

Early communication and academic success in children with and without communication disorders

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Acknowledgments

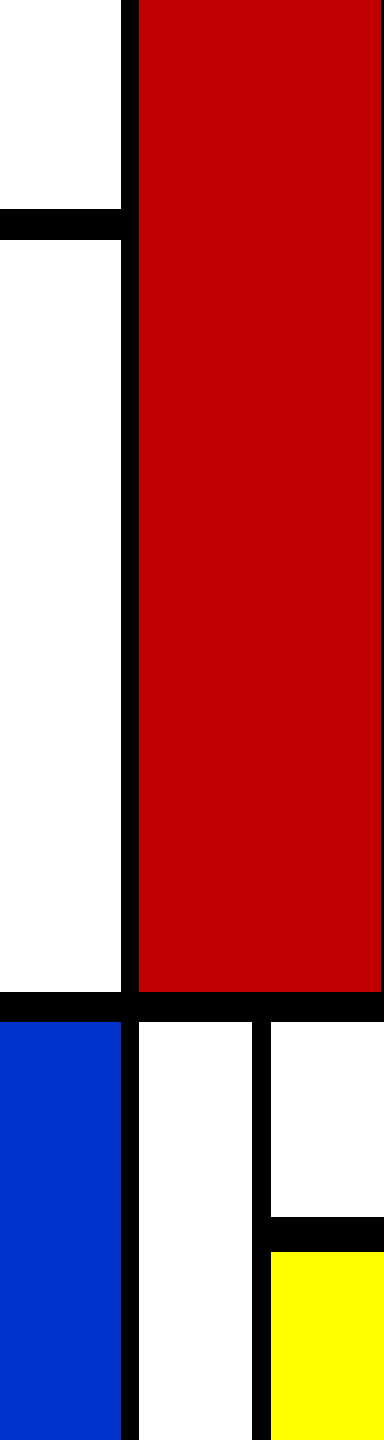
- Dallas Cochlear Implant Program
- Colorado Neurological Institute
Cochlear Kids Camp
- The E. Rhodes and Leona B. Carpenter
Foundation Grant
- Ann Geers
- Melissa Sweeney
- Friends and families who shared photos
of their little ones for this presentation

“I wish to approach truth as closely as
is possible, and therefore I abstract
everything until I arrive at the
fundamental quality of objects.”



Fundamental qualities for academic success

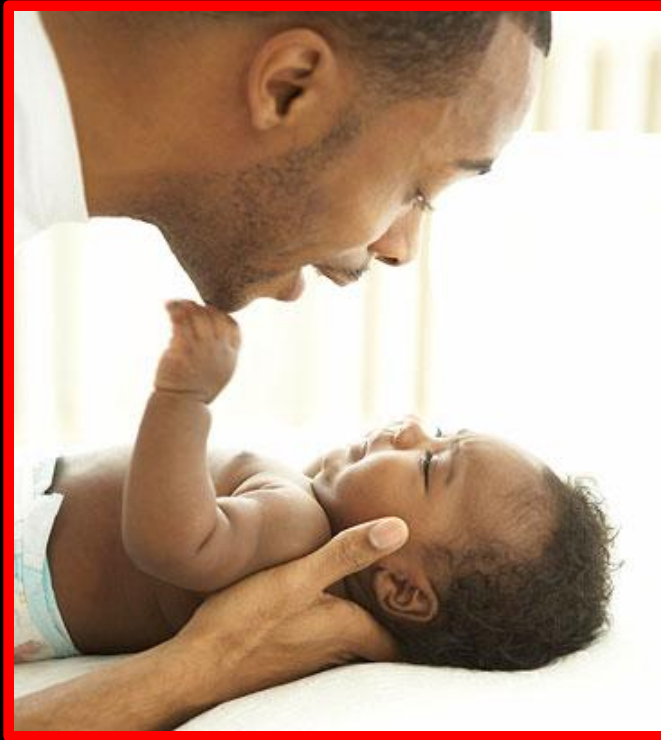
- What are some fundamental qualities for academic success?
- Applying modifications for children with communication disorders

A decorative graphic on the left side of the slide consists of several colored rectangles: a large red vertical bar, a white vertical bar, a blue vertical bar, and a yellow vertical bar, all separated by black lines.

Fundamental qualities for academic success

- 1. Connect letters and sounds**
- 2. Read, read, read!**
- 3. Foster social-emotional skills**

1. Connect letters and sounds



- The more babies listen to speech ...
- The more they know how sounds go together in their language

1. Connect letters and sounds

- **Phonological awareness**

Knowing the sound structure of words

Phonological awareness reliably predicts later reading abilities.



1. Connect letters and sounds

u

n

- Bun
- Gun
- Run
- Fun
- Nun
- Sun

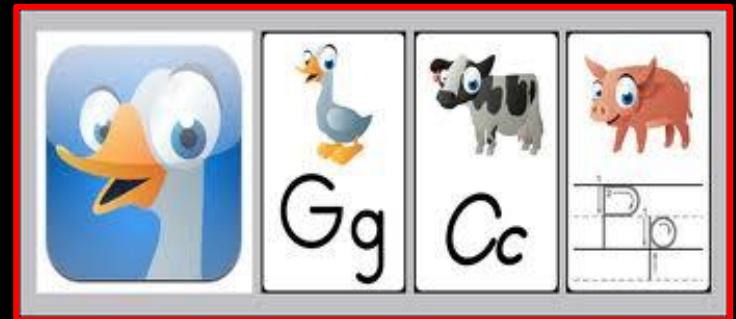
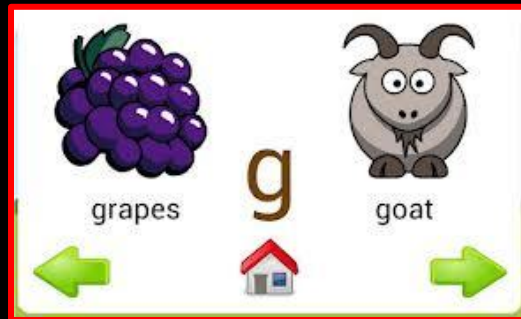
Run the gun to the sun.

Run! Run! Run!

Fun! Fun! Fun!

1. Connect letters and sounds

- Recognizing sounds as same/different



- Syllable completion



“Ra _____”

1. Connect letters and sounds

- Rhyming vs. not rhyming



2. Read, read, read!

- “There is perhaps no single skill more important to overall academic success than the ability to read.”

Make children's books available



Pati, Hashim, Brown, Fiks, & Forrest, 2011.

Make children's books available

- Number of children's books in the home predicts later reading scores.
- Children with >10 books at age 2 had significantly higher reading scores.



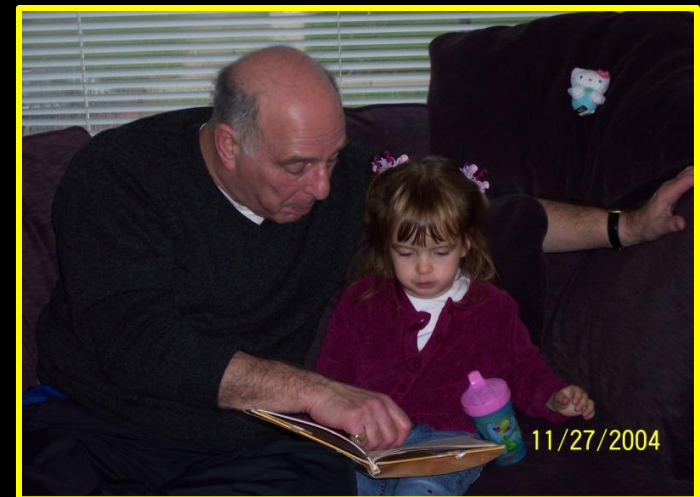
Read to children often



Pati, Hashim, Brown, Fiks, & Forrest, 2011.; Price, van Kleeck, & Huberty, 2009.

Read to children often

- Reading to a child regularly at age 2 yields higher reading scores ...
- And also relates to language growth and emergent literacy.



Encourage reading to self



... and to others



- Making connections to the world



- Creating new stories

Let a child see you read

- Set a good example by reading
 - Books, Newspapers, Magazines



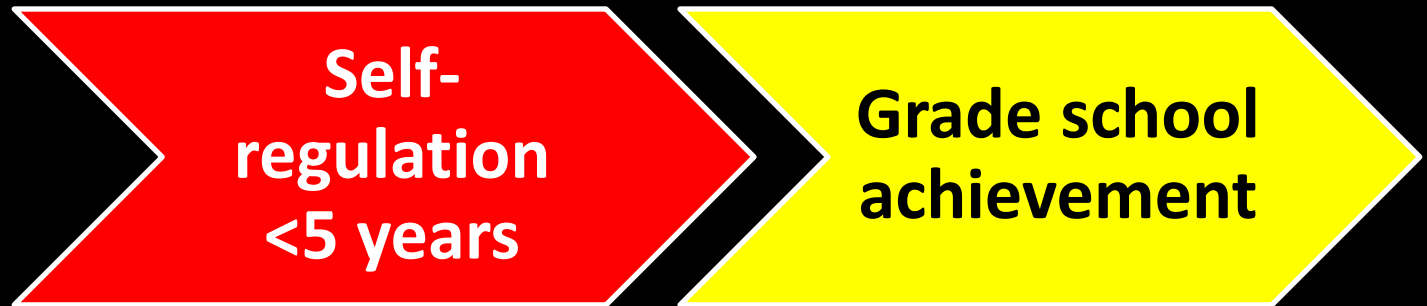
3. Foster social-emotional skills

- **“Schools are social places and learning is a social process.”**

**Social-emotional “literacy”
is vital to a child’s
early school success.**

Self-regulation

- Controlling one's own emotions, especially negative emotions
- Carrying out complex directions
- Finishing specific tasks (*tracing a star*)



Social awareness and relationship skills

- Taking others' view
- Initiating/maintaining conversations and play
- Taking turns
- **Social confidence yields an advantage in peer interaction, school adjustment, and academic success.**



3. Foster social-emotional skills

- **Responsible problem solving**



- Problem solving



- Improved social behavior



- Academic success and school adjustment

Fundamental qualities for academic success

- 1. Connect letters and sounds**
- 2. Read, read, read!**
- 3. Foster social-emotional skills**

How do these fundamental qualities to academic success change in children with communication disorders?

Communication disorder

- An impairment in the ability to receive, send, process, or comprehend concepts verbally, nonverbally, and graphically.
 - Speech
 - Language
 - Hearing

Speech disorder

- Impairment of the articulation of speech sounds, fluency, and/or voice.



“tat” for “cat”

Speech disorder

- Rules of thumb:
 - **6 mos.** – Combines consonants & vowels
 - **12 mos.** – Says most consonants
 - **24 mos.** – 50% intelligible
 - **36 mos.** – 75-100% intelligible

Effect of speech disorders on academic success

- **Poorer academic outcomes**
 - **Reading deficits** related to impaired phonological awareness, vocabulary, and word order
 - **Math deficits** related to impaired storage of information
- **Poorer socialization and communication scores**

Fundamental qualities for academic success: Speech disorder

- 1. Connect letters and sounds**
- 2. Read, read, read!**
- 3. Foster social-emotional skills**

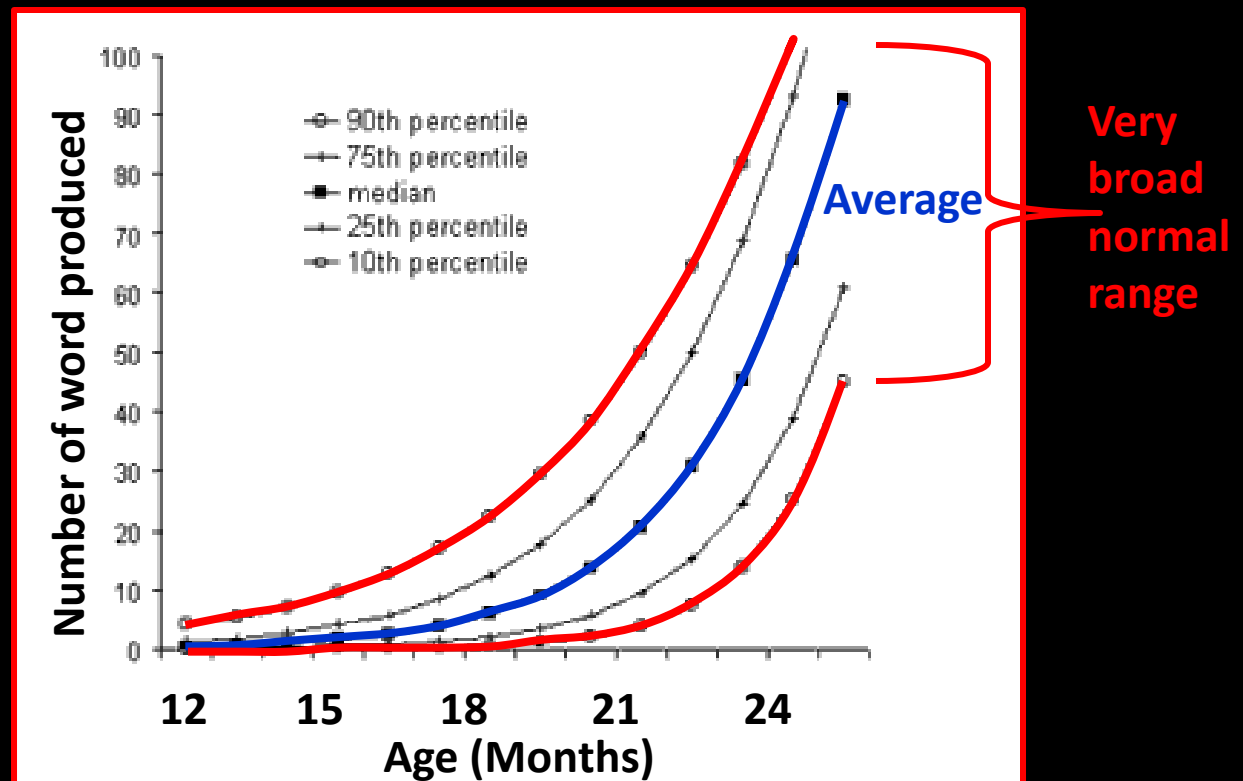
Relationship skills

Self-confidence

Peer relationships

Language disorder

- Impaired ability to express or understand spoken or written ideas



Language disorder

- Rules of thumb:
 - **12 mos.** – Says 1-2 words
 - **18 mos.** – Says 15-30 words
 - **24 mos.** – Puts together 2 words
 - **36 mos.** – Produces 3-word sentences

Effect of language disorders on academic success

- **Poorer academic outcomes**
 - **Reading and learning deficits**
 - **Class participation**
- **Lower self-esteem**
- **Social isolation**

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Fundamental qualities for academic success: Language disorder

- 1. Connect letters and sounds**
- 2. Read, read, read!**
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Hearing disorder

- Impaired auditory sensitivity



Hearing disorder

- Rules of thumb:
 - **3 mos.** – Reacts to loud sounds
 - **6 mos.** – Looks toward sound
 - **12 mos.** – Understands simple words and commands
 - **18-24 mos.** – Points to body parts and pictures when asked

Hearing disorder

Put your fingers in your ears. Listen.

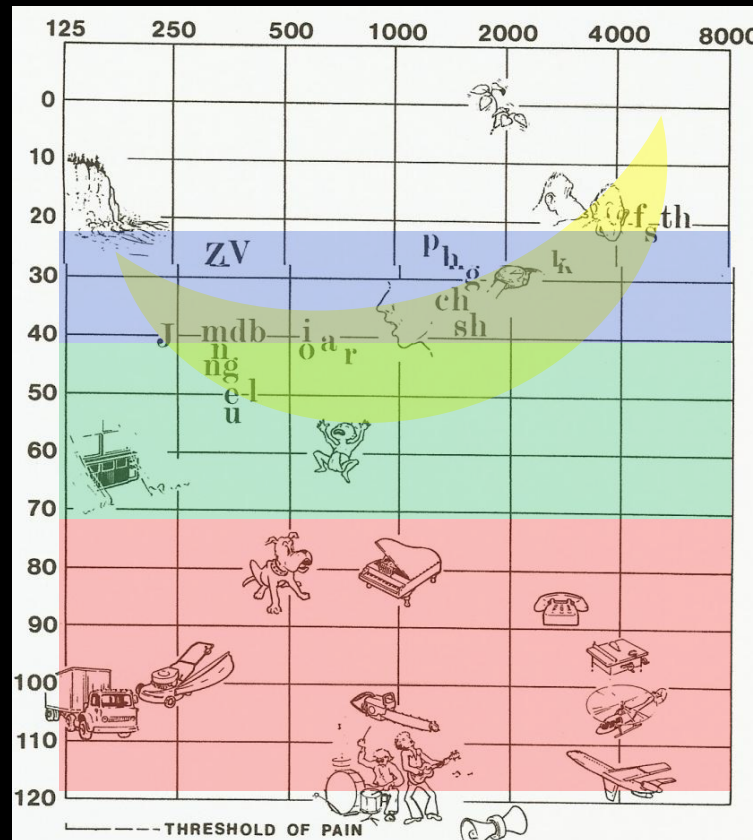


Remove your fingers from your ears.

Hearing disorder

FREQUENCY (Hz)

INTENSITY (dB HEARING LEVEL)



Hearing aid



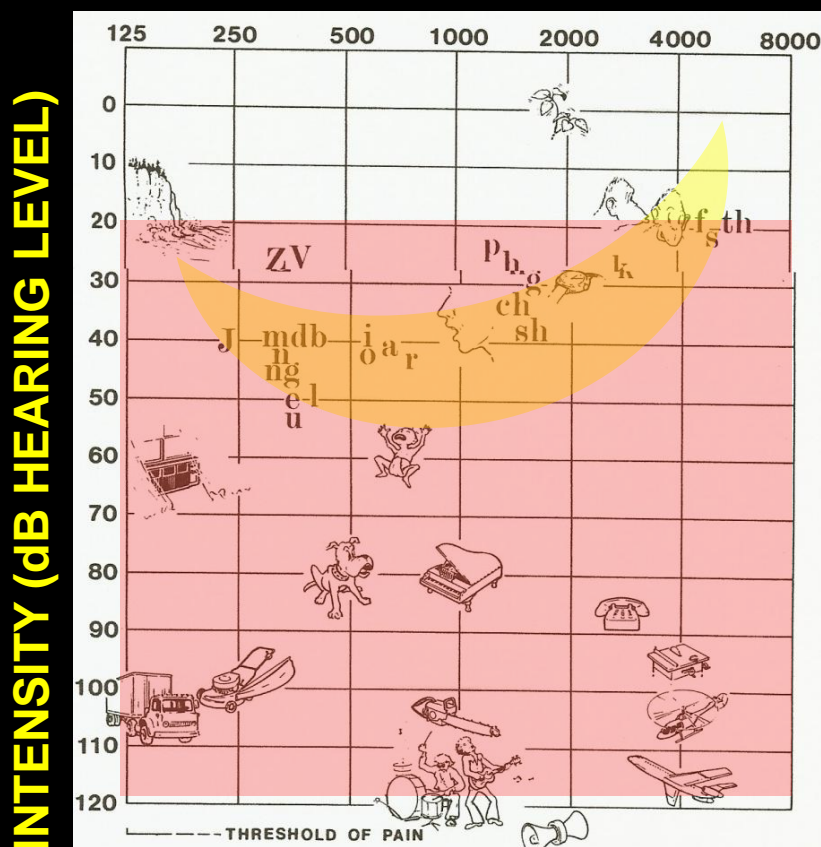
Mild hearing loss

Moderate-severe hearing loss

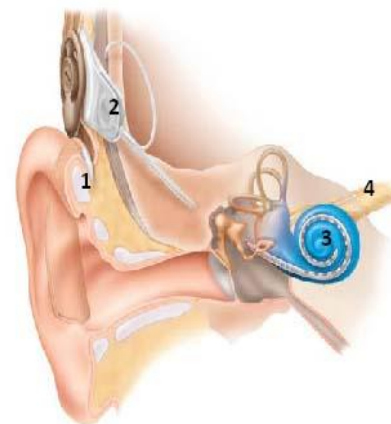
Severe-profound hearing loss

Hearing disorder

FREQUENCY (Hz)



Cochlear
implant



Severe-profound
hearing loss

Effect of hearing loss on academic achievement

- Average academic achievement of deaf or hard of hearing students is considerably below that of their hearing peers.
 - Wide variability

Effect of hearing loss on phonological skills

Delayed acquisition of consonants and vowels

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graph TD; A[Delayed acquisition of consonants and vowels] --> B[Poorer phonological awareness skills]; B --> C[Negative effect on word learning and reading];
```

Poorer phonological awareness skills

Negative effect on word learning and reading

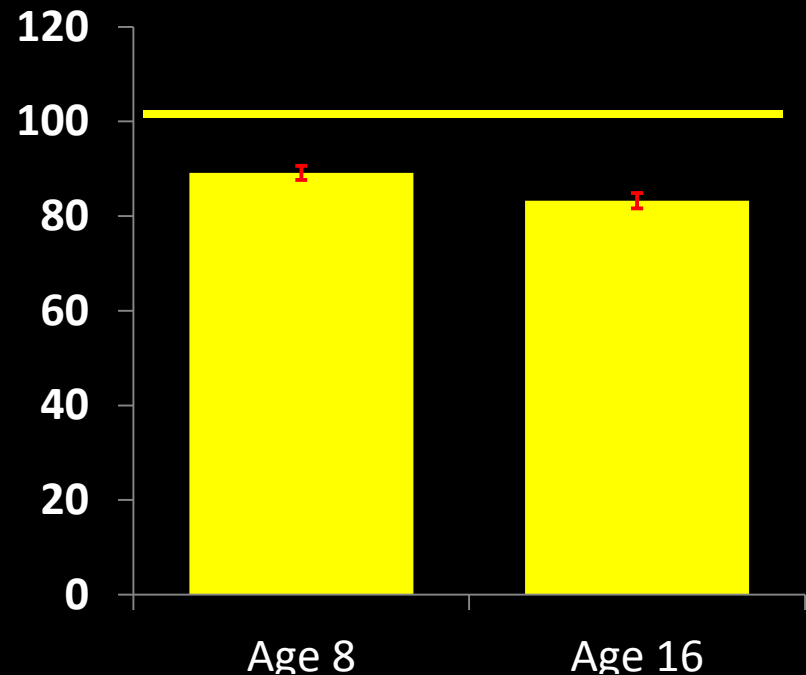
Effect of hearing loss on vocabulary development

- **Later word onset**
- **Vocabulary spurt occurs later**
- **Average or low average performance**
- **Slower rate of language development**

Effect of hearing loss on reading

- Age 8-9: Read at grade level
- Age 16: ~2 years behind grade level
- **Great variability in outcomes**
 - From 4.3 years below to 2.6 years above grade level

Average Reading Scores for children with cochlear implants

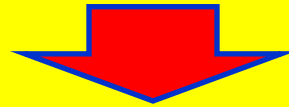


What changed?

- Around 4th grade in the U.S., we stop teaching children how to read.

We shift from

LEARNING TO READ



READING TO LEARN

Effect of hearing loss on social-emotional skills

- **May miss subtleties of social language**
- **May feel:**
 - **Uncomfortable in social situations**
 - **Less accepted by hearing peers**
 - **Less satisfied at school**

Effect of hearing loss on academic success

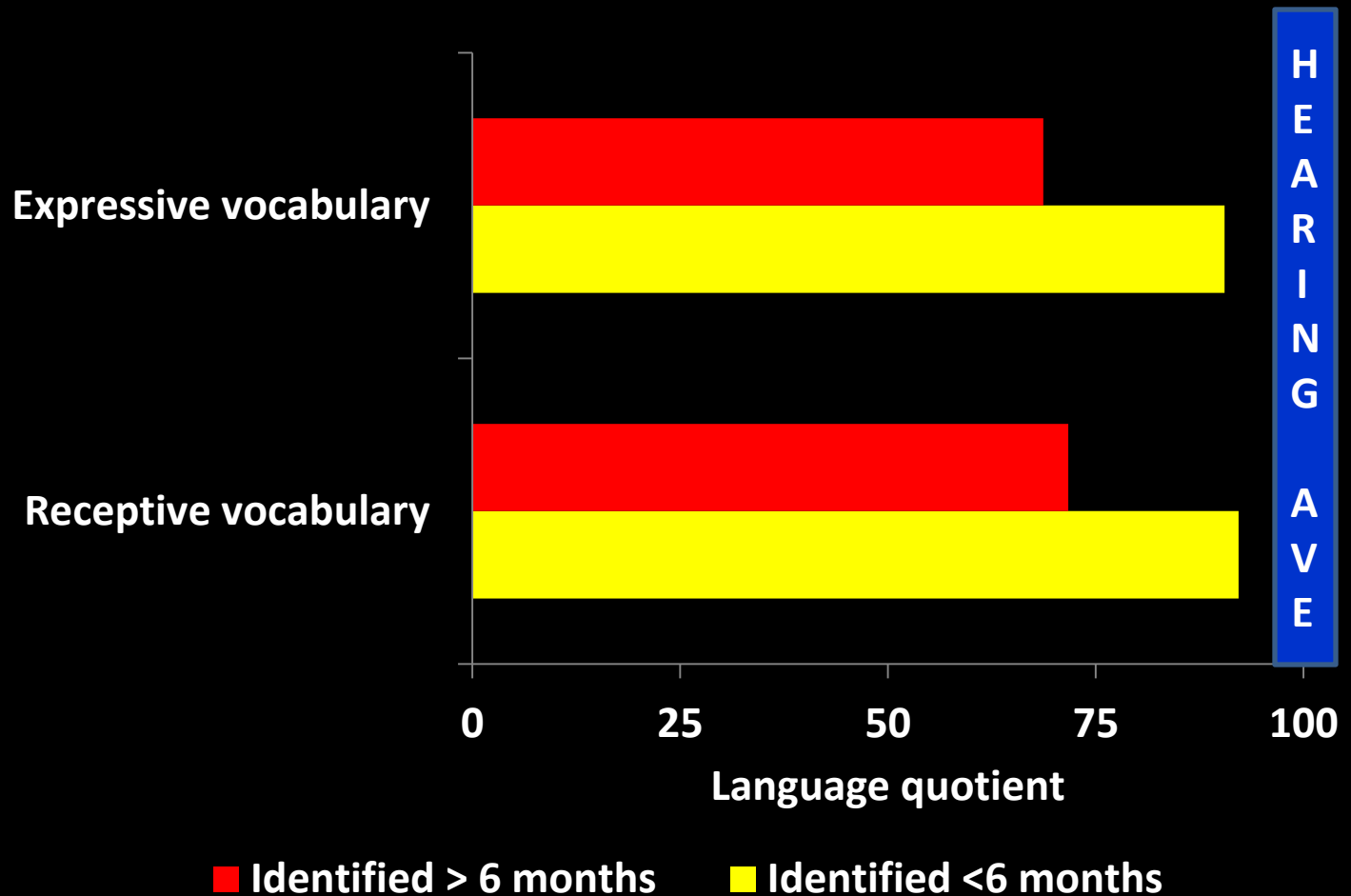
- Difficulties with phonological skills
- Later- and slower-developing vocabulary skills
- Difficulties with reading
- Social-emotional difficulties

GREAT VARIABILITY IN OUTCOMES!
Which factors make a difference?

Effect of hearing loss on academic success

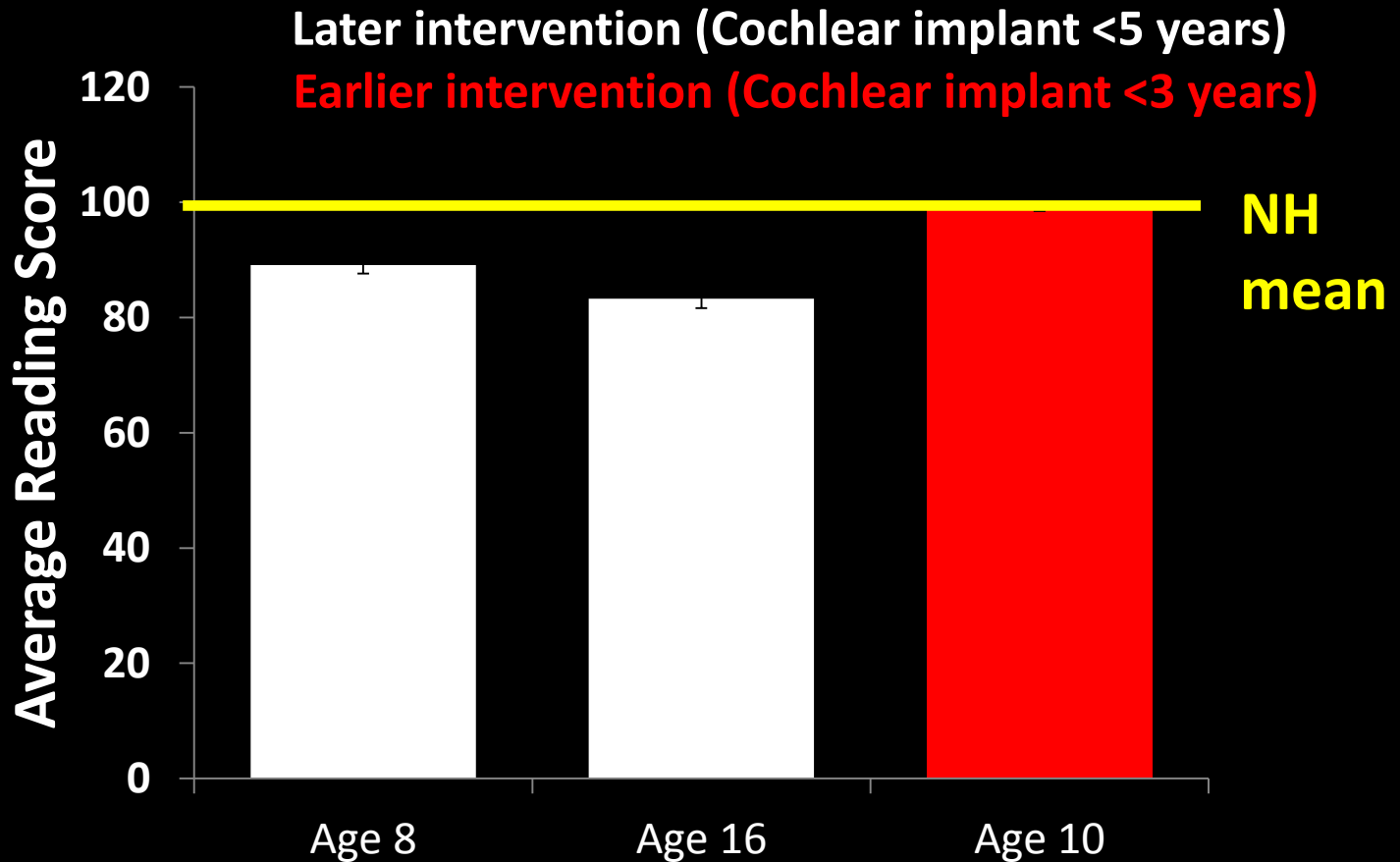
- **GREAT VARIABILITY!**
 - Age at identification/intervention
 - Degree of hearing loss

Age at intervention matters for vocabulary.



Yoshinaga-Itano et al., 1998.

Age at intervention matters for reading, too.

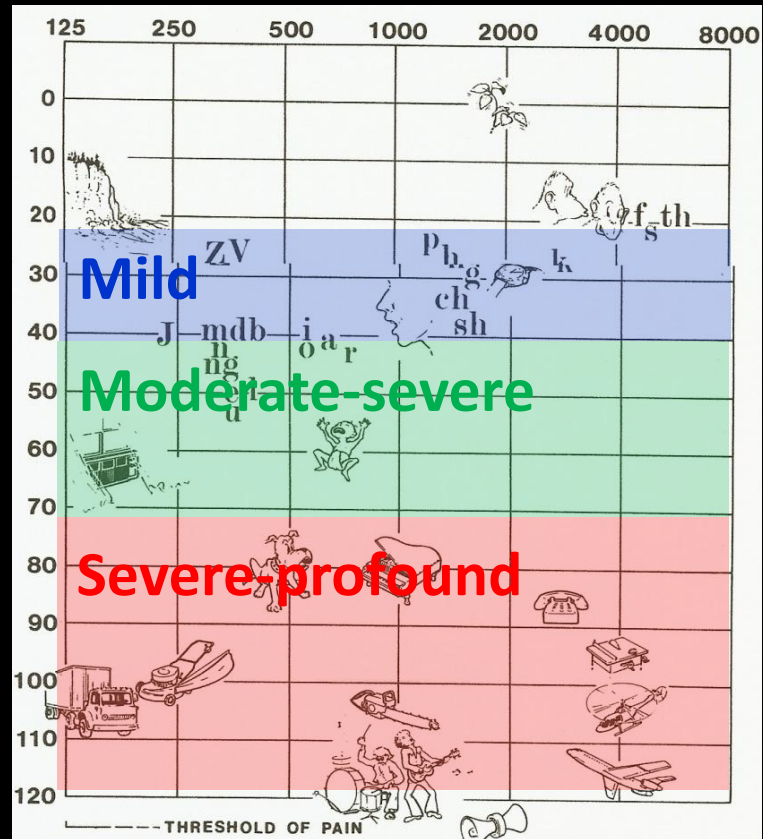


Slide courtesy of Ann Geers.

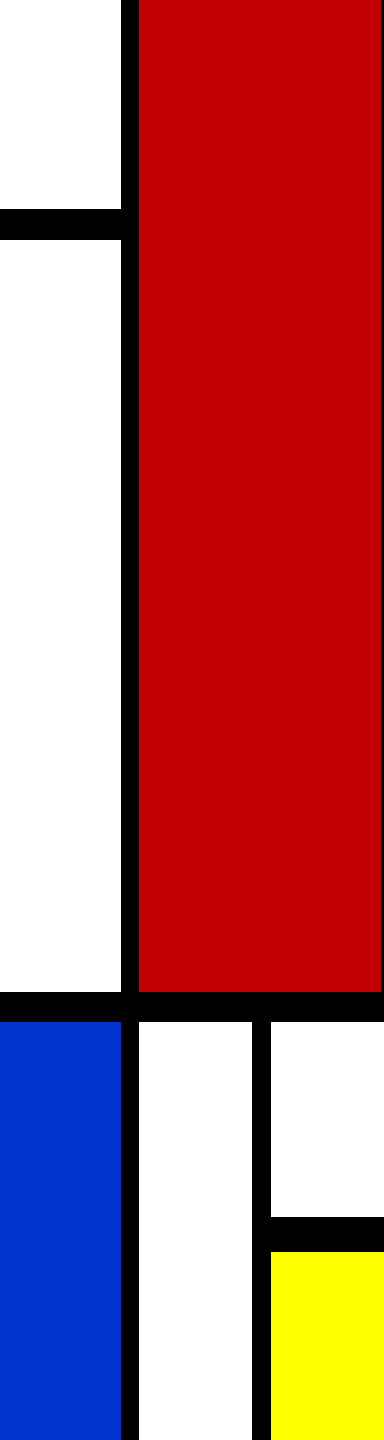
Early educational intervention positively affects outcomes.

- **Especially when occurring at 1-2 years of age.**
- **Early Childhood Intervention (ECI)**
 - **Focus on early development (0-3 years)**
 - **Part of Individuals with Disabilities Education Act (IDEA, P.L. 108-446)**

Degree of hearing loss affects speech and language outcomes.



- Speech production
- Vocabulary
- Language

A decorative graphic on the left side of the slide, consisting of several colored rectangles (white, red, blue, yellow) and black lines forming a grid-like structure.

**Which other fundamental
qualities affect outcomes?**

Facilitators of Academic Success

- High family expectations
- High teacher and school expectations
- Open communication with parents and professionals
- Providing opportunities to develop social skills
- **Additional disabilities**

Fundamental qualities for academic success

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Fundamental qualities for academic success

1. Connect letters and sounds
2. Read, read, read!
3. Foster social-emotional skills
4. Early identification/ intervention
5. Family involvement
6. Family-school communication



Thank you.

