

# Language Development in Deaf Children: Foundations and Outcomes

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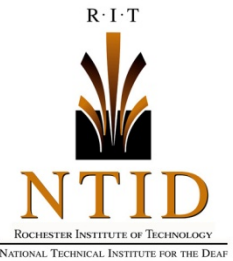




Western Pennsylvania  
School for the Deaf



NIDCD  
*National Institute on Deafness and Other Communication Disorders*



# Disclosure

- A. I have no financial relationships with the manufacturers of any commercial product or providers of commercial services discussed within this CME activity.
- B. I do NOT intend to discuss an unapproved/investigative use of a commercial product/device in my presentation.
- C. I do not conduct research on or have much of anything to do with EHDI or even language development.
- D. No kids, no pets.



# Conclusions



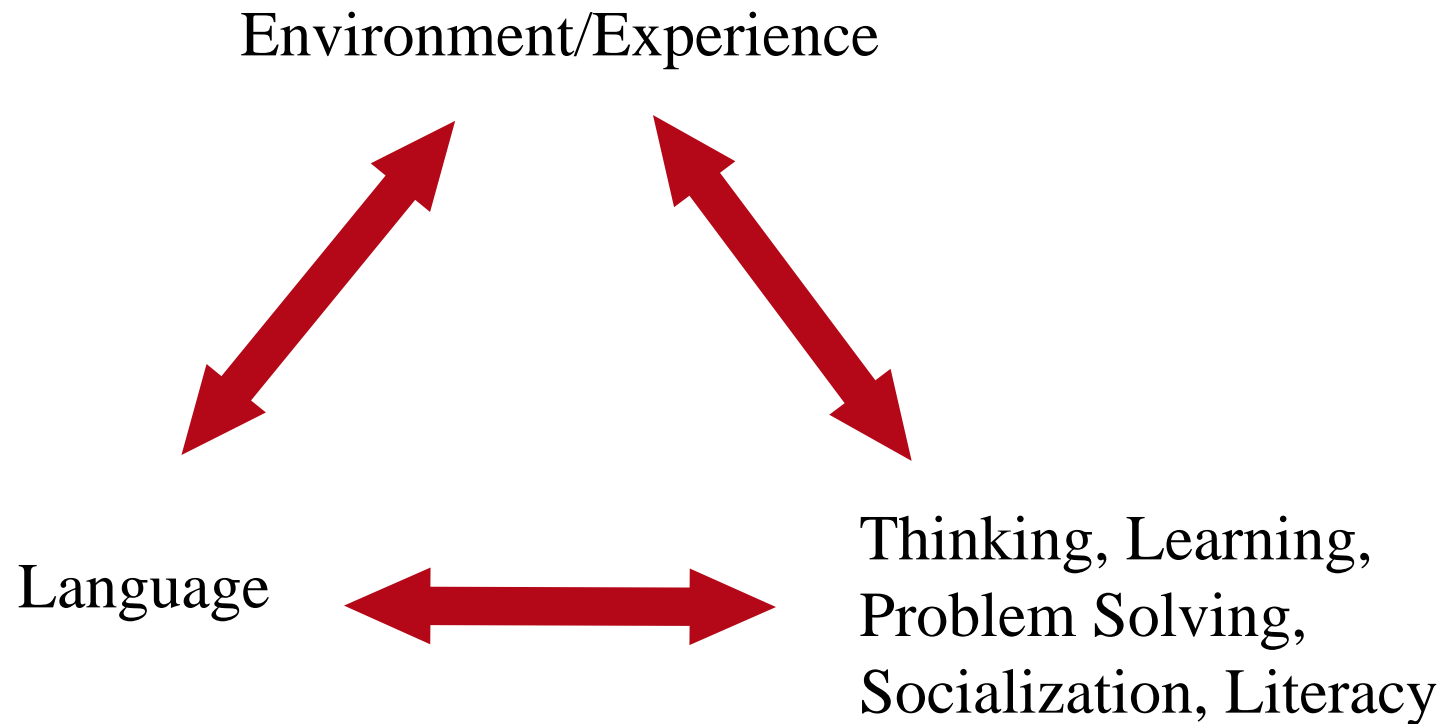
#1 - “...lack of understanding of the cognitive skills underlying educational interventions is the fundamental problem in the development of special education.”

Detterman & Thompson (1997)

*What Is So Special About Special Education?*



## #2 – Language and Learning Interact and are Cumulative







# Preliminaries



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# Preliminaries

- Foundations and outcomes of language development
  - Hearing, vision, and language
  - Cognition, social context, and experiential diversity
  - Academic placement, literacy, achievement
  - Real-world contexts (language scores vs. language use)
- *Apparent* simplicity of conclusions
- Groups vs. individuals
- Don't believe everything you read (even if I wrote it)





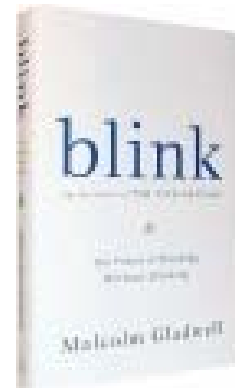
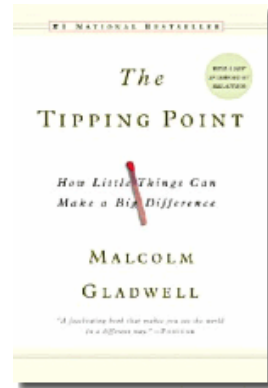
# Preliminaries

- Research challenges and limitations on interpretation
  - Comparability of samples
  - Heterogeneity of deaf children
  - Anecdotes and generalizations vs. empirical study
  - Conference presentations vs. peer-reviewed publication
- Goals and tone
- “I’m mad as hell, and I’m not going to take it anymore!”  
*(Howard Beale, UPN - 1976)*



"We've been arguing about this question for hundreds of years now, and we're at a point in the argument, I'm afraid to say, where evidence isn't changing people's minds at all."

*(Malcolm Gladwell, NPR Talk of the Nation, 12/19/07)*

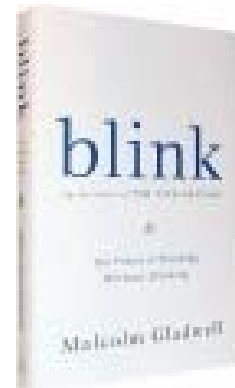
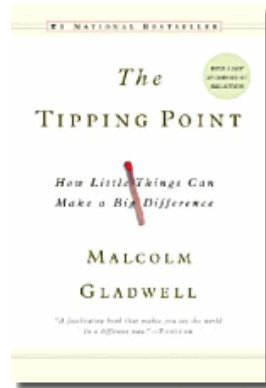


"If you are scientist ... you have an obligation when you speak to speak carefully... and produce the evidence to back up what you say."

*(Malcolm Gladwell, NPR Talk of the Nation, 12/19/07)*

"We've been arguing about [race and IQ] for hundreds of years now, and we're at a point in the argument, I'm afraid to say, where evidence isn't changing people's minds at all."

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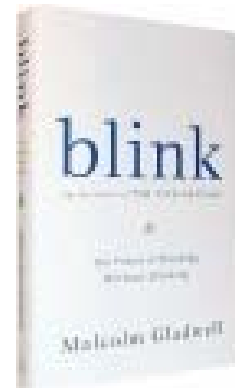
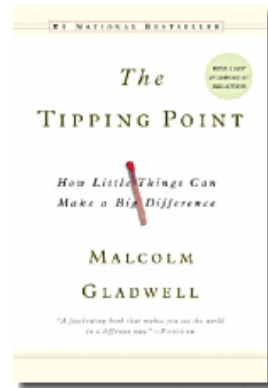


"If you are scientist ... you have an obligation when you speak to speak carefully... and produce the evidence to back up what you say."

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"We've been arguing about [language modality] for hundreds of years now, and we're at a point in the argument, I'm afraid to say, where evidence isn't changing people's minds at all."

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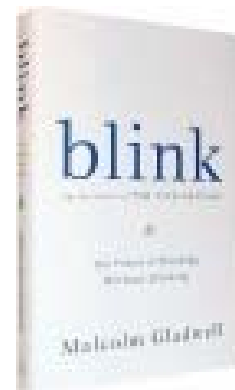
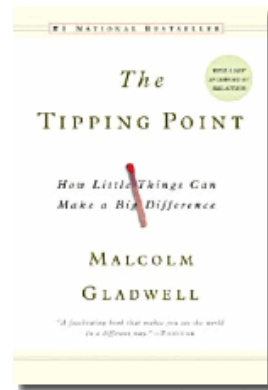


"If you are scientist ... you have an obligation when you speak to speak carefully... and produce the evidence to back up what you say."

*(Malcolm Gladwell, NPR Talk of the Nation, 12/19/07)*

"We've been arguing about [school placement] for hundreds of years now, and we're at a point in the argument, I'm afraid to say, where evidence isn't changing people's minds at all."

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"If you are scientist ... you have an obligation when you speak to speak carefully... and produce the evidence to back up what you say."

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# Claims Made about Deaf Children without the Evidence to Back Up What They Say

- Claim
  - Where it likely came from
  - What we really know (and don't know)



# Claims Made about Deaf Children without the Evidence to Back Up What They Say

- Cued speech facilitates deaf children's English literacy skills
  - Cued speech facilitates deaf children's literacy skills in French (*Leybaert, & Alegria, 2003; Alegria & Lechat, 2005*)

# Claims Made about Deaf Children without the Evidence to Back Up What They Say

- ASL-English bilingual programs result in bilingual language fluencies
  - Early language fluency is correlated with later literacy skills (*Padden & Ramsey, 2000; Singleton et al., 1998*)
  - Hearing and deaf parents who expose their children to sign and English have the highest literacy scores (*Brasel & Quigley, 1977; Akamatsu, Musselman, & Zweibel, 2000*)

# Claims Made about Deaf Children without the Evidence to Back Up What They Say

- Sign language interferes with learning to speak
  - Sign sometimes trumps speech in young bilingual children because they're more likely to be understood (*Crittenden, Ritterman, & Wilcox, 1986*)
  - Exposure only to spoken language typically results in significant delays through high school (*Geers, 2006*)
  - Three years after implantation, speech skills are independent of prior use of speech or sign (*Archbold, Nikolopoulos, Tait, O'Donoghue, Lutman, & Gregory, 2000*)

# Claims Made about Deaf Children without the Evidence to Back Up What They Say

- Deaf children (especially native signers) have better visual-spatial skills than hearing children
  - Deaf people and especially native signers had better peripheral vision (*Neville & Lawson, 1987; Swisher, 1991*)
  - Deaf individuals are more distracted by peripheral stimuli, but they do not obtain more information (*Dye, Hauser, & Bavelier, in press; Pelz, Marschark, & Convertino, in press*)



# Claims Made about Deaf Children without the Evidence to Back Up What They Say

- Children with CIs should not be allowed to sign
  - We don't know how much exposure to speech is enough (it varies widely across children)
  - Early grade-level reading skills become multi-year lags by high school in oral CI children (*Geers, 2005*)
  - By high school, reading and academic achievement are equal to hearing peers when kids with CIs have both speech and sign (*Spencer, Gantz, & Knutson, 2004*)

# Claims Made about Deaf Children without the Evidence to Back Up What They Say

- Deaf children of deaf parents have higher academic achievement than those with hearing parents
  - Having deaf parents is a proxy variable for having effective access to language
  - (*Jensema & Trybus, 1978*) but see (*Jensema & Trybus, 1978*)
  - 50% of deaf adults read at or below the grade 4 level

# Claims Made about Deaf Children without the Evidence to Back Up What They Say

- If we remove communication barriers, deaf children will succeed in inclusive classrooms
  - P.L. 92-142
  - P.L. 92-142 was the result of advocacy by parents of children who have full access to language around them



# Median Reading Comprehension Scores of Deaf and Hard-of-Hearing 14 & 18-Year-Olds

Norms	SAT7 -1974		SAT8 -1983		SAT9 - 2000	
Age	14	18	14	18	12	18
Grade Equivalents	2.2	<b>2.7</b>	2.9	2.8	3.3	<b>4.0</b>



# Claims Made about Deaf Children with Plenty of Evidence to Back Them Up

- Deaf children are not hearing children who can't hear
- Deaf children do not learn/think/know in the same ways as hearing children



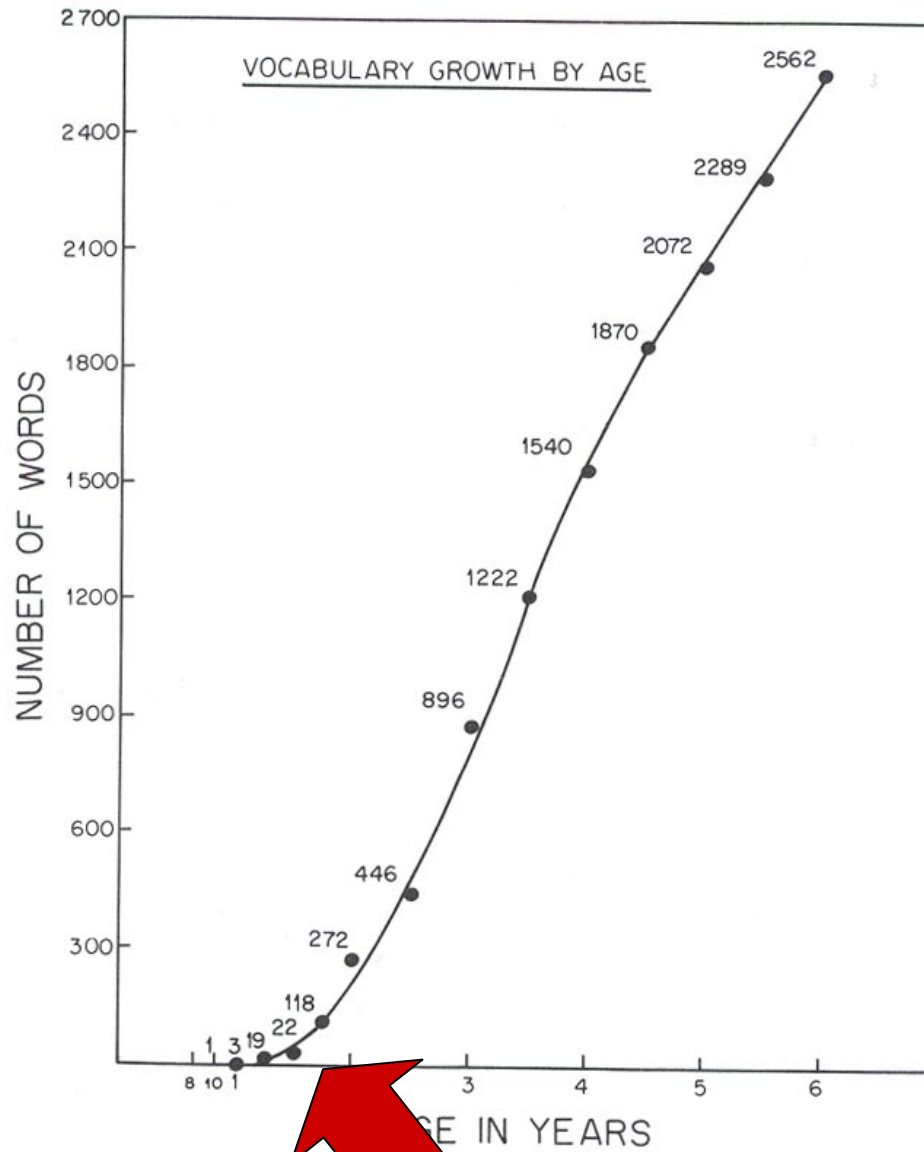


# Claims Made about Deaf Children with Plenty of Evidence to Back Them Up

- Deaf children generally demonstrate poorer memory skills (remember less) than hearing peers
  - Words, signs (*Krakow & Hanson, 1985; Liben & Drury, 1977*)
  - Text (*Banks, Gray & Fyfe, 1990; Marschark et al., 1993*)
  - Figures, pictures (*Liben, 1979; Todman & Seedhouse, 1993*)
  - “Different does not mean deficient” (*Marschark, 2003*)

# Claims Made about Deaf Children with Plenty of Evidence to Back Them Up

- Deaf children are less likely to automatically employ basic, integrative learning strategies
  - Apparent in early (18 months) vocabulary learning  
(*Anderson & Reilly, 2002*)



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# Slow Word Learning

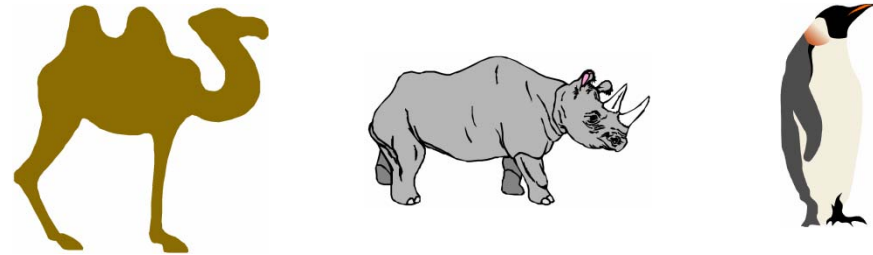


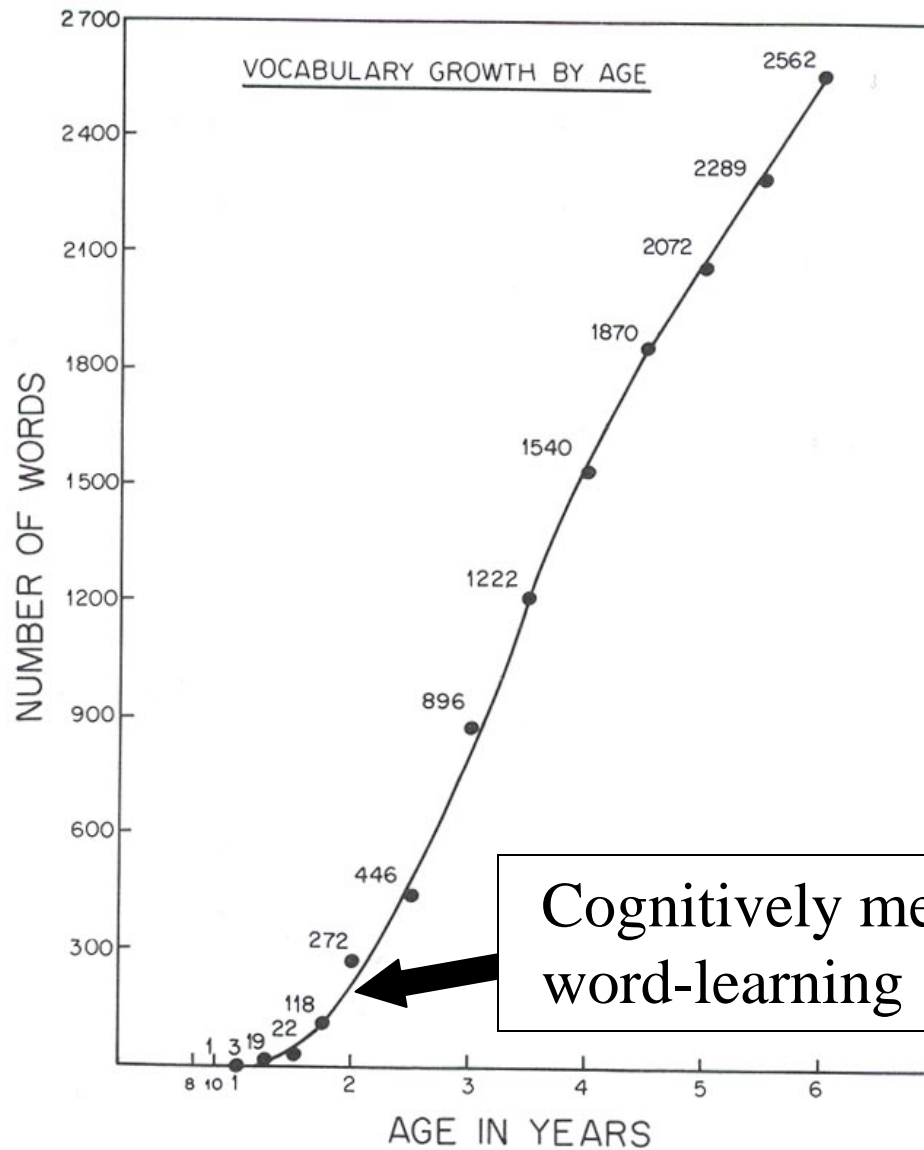
# Rapid Word Learning



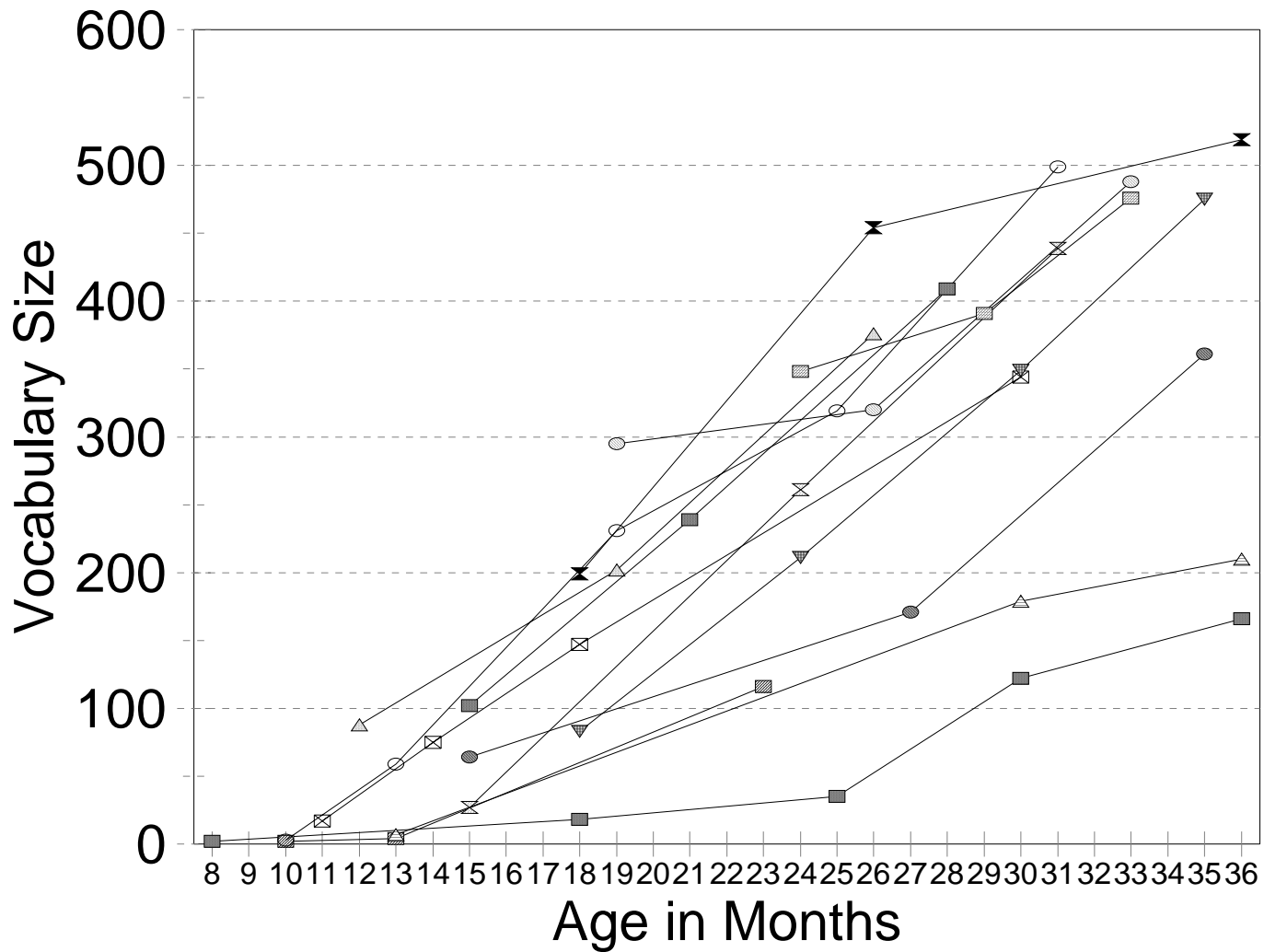


# Cognitively Mediated Word Learning





Cognitively mediated word-learning



(Anderson & Reilly, 2002)

# Claims Made about Deaf Children with Plenty of Evidence to Back Them Up

- Deaf children are less likely to automatically employ basic integrative learning strategies
  - Apparent in early (18 months) vocabulary learning (*Anderson & Reilly, 2002*)
  - Learning and problem solving (*Ottom, 1980*)

<i>Review of 51 studies of problem solving, association, memory, rule-learning, conservation, classification</i>	One dimension	Two dimensions
Deaf and hearing similar		
Deaf and hearing different		

<i>Review of 51 studies of problem solving, association, memory, rule-learning, conservation, classification</i>	One dimension	Two dimensions
Deaf and hearing similar	85%	
Deaf and hearing different	15%	

<i>Review of 51 studies of problem solving, association, memory, rule-learning, conservation, classification</i>	One dimension	Two dimensions
Deaf and hearing similar	85%	17%
Deaf and hearing different	15%	83%



# Claims Made about Deaf Children with Plenty of Evidence to Back Them Up

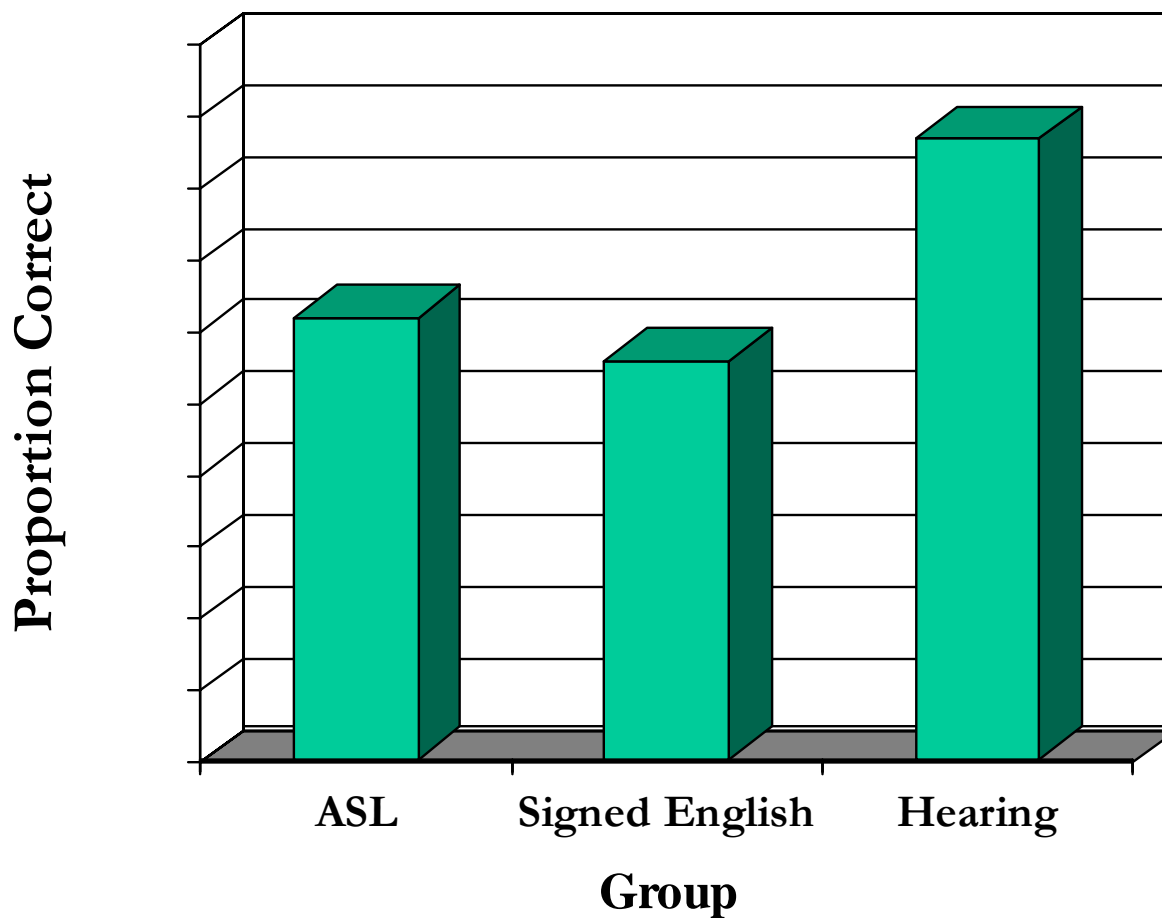
- The effects are seen in both learning language and learning through language
  - Reading and studying (*Richardson et al., 1999; Strassman, 1997*)
  - Concept knowledge (*McEvoy et al., 1999; Marschark et al., 2004*)
  - Problem solving (*Marschark & Everhart, 1999*)
  - Academic performance (*Blatto-Vallee et al., 2007*)
  - “Different does not mean deficient” (*Marschark, 2003*)

# Claims Made about Deaf Children with Plenty of Evidence to Back Them Up

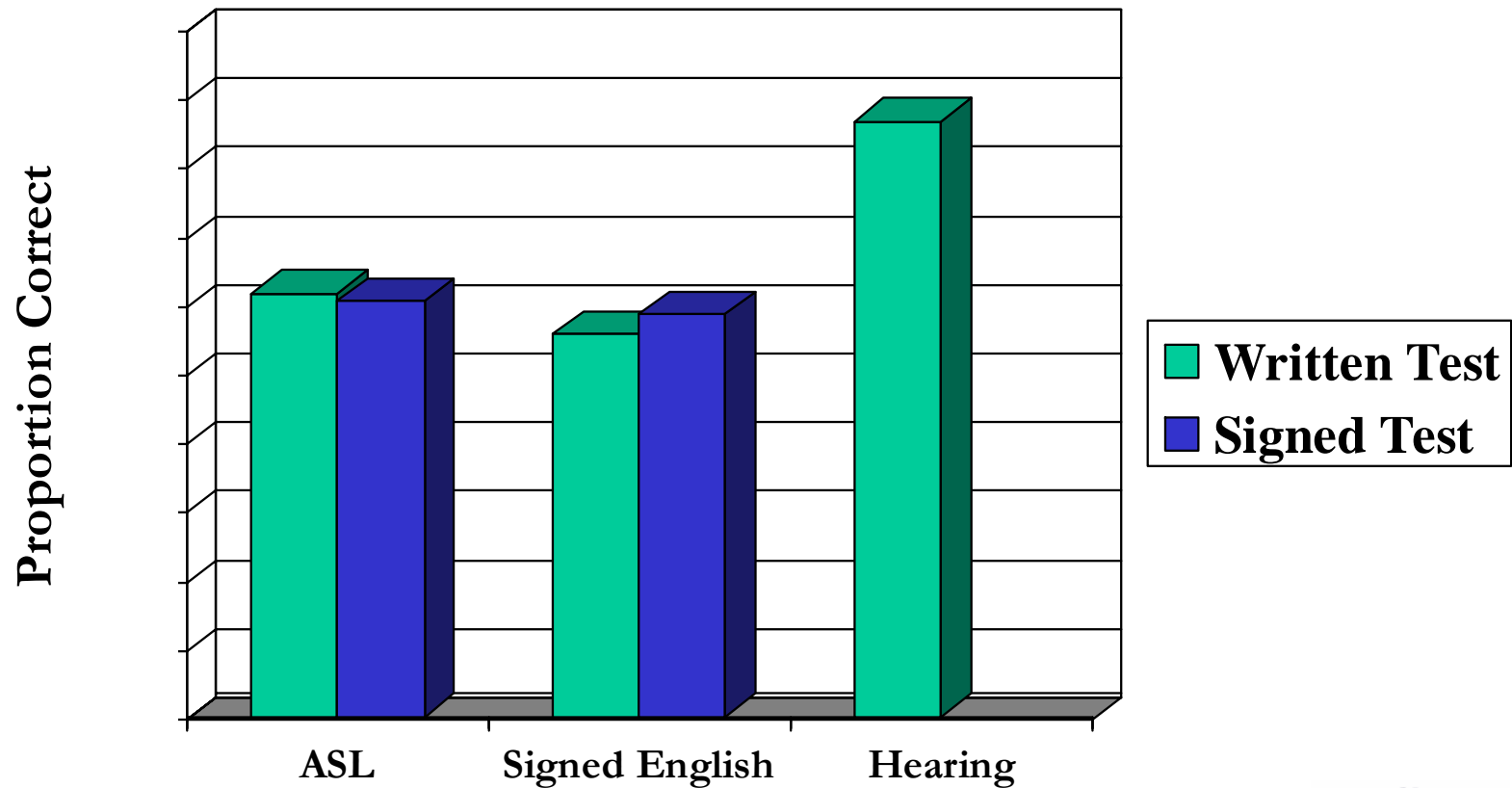
- Deaf children do not understand as much language as they (and we) think they do



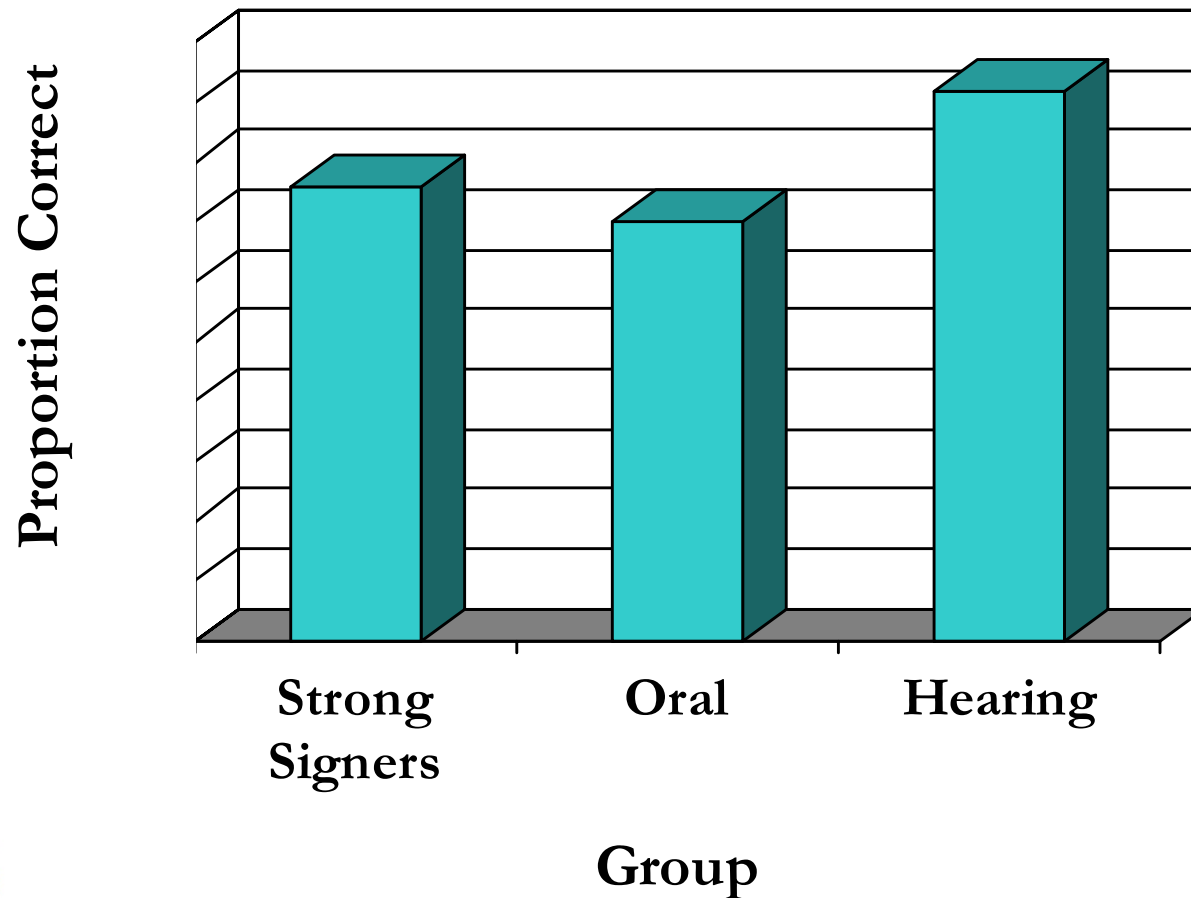
# Learning in the College Classroom



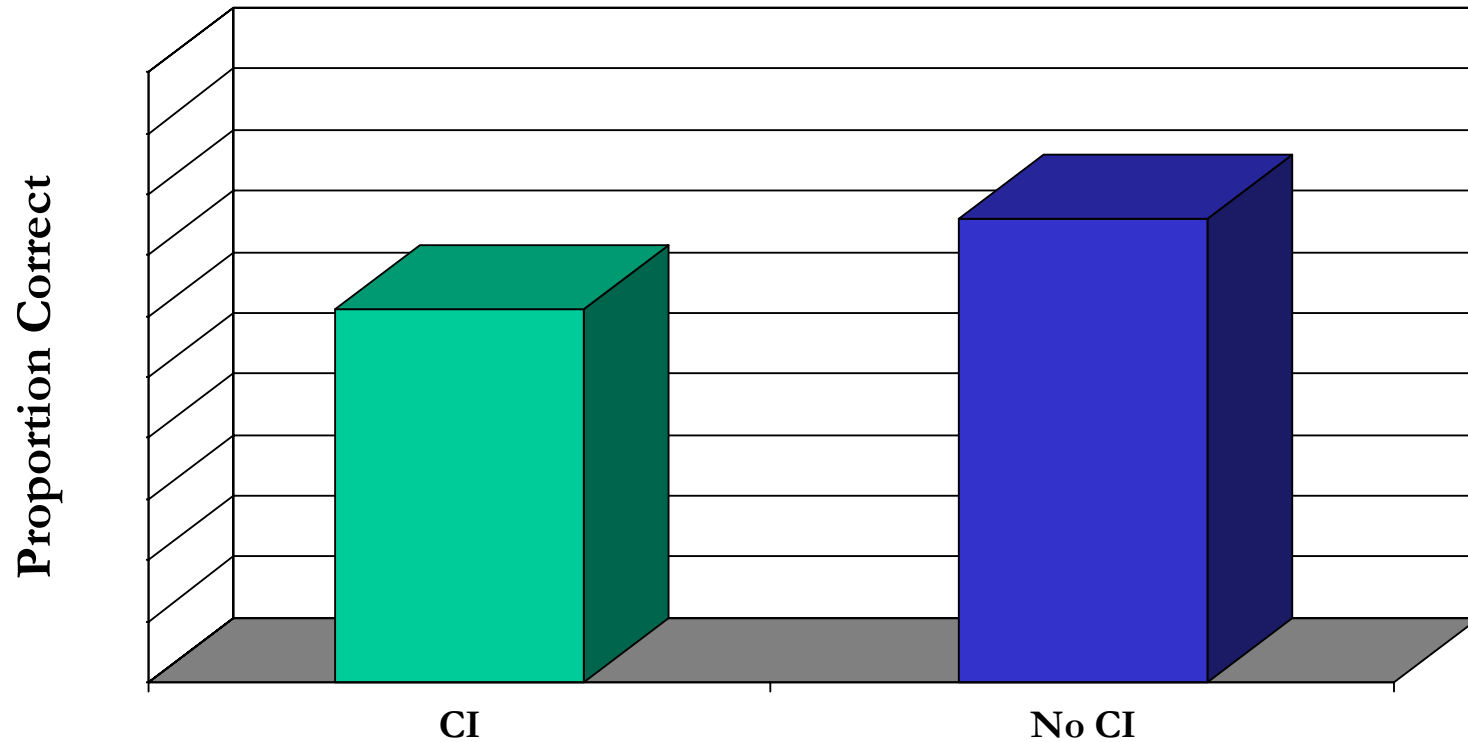
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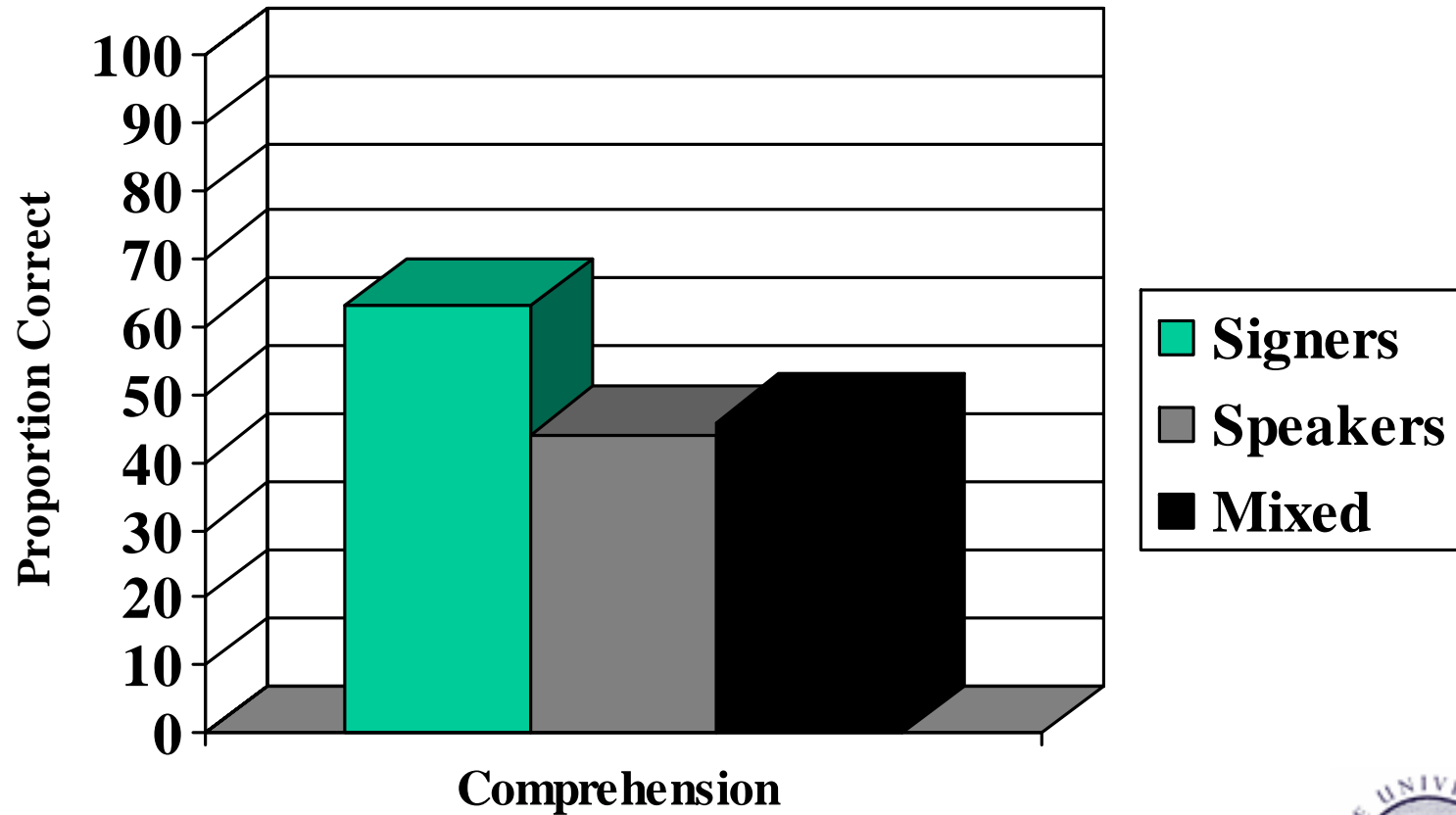
# Learning in the College Classroom



# Learning in the College Classroom



# Understanding of Peer Communication A Trivial Pursuit?





# Claims Made about Deaf Children with Plenty of Evidence to Back Them Up

- Deaf students' language comprehension in the classroom is not just about (meaning, don't blame):
  - The modality of instruction
  - Direct vs. interpreted instruction
  - Deaf vs. hearing teachers
- It's about having teachers who know what deaf students know and how they learn (*Marschark et al., 2008*)



# What Does It All Mean?

- If we want to improve language and achievement of deaf children, we must recognize their individual differences and understand their cognitive foundations
- Language, cognition, and learning are cumulative – we have to consider the whole child, in real-world contexts



# What Does It All Mean?

## (Bonus Conclusions)

- Deaf children are not hearing children who can't hear
- We are at a threshold...





**Shameless  
promotion!**

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www.rit.edu/ntid/cerp

## **Raising and Educating a Deaf Child** ■ Marc Marschark

A COMPREHENSIVE GUIDE TO THE CHOICES,  
CONTROVERSIES, AND DECISIONS FACED BY  
PARENTS AND EDUCATORS ■ SECOND EDITION

ENDORSED BY THE AMERICAN SOCIETY FOR DEAF CHILDREN

