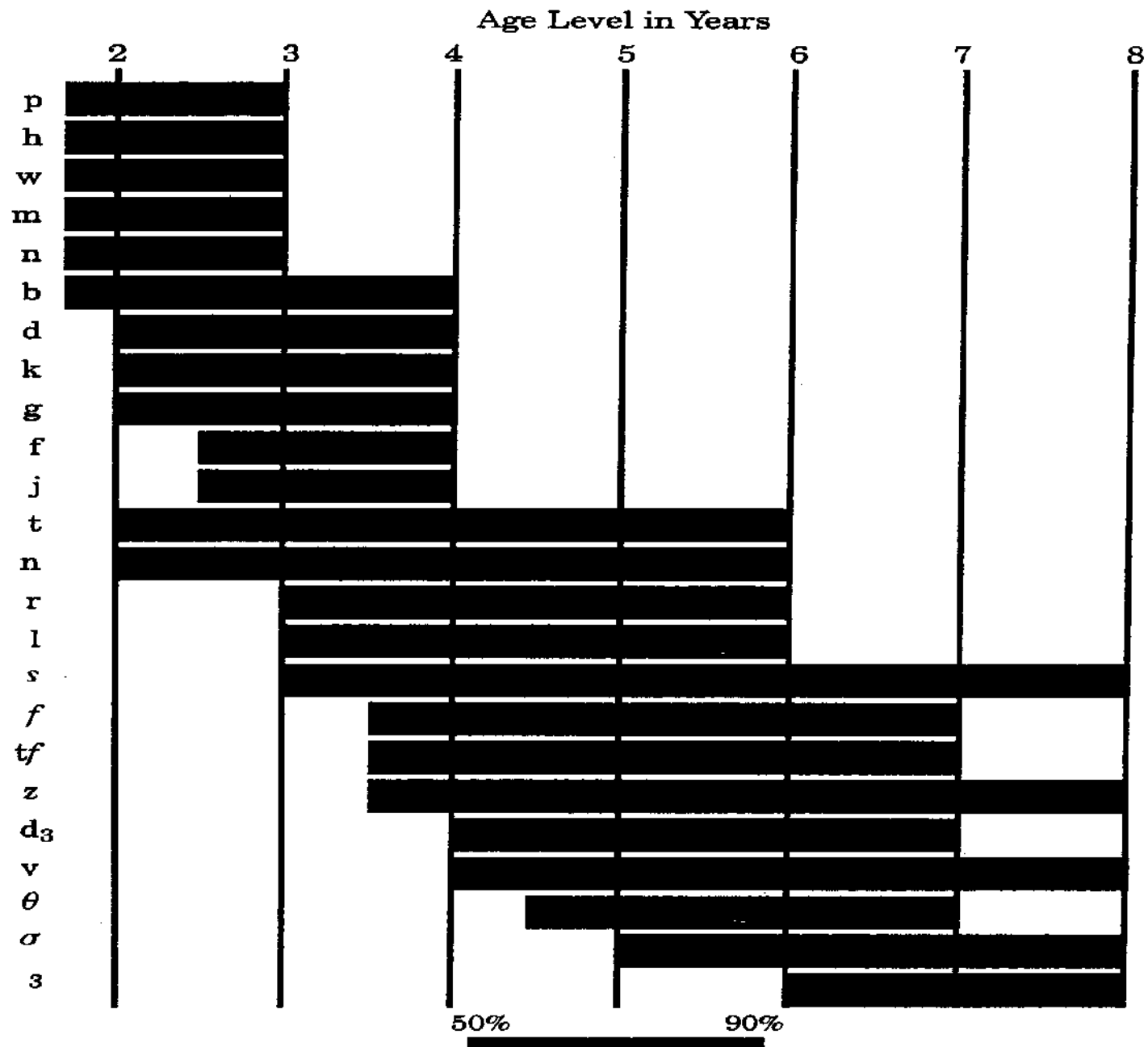
During the infant, toddler and preschool years, children learning English gradually learn to produce the consonant and vowel sounds of English in initial, medial or final positions in words and according to the rules of English for combining sounds

(McCormick, Loeb & Schiefelbusch, 2003; McLean & Snyder-McLean, 1999)

TABLE 3-1. Consonants of English.

Consonant Sound	Initial Position	Medial Position	Final Position
/p/	pin	apple	rap
/t/	tin	jester	rat
/tʃ/*	chin	catcher	catch
/k/	kin	backer	rack
/b/	bin	fibber	rib
/d/	din	grinder	rid
/j/**	gin	ranger	ridge
/g/	goat	beggar	rig
/f/	fin	differ	laugh
/θ/	thigh	ether	bath
/ð/	thy	either	bathe
/s/	sin	dresser	bass
/ʃ/****	shin	washer	bash
/v/	vat	liver	give
/z/	zip	razor	has
/z/*****		measure	mirage
/m/	mat	simmer	ham
/n/	gnat	sinner	sin
/ŋ/		ringer	sing
/r/	rat	stirring	stir
/l/	life	taller	tall
/y/	yet	layer	
/h/	hat	ahead	
/w/	win	lower	
/hw/	whew		

Alternate forms: */tʃ/ **/dʒ/ ***/ʃ/ ****/ʒ/ *****/ʒ/



Percentage of children correctly producing sound in all positions

Most 3 year olds can produce:

- p (pat)
- h (hot)
- w (water)
- m (mama)
- n (nose)

Most 4 years olds can produce:

- b (baby)
- d (dog)
- k (kite)
- g (go)
- f (fun)
- y (yes)

Most 6 year olds can produce:

- t (toy)
- n (night)
- r (run)
- l (light)
- ng (bring)

Later developing sounds

- s (sun)
- sh (shut)
- ch (chin)
- z (zipper)
- j (jump)
- v (vase)
- th (think) (voiceless)
- th (this) (voiced)
- zh (measure)

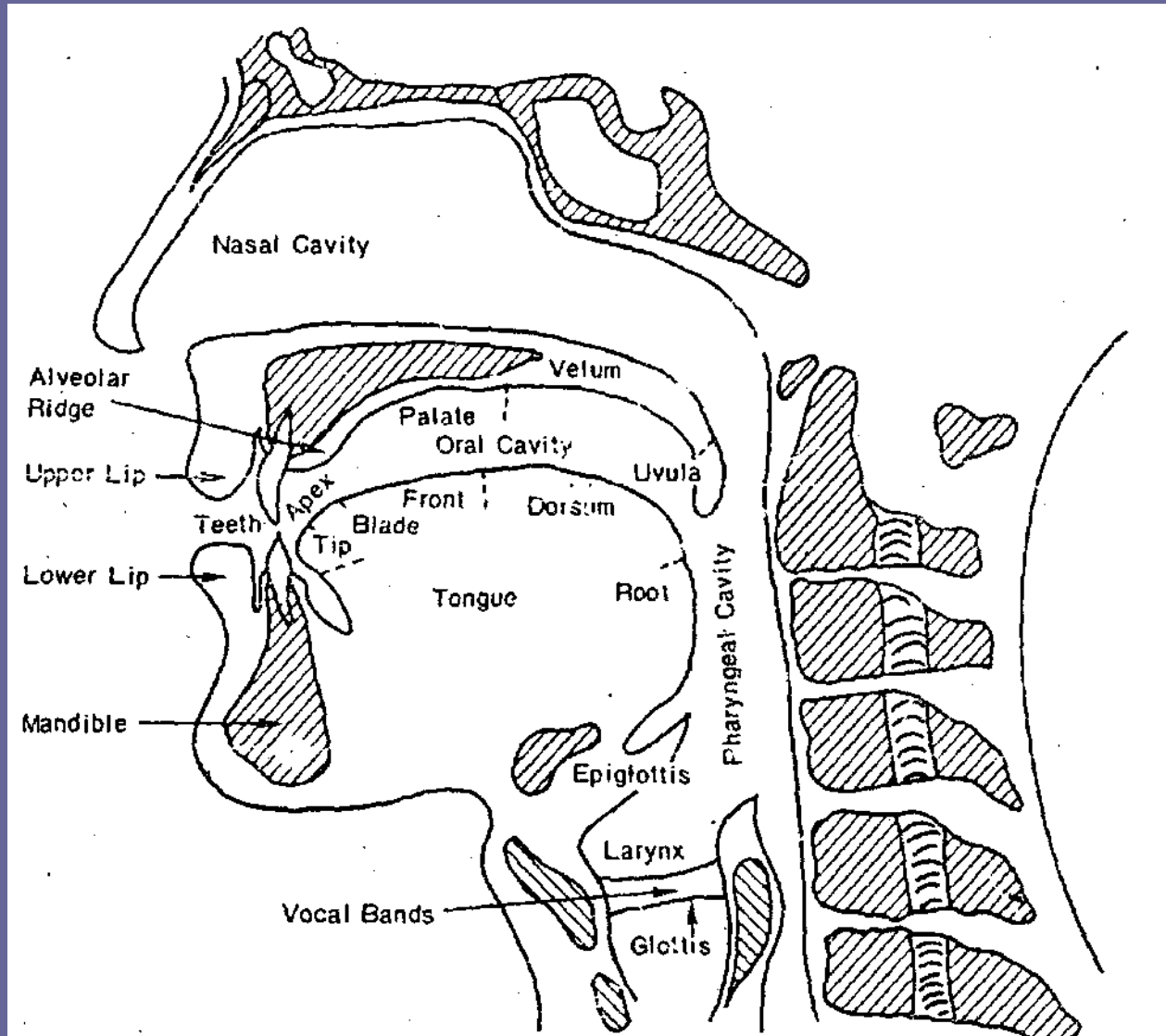
(Adler & King, 1994; Smiley & Goldstein, 1998)

Consonant sounds are described by :

- Place of articulation: p/b are “bilabials”
- Manner of articulation: p/b are “stops”
- Voiced or voiceless: p is “voiceless”
b is “voiced”

(McLean & Snyder-McLean, 1999)

Oral Mechanism



Place (From Front to Back)	Manner					
	Stop	Fricative	Affricate	Glide	Liquid	Nasal
Bilabial						
Voiceless	p			hw		
Voiced	b			w		m
Labiodental						
Voiceless		f				
Voiced		v				
Interdental						
Voiceless		θ				
Voiced		ð				
Alveolar						
Voiceless	t	s				
Voiced	d	z			l	n
Palatal						
Voiceless		š	č			
Voiced		ž	ǰ	y	r	
Velar						
Voiceless	k					
Voiced	g					ŋ
Glottal						
Voiceless						
Voiced				h		

Common articulation errors

- Substitutions
 - /th/ for /s/ or /k/ for /t/
- Omissions
 - syllable or sound
- Distortions
 - Lateral /s/
- Additions
 - Ballalet

Semantics

- Study of the meaning system of language
- Language **content**

Berko-Gleason, 1993

Semantics includes:

- Vocabulary development
- Concept development
- Meaning of words used in combination

“A child’s knowledge of the world
will be demonstrated in word
knowledge”

Crais, 1990

Early semantic relations

- Nomination (that doggie)
- Negation (no juice)
- Recurrence (more cookie)
- Possession (my baby)
- Attribution (big ball)
- Locative (cup table)
- Agent-action (mommy sit)
- Action-object (hit ball)
- Agent-object (daddy truck)

Morphology

- The study of word formation and the rules governing the use of morphemes
- Morphology is language **form**
- Morpheme: the smallest unit of language which has meaning

morphemes

- Baseball = 2
- Hats = 2
- Daddy = 1

Mean Length of Utterance

- the average length of oral expressions as measured by a representative sampling of oral language
- obtained by counting the number of morphemes and dividing by the number of utterances

As MLU increases, the complexity of children's utterances also increases in very consistent ways

MLU is a better predictor of the complexity of child language than age

Mean Length of Utterance

Age	MLU
2 years	1.75
2.5 years	2.25
3 years	2.75
3.5 years	3.5
• 4 years	4.0

(McCormick & Schiefelbusch, 1990)

Find the MLU....

Daddy's shoes are big

Jessie walked home

The baby sleeps here

Daddy goes to work

Brown's Stages

- Stage 1 MLU 1.75
- Stage 2 MLU 2.25
- Stage 3 MLU 2.75
- Stage 4 MLU 3.5
- Stage 5 MLU 4.0

(Brown, 1973)

First Grammatical Morphemes

- ‘-ing’ - present progressive tense
- ‘in’ and ‘on’
- ‘-s’ - plural noun
- past tense irregular verbs
- ‘-s’ - possessive noun
- uncontractible copula
- article ‘a’
- regular past tense verb

First Grammatical Morphemes

- regular third person verb
- irregular third person verb
- uncontractible auxiliary verb
- contractible copula
- contractible auxiliary
- pronouns
- comparative/superlative (-er, -est)

Syntax

- Syntax includes the rules of word function (parts of speech) and word order
- Syntax is language **form**

Negative sentences

- “No go night-night”
- “I no go sleep”
- “I will not go to sleep”

Questions

- Go play? Or Where baby?
- Where you go?
- Where did you go?
- What, where, who, when, why and how

Embedding/Conjoining

- Conjoining: 'and', 'and then'
'because', 'so', 'but'
- Embedding: noun clauses
infinitive phrases
participle phrases

Pragmatics

- Pragmatics is the study of rules related to language use in the communicative context
- Pragmatics is the study of language **use**

Pragmatics includes:

- Communicative intention: reason for speaking
- Presupposition: information that must be shared by the speaker and listener so that the message can be understood
- Organization of discourse

Early functions of language

- Requesting information
- Requesting action
- Seeking attention
- Responding to requests
- Stating or commenting
- Protesting
- Greeting

Discourse Skills by School Age

- Ability to participate in conversations
(introduce a topic, sustain the topic, provide a clarification and close or switch topics)
- Adjustments of speech for the listener
- Ability to take the perspective of the listener
(deitic terms: here, there, this, that and pronouns)
- Elimination of redundant language (based on presuppositions)

McCormick & Schiefelbusch, 1990)

Language Intervention Strategies

Research on typical speech/language acquisition serves as a guide for identifying goals and objectives for children with language delays/disorders

Language Intervention Strategies

Based on the study of “parentese” or “child directed speech” of adults:

- modeling
- repetition
- expansion
- extension

(Nelson, 1989; Chapman, 1981; Tabors, 1997)

Language Benchmarks

Early Word Comprehension

- 8-12 months: comprehends a few words in context
 - 12-18 months: comprehends some words outside of routines
 - 18-24 months: comprehends words for absent objects and 2 word combinations
 - 24- 36 months: comprehends simple sentences supported by context
- (Crais & Roberts, 2004)

Early Word Production

- Approx. 12 months: first words
- 13-15 months: ten words
- 18-20 months: 50 words
(by 6 years, it's 2,600 words!!)
- 18-24 months: begins to produce 2 word utterances

(Owens, 2001)

Early Language Use

- 12-24 months: uses words to get attention, to get objects or actions, to protest
- 24 months: can initiate and change a topic of conversation but very dependent on context
- 3 years: can use language for a variety of functions

(McCormick & Schiefelbusch, 1990)

Preschool Comprehension

- Growth and refinement in comprehension of vocabulary as well as categorization (semantic development)
- Growth in comprehension of grammatical aspects of language (morphology and syntax) such as word order, prepositions, plurals, possessives, past and future tense of verbs

(Crais & Roberts, 2004; Miller & Paul, 1995; Paul, 2001)

Preschool Production

- Length of utterances increases
- Grammatical elements are added
 - ing to verb (“me playing”)
 - s for plural and possessive (“two books,”
“Mommy’s hat”)
 - articles and adjectives (“this a big car”)
 - pronouns (her, him, you, me)
 - past tense (regular and irregular)
 (“he ate it,” Sally played outside”)
 - future tense (“I will go home”)

- Forming negatives (“I didn’t see it”)
- Forming questions (“Can we go to the park?”)
- Combining clauses into complex sentences (“I went to the swing, but he wasn’t there”)

(Brown, 1973; Miller, 1981; Owens, 2001; McCormick, Loeb & Schiefelbusch, 2003)

Preschool Language Use

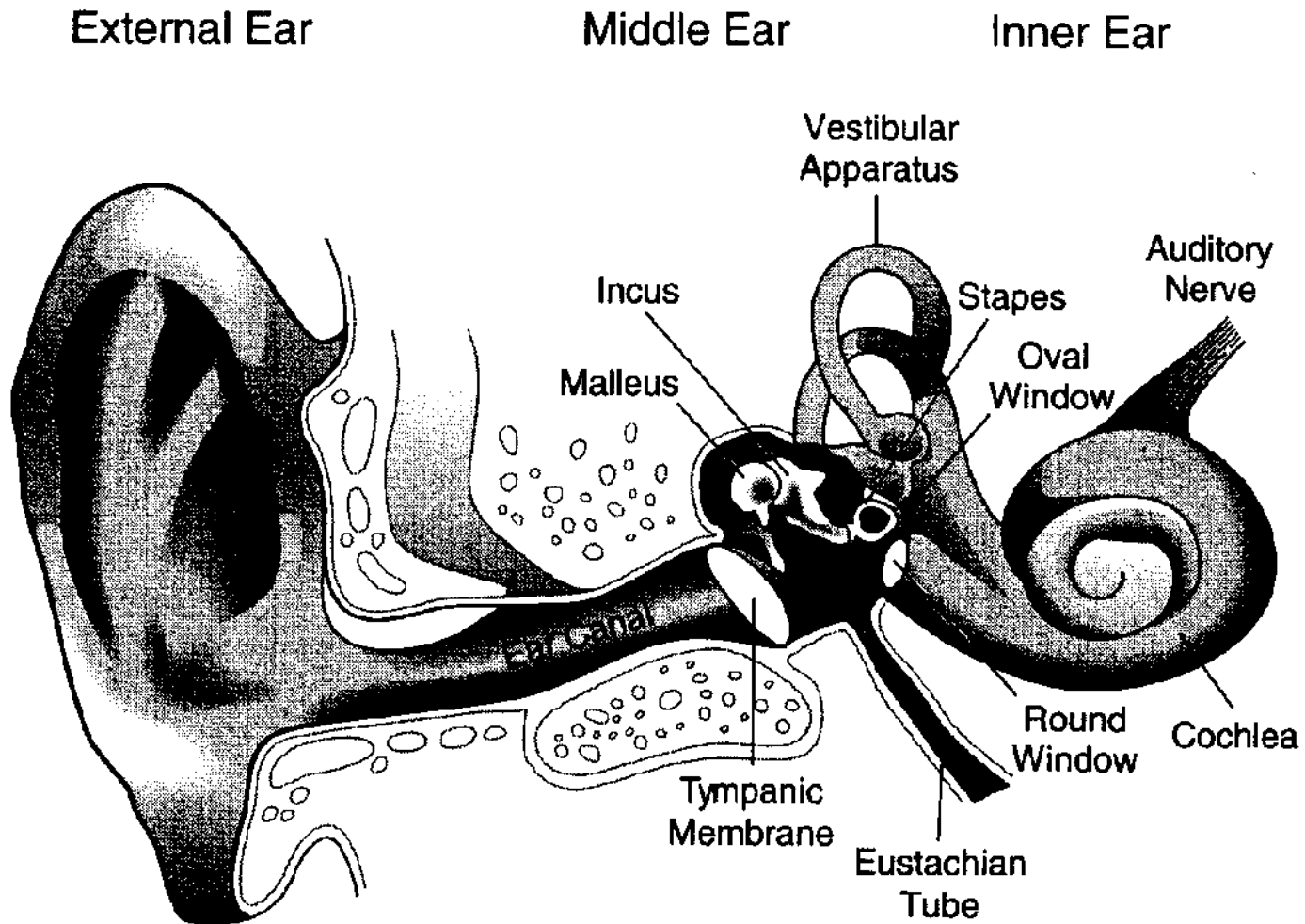
- Growth in the ability to maintain a topic of conversation across a number of turns without contextual support
- Growth in the ability to initiate a conversation and also to end a conversation
- Growth in the ability to use language for a variety of purposes

Speech/Language Disability

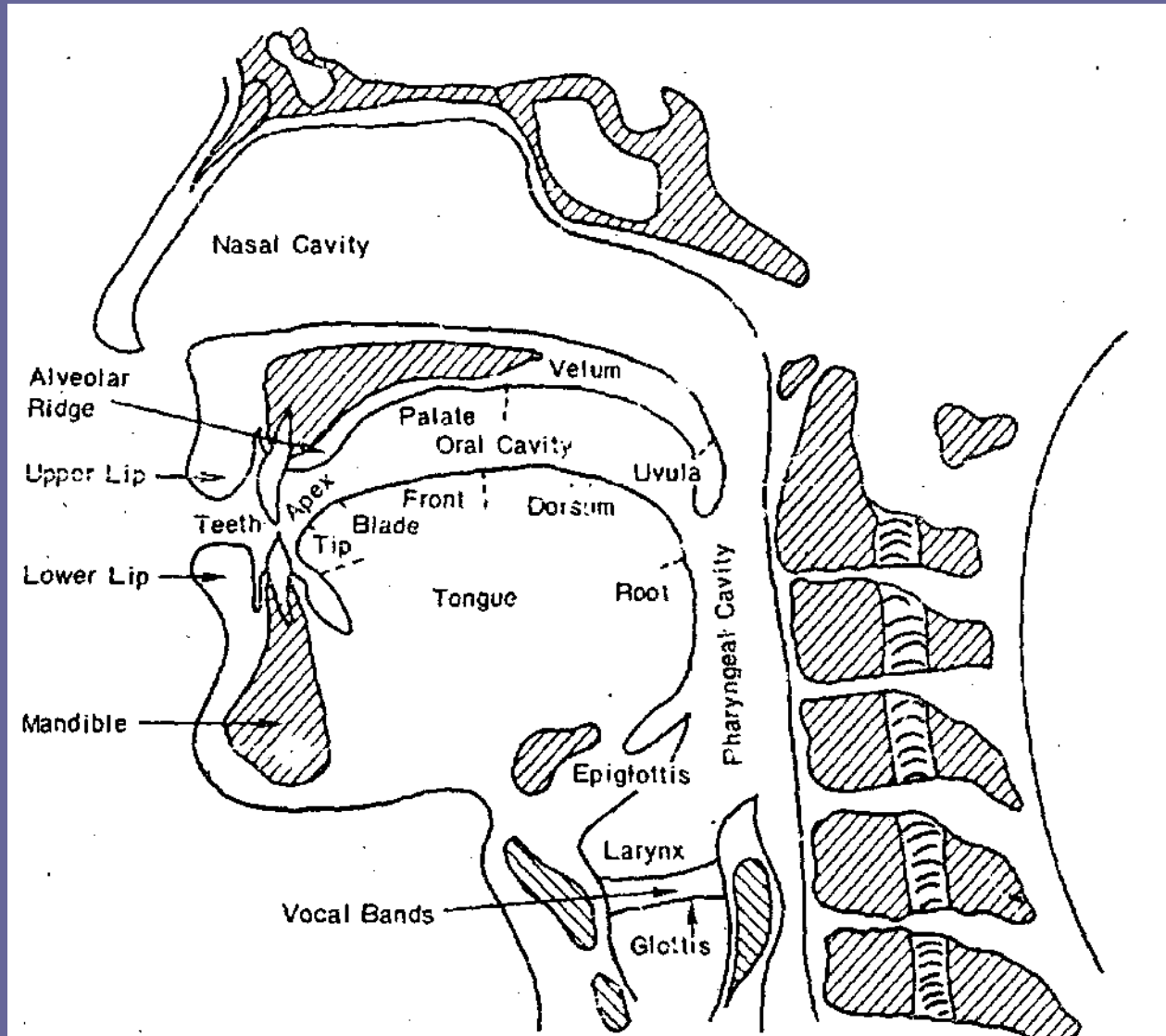
What can cause speech problems?

- Chronic ear infections or hearing loss
- Auditory discrimination difficulties
- Oral mechanism problems
- Motor planning problems
- Learned patterns of mis-articulation
- What else?

The Ear



Oral Mechanism



Intelligibility

There is a good deal of variation in how well children produce speech sounds **and** also in how well they put vowels and consonants together in streams of speech

One way to think about it, is to consider how intelligible a child's speech is to someone who does not know the child well

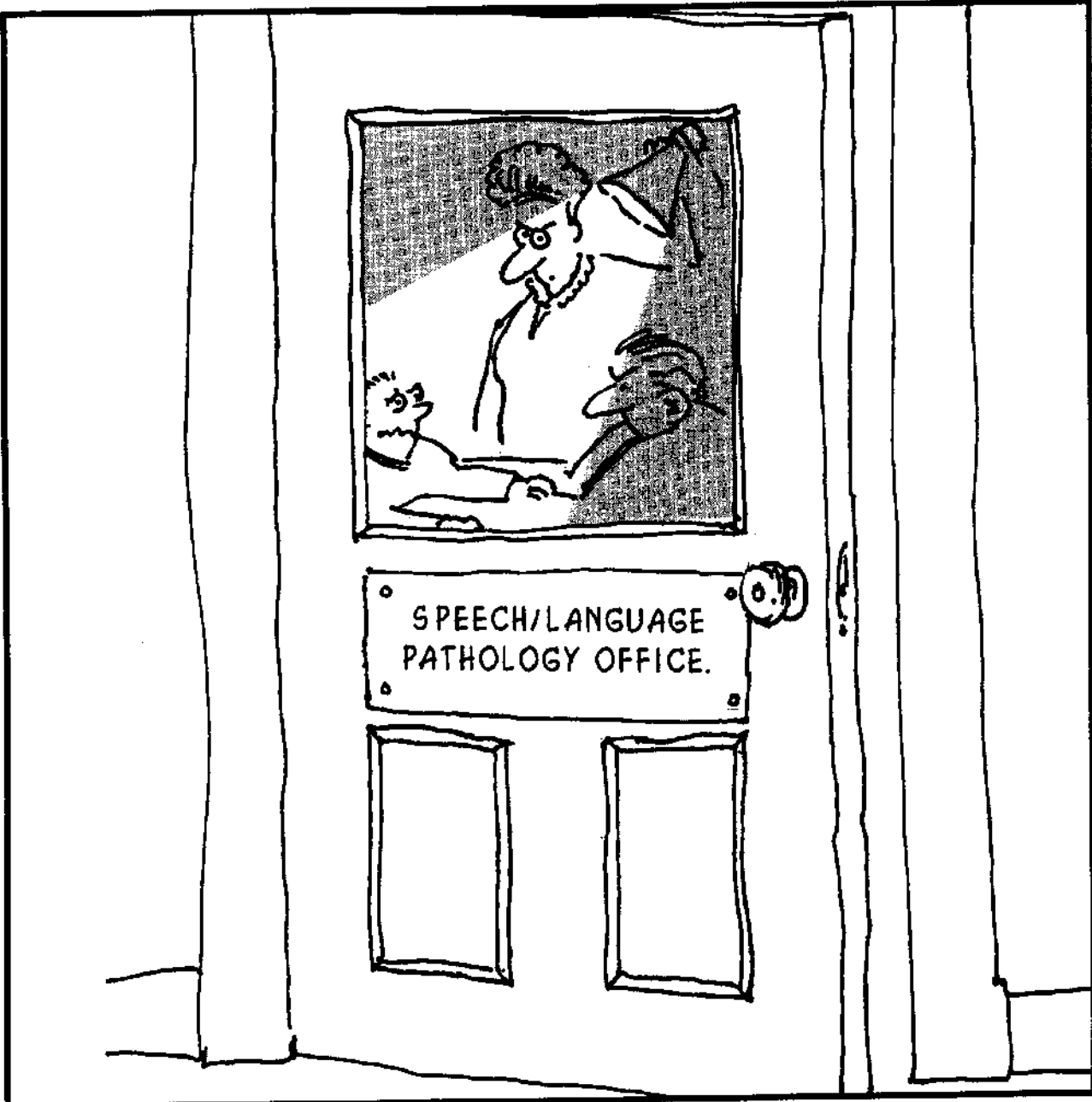
Deciding whether or not to refer...

- Does the child have difficulty understanding or being understood?
- Is this a source of frustration for the child?

Gathering information for the referral....

- How much of the child's speech is intelligible ?
- Are there specific sounds/words that the child does not produce correctly? If yes, what are they?

- Does the child drool or have problems eating?
- Is the quality of the child's voice unusual?
(nasal, breathy, hoarse, high-pitched, too loud/soft?)
- Is the child's pattern of breathing unusual?
(shallow or frequent breathing, audible breathing?)
- Is the child frequently dysfluent, even when not excited or upset?



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"WE HAVE WAYS OF MAKING YOU TALK!"

What can cause a language problem?

- Hearing loss
- Chronic ear infection
- Fear or anxiety
- Lack of language experience
- Speech disorder
- Disability

Deciding whether or not to refer...

- Does the child have difficulty understanding language?
- Does the child have difficulty expressing himself ?
- Does the difficulty cause frustration or impact the child's learning and development?

Gathering information for the referral....

- What is the basis for the concern?
 - Language production
 - Language comprehension
 - Language use
- Write down observations of the child's language and behavior that exemplify concerns

Language Differences

Dialect Difference

A dialect is a rule-governed variation of a standard language

English Dialects

- Northern, Midland, Southern
- African American English/Black English
- Cajun
- Others...

- Dialect is child's first language
- Distinguish between dialect and potential speech or language disability
- Repetition, modeling, expansion, extension

English Learner

A child whose first language is other than English or who is in the process of developing two or more languages

Bilingualism

- **Simultaneous bilingualism:** exposure to and opportunities to use both languages are essentially equal
- **Successive bilingualism:** the second language is learned after the first language is established
- **Receptive bilingualism:** a great deal more is understood in the second language than can be expressed in words

(CDE, 2005)

Stages of Second Language Acquisition

- Use of Home Language
- Observational/Listening Period
- Telegraphic and Formulaic Speech
- Fluid Language Use

- (CDE, 2005)

Use of Home Language

- Children continue to use the home language to communicate even though no one else is speaking that language

Observational/Listening Period

- Children do not speak, but instead listen to the new language. They may use gestures, facial expressions or sounds to communicate

Telegraphic/Formulaic Period

- Telegraphic speech: use of one or two word utterances without function words and grammatical markers (“Bobby shoe”)
- Formulaic speech: use of phrases in the new language as a formula but without really understanding the linguistic components (“I wanna _____” or “I like _____”)

Fluid Language Use

- Children now begin to understand and use the rules of English so that they can build new sentences. Mistakes will be made, but the child is now able to get beyond repetitive phrases.

Deciding whether or not to refer...

Remember that it is not uncommon for children who are acquiring a second language to appear at some point as if they have limited proficiency in both languages....

(CDE, 2005)

Deciding whether or not to refer....

..... limited English proficiency alone is not sufficient reason for referring a child for assessment for special education services.

At the same time, if a child needs services, **earlier** is better....

(McLean, 2002)

Gathering information

- Consider the child's language history
- Consider the child's current language environments
- Gather information from the family about the child's typical language at home

- Consider the child's functioning in other developmental domains in situations where language comprehension is not required
- Consider information about the child's hearing and vision
- Consider whether or not the child has had sufficient time to become accustomed to the new social and language environment

(McLean, 2002)

Questions???

Thank You!

