

Early Prevention of Language, Reading and Writing Difficulties

Early Signs of Speech and Language Differences



- Julie A. Washington, PhD · 2020

Speech, language and communication...

- *Speech, Language and Communication* are often used as though they are synonymous , but they are not:
- **Speech** refers to oral expression of language. Speech is often discussed as *how* language sounds are produced from a sensorimotor standpoint. It includes the quality of these sound productions. Speech includes: articulation, voice, and fluency

Language is...

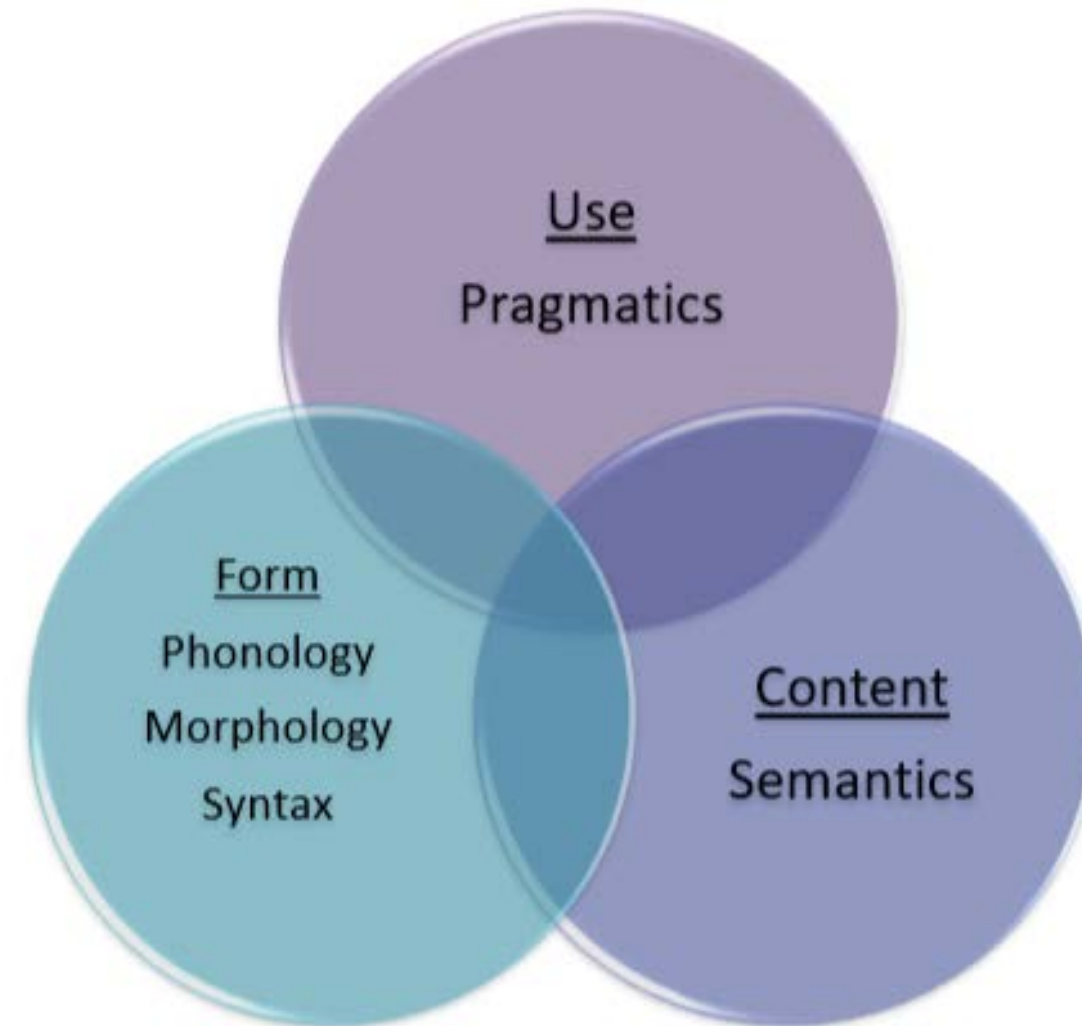
- A rule-governed symbol system
- In which Words are produced to represent actions, objects, and ideas
- In finite combinations that can be used to generate new sentences and express new ideas
- An innate skill that must be learned by members of speech communities
- A verbal or nonverbal means of communication
- Uniquely human skill

Communication is...

- Combining speech and language to create meaning or convey a message
- Not limited to humans – animals also communicate – but without language.

- It is possible for children's speech to be impaired, but have intact language
- It is possible to have impaired language, and normal speech skills
- It is possible to have normal speech and language and poor communication skills

Components of Language



Language Form

- Phonology

- Phonemes – smallest unit of sound
- Phonological rules determine how phonemes can be put together to make meaning.

- Morphology

- Morphology governs derivation of word forms and the rules for using grammatical markers and inflections, including plurals, past tense markers, superlatives, and adverbs (Reed, 2005)
- Morphemes are also classified as **derivational** or **inflectional**:
 - **Derivational morphemes** can be both suffixes or prefixes and change whole classes of words:
 - » E.g., *ly* as a suffix can change an adjective to an adverb (happy/happily)
 - **Inflectional morphemes** are suffixes that can be added to a word to change its tense or meaning.
 - » E.g., plural markers such as */s/* (duck/ducks); present progressive *–ing* (jump/jumping)

Language Form (cont.)

- **Syntax**
- Syntactic rules determine how words can be combined in sentences and how they relate to each other in a sentence:
 - *That is, syntax governs the order in which words should be sequenced to make a sentence or utterance, **and** how the words in that sequence relate to each other (e.g., parts of speech)*
 - *In English, a common sentence construction is:*

Subject(NP) +Verb (VP) + Object

The boy ate the worm.

Sun rays can burn through paper

Language Content: Semantics

- Rules governing meaning in all its forms
 - Often viewed as synonymous with vocabulary or the lexicon but refers to much more than just the lexicon.
 - Semantic knowledge relates not only to the lexicon, but to knowledge of the meanings conveyed by the relations among words. For example, **relational words** such as *if, an, a* have no meaning except as they relate to the words around them. They are not **content words**. Content words carry important meaning on their own.
- **Figurative and inferential meaning** represent higher levels of meaning in language development.
 - *Figurative phrases*, often mean little if interpreted literally. For example, “it’s raining cats and dogs”

Language Use: Pragmatics

- **Pragmatics** refers to the use of language for social purposes.
 - It is **the use of language in context.**
- Like all aspects of language, the pragmatic aspect is rule-governed. There are social and conversational rules that govern how language is used!
 - Verbal and nonverbal conversational skills needed to interaction socially are in the pragmatic domain:
 - Topic-shifting
 - Turn-taking
 - Requesting clarification
 - Gaze and proximity
- Pragmatic language skills are largely governed by: culture, age, SES, group membership, educational level

0 – 5 years of age

- Rapid Brain Growth and Development
- Critical years for speech and language development
- Provides the foundation for the rest of language, academic, and sometimes social development

Birth – 5 years (words)

0 – 1 year old	0 - 50 words
1 year old	50 - 100 words
2 years old	400 - 500 words
3 years old	900- 1000 words
4 years old	1500 words
5 years old	2200 words

Birth – 5 years (sentences)

0 – 1 year old

Babbling, cooing, crying

1 year old

1 word (“car”)

2 years old

2 words (“my car”)

3 years old

3 words (**SVO**) (I am hungry)

4 years old

4+ words (“I want to go home”)

5 years old

“I saw the man who was running”

Birth – 5 years (speech sounds)

0 – 1 year old	sound play: /dadada/; early sounds: /p,b,m,n,k,g/
1 year old	VC (“up”); CVC (“juice”); CVCV (“mama”)
2 years old	adding more sounds & combos
3 - 5 years old	Most have been acquired. /r/, /l/, /ch/, /sh/, /th/ & clusters still developing. Intelligibility....

Overall

1. The early years (preschool – kindergarten) are spent building language competence
2. The later years depend upon this early building process for continued strong, growth
 1. Students with poor language skills at school entry experience a “snowball effect” of poor language growth in the years that follow.

Overall

3. Developmental opportunity is critical: i.e., development of strong language skills is highly influenced by opportunities to practice talking
4. Strong language models matter: i.e., the quality of the input children receive will greatly influence the output.

“30 million word Gap”

- Hart & Risley (1995)
 - By 3 years of age, there is a 30 million word gap between children from the wealthiest and poorest families.
 - “86 to 98% of the words recorded in each child’s vocabulary consisted of words also recorded in their parents’ vocabularies. By 34-36 months of age...numbers of different words used by children were very similar to parents...” (Hart & Risley, 2003)

Early Prevention of Language, Reading and Writing Difficulties

Working with Young Learners with Speech and Language Differences



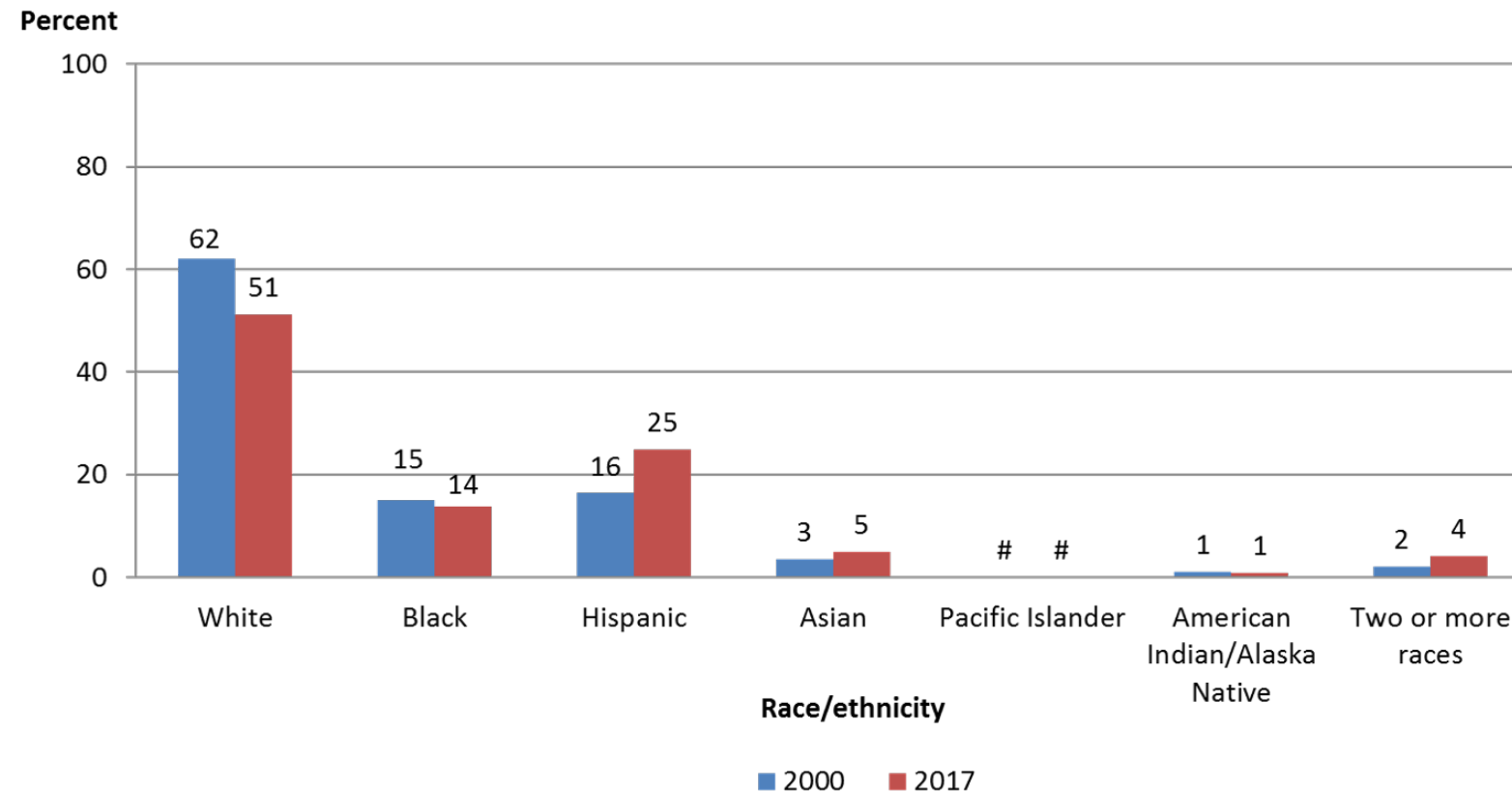
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What is Cultural Diversity?

- **Culture** = a set of norms or standards within a racial or ethnic group that influences:
 - Acceptable Behavior
 - Beliefs
 - Language
 - Traditions
- **Diversity** = different from the majority

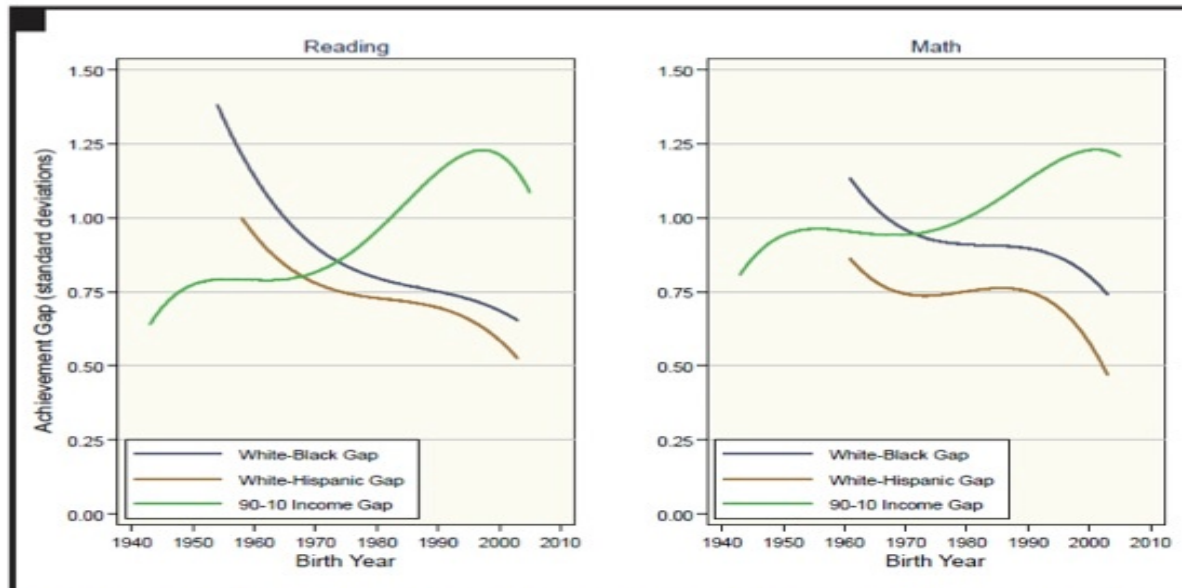
NCES.ed.gov

- Between 2000 and 2017, the percentage of 5- to 17-year-olds who were White decreased from 62 to 51 percent, while the percentage who were Hispanic increased from 16 to 25 percent.

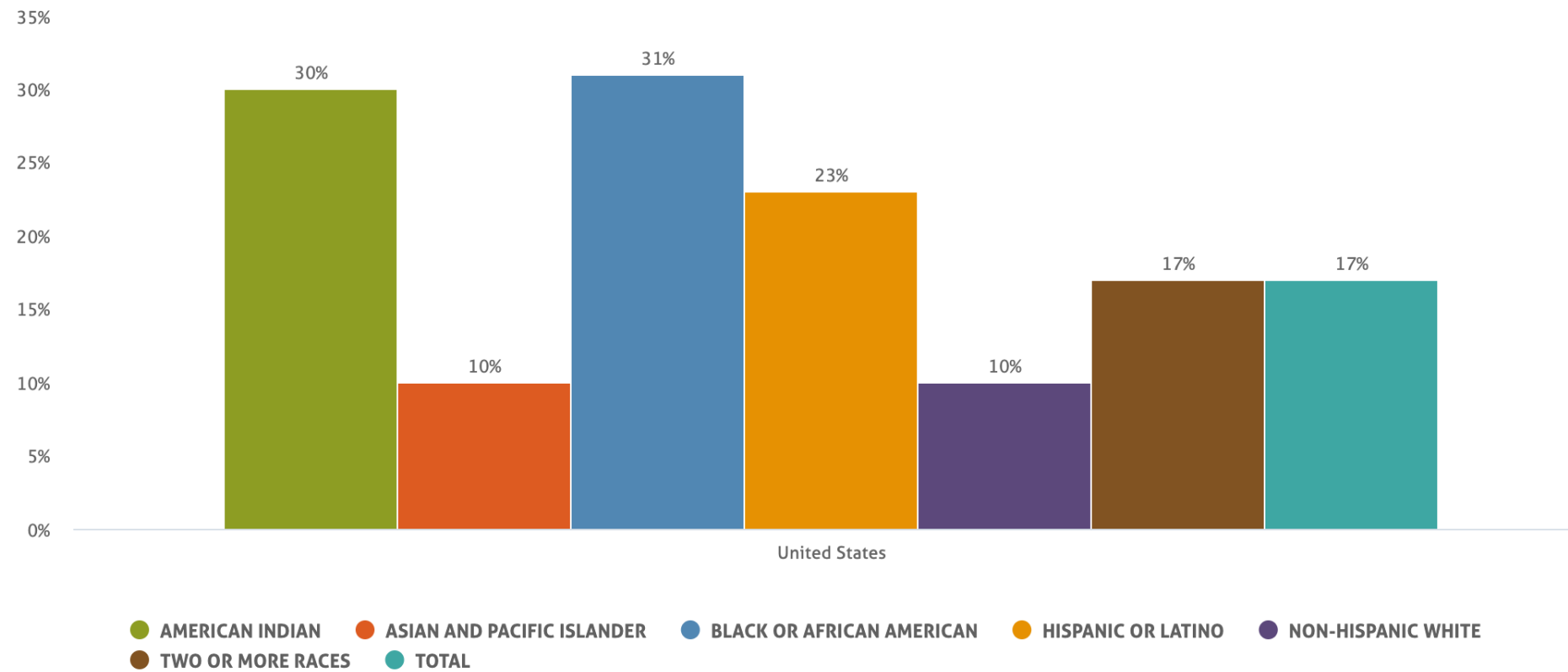


- These demographic shifts have occurred fairly rapidly
- Requires that school districts keep up with these shifts and the resulting changes in important educational variables, including language differences, socioeconomic differences, transiency, and school readiness.

- In many cases factors other than race matter more.
- For example: SES, parent's education, family nativity and native language.



Source: Updated versions of figures originally published in Reardon (2011). Gaps here are measured relative to the age- and cohort-specific national standard deviation of scores. This standard deviation has changed very little over time. Racial gaps are based on author's calculations from Long-Term Trend NAEP (NAEP-LTT) data. The NAEP-LTT tests have been administered to nationally-representative samples 9-, 13-, and 17-year olds roughly every four years from 1971-2012. The racial gap trend shown is the fitted curve from a precision-weighted least squares regression of gaps on a cubic function of birth cohort, controlling for age. Age is centered at 13. Each gap is weighted by the inverse of its estimated sampling variance. The income gap trend shown is based on a precision-weighted fitted quartic trend of estimated income achievement gaps from author's calculations from 13 nationally representative studies from 1960-2010.



Children In Poverty By Race And Ethnicity (Percent) - 2019

National KIDS COUNT
 KIDS COUNT Data Center, datacenter.kidscount.org
 A project of the Annie E. Casey Foundation

Poverty & Language

- Children growing up in poverty may exhibit differences in the use of language due to poverty.
- In addition, differences that are related to use of cultural-linguistic differences
 - Vocabulary
 - Syntax
 - Morphology

Linguistic Differences

Linguistic Differences refer to:

- Language use that differs from the Mainstream or Standard Variety of a language
 - In this case “Standard Classroom English”: the language of literacy/academics
- Students who are linguistically different can either be English Learners (e.g., Spanish or Chinese as L1) or speakers of dialects that differ from the standard (e.g., African American English, Appalachian English)

What ASHA Says: Position Statement on Social Dialects (1983)

*“It is the position of the American Speech-Language-Hearing Association (ASHA) that **no dialectal variety of English is a disorder or a pathological form of speech or language**. Each social dialect is adequate as a functional and effective variety of English. Each serves a communication function as well as a social solidarity function. It maintains the communication network and the social construct of the community of speakers who use it. Furthermore, **each is a symbolic representation of the historical, social, and cultural background of the speakers**. For example, there is strong evidence that many of the features of Black English represent linguistic Africanisms.”*

What ASHA Says: Difference vs. Disorder

- Technical Report on **American English Dialects** (2002).
(<http://www.asha.org/policy/TR2003-00044/#sec1.2>)

”A speaker of any language or dialect may exhibit a language disorder unrelated to his or her use of the native dialect. An essential step toward making accurate assessments of communication disorders is to distinguish between those aspects of linguistic variation that represent regular patterns in the speaker's dialect and those that represent true disorders in speech and language.”

What ASHA Says: ELL/Bilinguals

*“For many other aspects of **speech, language, and hearing, assessment and remediation are much more complicated by the client's use of a minority language.** For example, the phonemic, allophonic, syntactic, morphological, semantic, lexical, and pragmatic characteristics of a minority language cannot be adequately assessed or remediated without knowledge of that language. Further, auditory discrimination and speech reception thresholds **may be difficult to assess without the ability to test in the minority language.**”*

Language Differences

- SES and language impairment: appears to be mediated by maternal education rather than income
 - Difficult to tell whether LSES child has a true language impairment or whether it is impoverished language.
- Rich input and strong language models benefit all children.

Dialect Speakers

- A dialect is best understood as any specific variety of a language, including the standard variety (Walt Wolfram & Schilling-Estes, 2006).
- Mainstream American English dialect (MAE; also called Standard American English or SAE) is generally recognized as the dialect of instruction within classrooms, although most native English speakers within the U.S. speak some form of dialect;

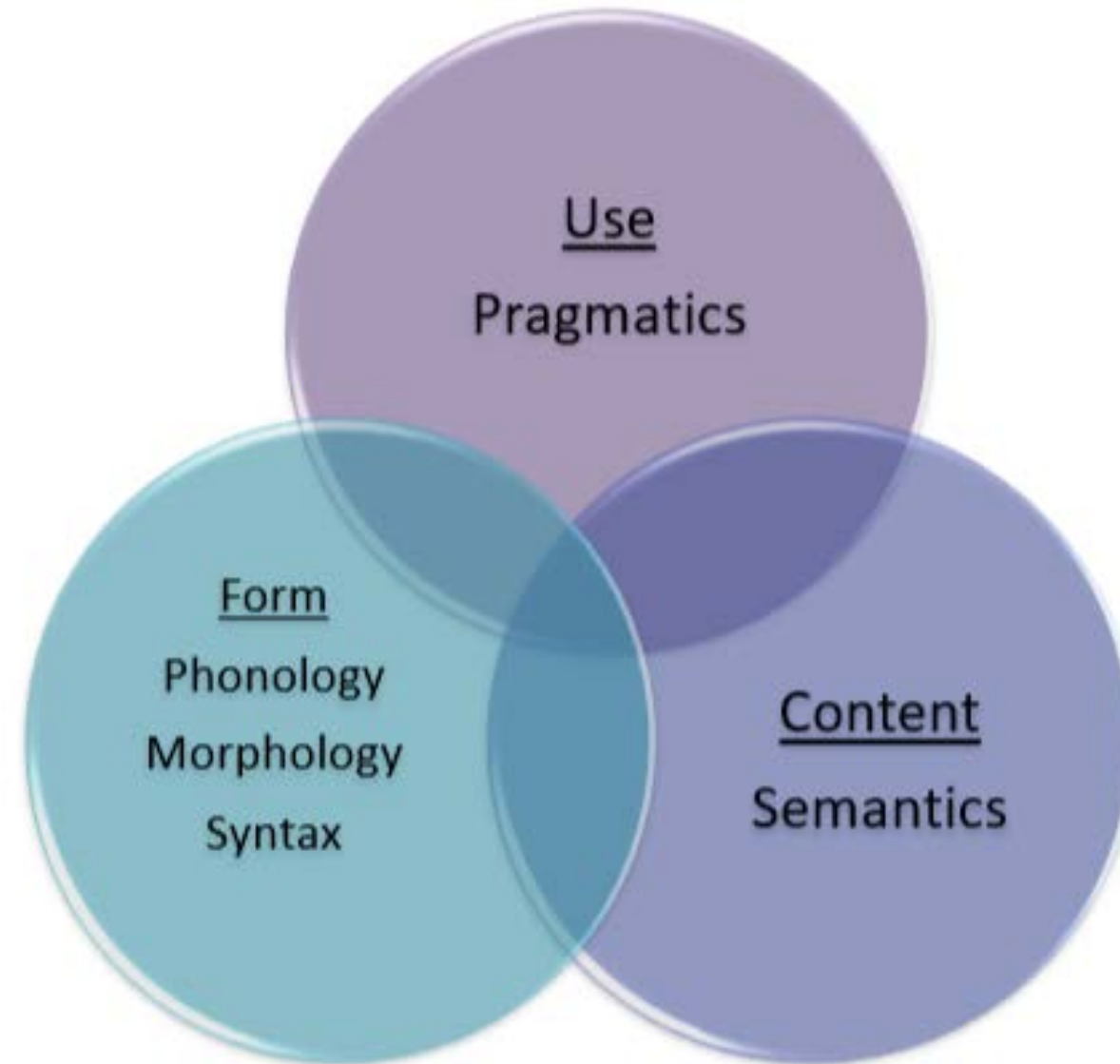
Dialect Speakers

- Similar to ELs students, speakers of these dialects should also be considered linguistic minorities, particularly as it relates to educational achievement. These students experience significant difficulty with literacy tasks, particularly reading and writing, that has been linked both directly and indirectly to their linguistic differences.
- Like ELs, dialect speakers who have not mastered Mainstream Classroom English (MCE) will experience significant difficulty accessing the curriculum and succeeding in school.

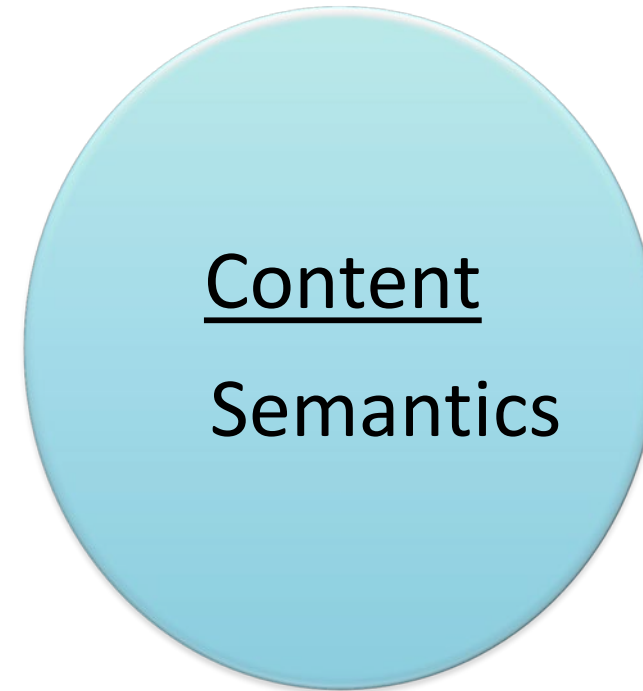
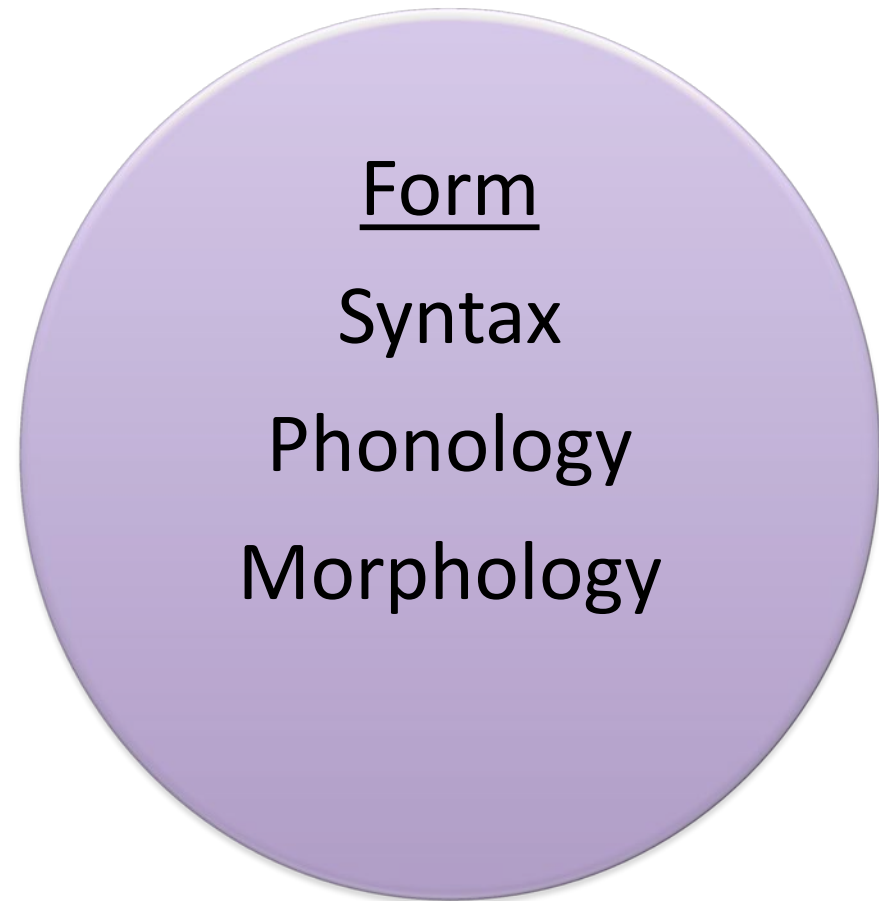
Why are these differences important?

- Because academic achievement is impacted
- Students use language the way it has been used in their communities and this can be vastly different than the way language is used in schools
- Reading and Writing are impacted: We read and write and spell the way we talk
- Importantly, we also perceive language and sounds the same way we use them – this can be problematic and may impact comprehension of classroom language!

Which Components of Language are Likely to be Impacted by these Differences?



Typically, it will be...



Two Groups Often Highlighted

- Use two groups of students as examples of how language variation affects reading and writing achievement:
 1. **African American children** who speak AAE will be referenced to discuss within-language variation
 - AAE is the most studied dialect of American English
 2. **Spanish speakers** to discuss the effects of between language variation
 - an estimated 80% of students classified as ELLs in the U.S. speak Spanish as a first language
- Both groups underperform in school and language differences play a large role in their difficulties in the classroom
 - Poverty also plays a key role, as these two groups of students are disproportionately poor**

Culturally Sensitive, Family-Centered

- Include the family in your decision-making whenever possible
- Make it your business to try and understand which differences that you see represent the cultural and linguistic practices of your child and his/her family
 - Do some research and reading about your client’s culture and language practices
 - Don’t overgeneralize: just because an African American kid did it, doesn’t mean it’s an AA “thing.”
 - Learn some phrases and words in your EL student’s language – it will be greatly appreciated.

Early Prevention of Language, Reading and Writing Difficulties

Transitioning Young Learners with Speech and Language Differences or Linguistically Diverse Backgrounds to Preschool or Kindergarten



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Our Assumptions

- Reading is essentially a language skill. Engaging students linguistically is necessary for literacy to develop as expected.
- Oral language is an important foundational skill for later reading development
- Literacy development begins long before a child ever enters a formal preschool or elementary classroom setting, or receives conventional reading instruction!!!

What we Know for Sure

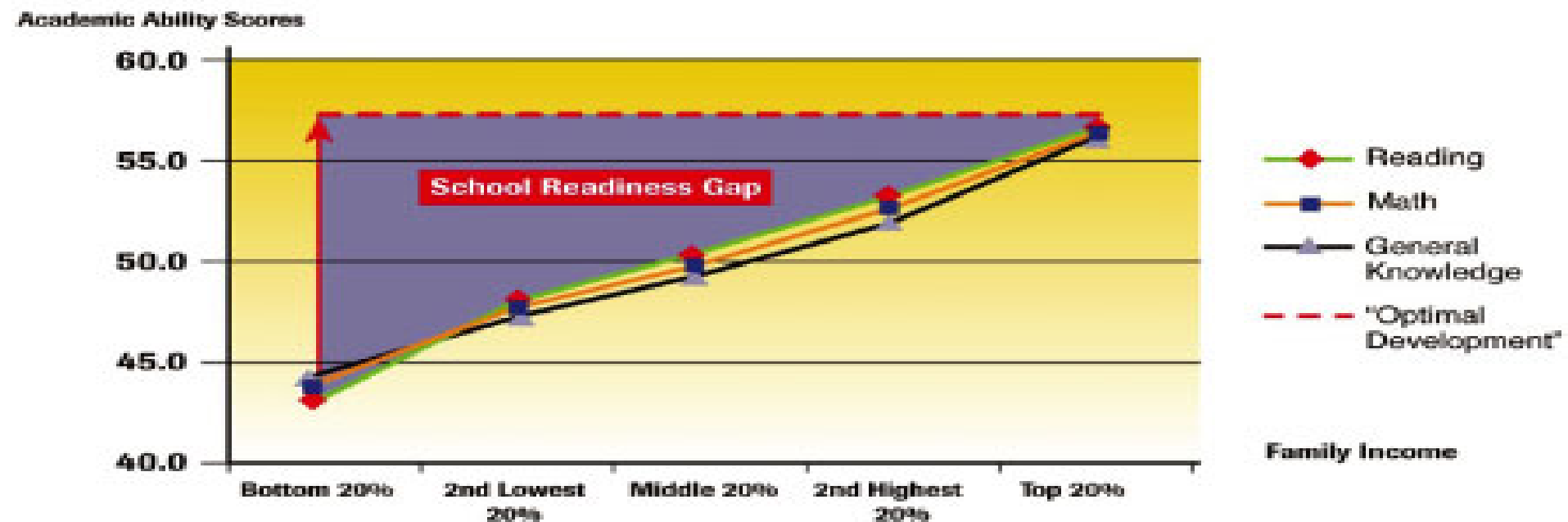
- > 50% of children with language weakness or impairments at school entry, will have problems with reading in the primary or secondary grades
- Children with unresolved language weakness or impairments by second and fourth grade, are at higher risk for reading disabilities
- Ethnic and language minority children, immigrants, and **children from low income families** are at particularly high risk for lower academic achievement and low literacy levels at school entry.

* The Achievement Gap

- There is a gap in achievement between African American (and Hispanic) children and their peers that has been longstanding and intractable. The gap in reading achievement has been of particular concern because reading undergirds all academic subjects, including mathematics, science, language arts, and social studies.

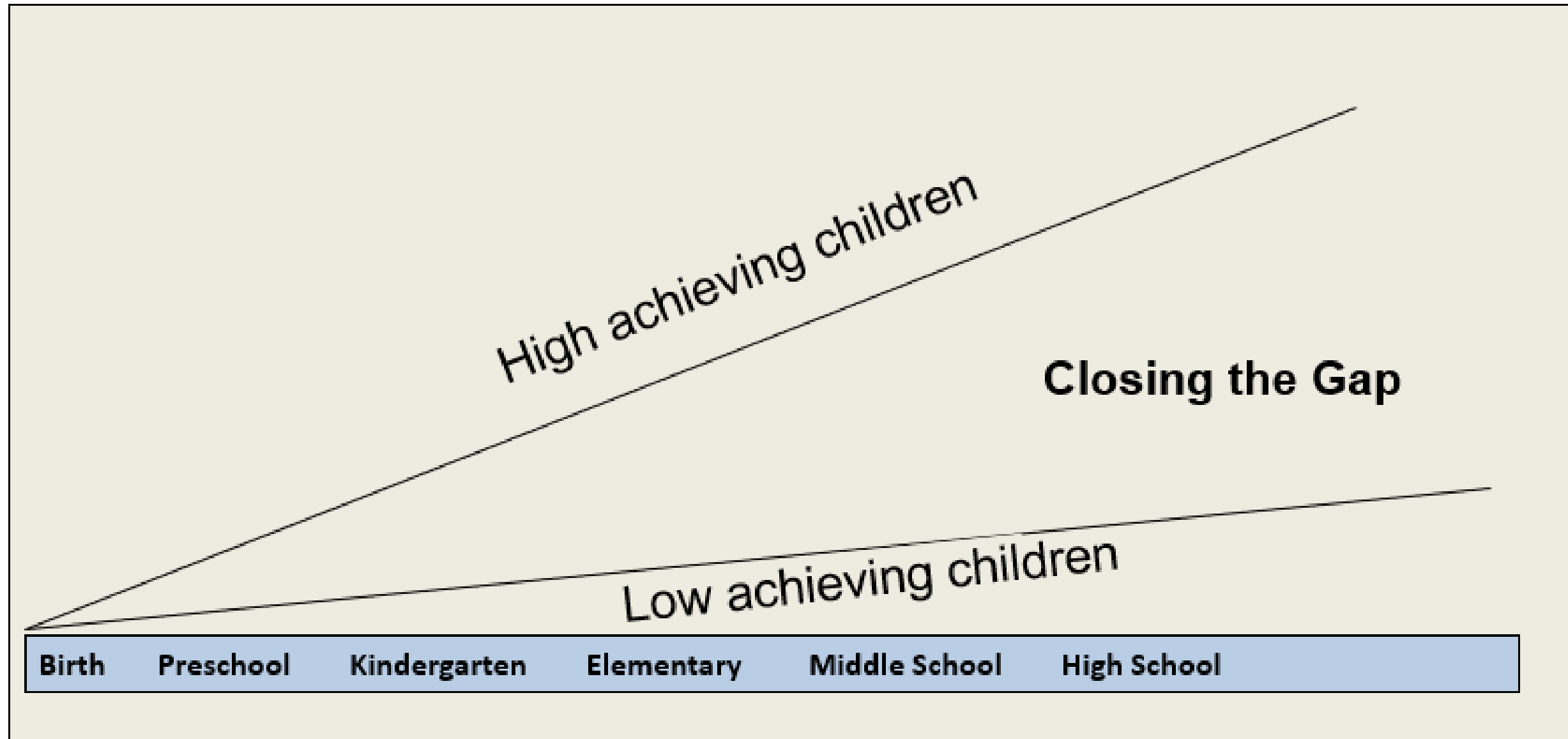
It Starts Early

Achievement Gap as Children Begin Kindergarten



Source: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998-99, Fall 1998. In Barnett, W. S.; Hustedt, J. T.; Robin, K. B.; & Schulman, K. L. (2004). *The state of preschool: 2004 state preschool yearbook*. Washington, DC: National Education Association <nieer.org/yearbook2004/pdf/yearbook.pdf>.

It Influences Later Performance



African American Children

For every year that these students are in school the disparity in school achievement reportedly increases by one-tenth of a standard deviation, and this is particularly true of students from low-income families (Burchinal et al., 2011).

- That is, the longer these students are in school the larger the gap seems to grow

African American Children: The Reading Gap

- The majority (**82%**) of AA fourth grade students read at or below “basic” levels in the 2017 NAEP sample,
- Only **18%** of AA children were considered proficient or advanced readers (NCES, 2017).
- Reading failure in African American (AA) children is a longstanding high impact **public health concern** of enormous societal concern
- At this point this failure is less about skills, abilities and achievement, and more about **access and opportunity**

What is the role of language?

It has been hypothesized that the mismatch between the language system spoken at home and the one used at school increases the cognitive load for African American children, making the process of learning to read much harder.

What is African American English??

- A systematic, rule-governed variation of English
- Used by most (but not all) African Americans in the United States
- Developed as an oral language with no written counterpart
- A low prestige dialect whose legitimacy is still debated in some circles: a community language that is not spoken at school

AAE adds and deletes morphemes

- AAE Feature

- Zero Possessive

- Zero Past Tense

- Zero Plural

- Third Person Singular -s

- Examples

- I ride in my brother car

- And then he fix___ the food

- A girl puttin' some glass_ on the table.

- Sometimes she wear___ a baseball cap.

Transforms the Main Verb or Verb Phrase

- AAE Feature

- Deletion of the copula/auxiliary

- Subject-Verb Agreement

- Habitual *be*

- Remote past *been*

- Examples

- He ___ runnin' fast

- He ___ hungry.

They *was lookin'* for the big dog.

- He *be* gettin' some ice cream

- I *been* knowin' how to swim

AAE Impacts Phonology

- AAE Feature

- f /θ , v/ð and t/ θ in intervocalic and postvocalic positions

- d/ð in prevocalic positions

- Consonant cluster reduction

- Examples

- *Wif/with; bave/bathe; wit/with*

- *Dis/this; dem/them*

- *Col-/cold*

The Mismatch Hypothesis

- During reading, the mismatch between the language system spoken at home and the one used at school increases the cognitive load for students who speak other languages or dialects of English.

(first proposed by Johnson, 1969)



Impact of dialect use on a basic component of learning to read

Megan C. Brown¹, Daragh E. Sibley², Julie A. Washington¹, Timothy T. Rogers², Jan R. Edwards³, Maryellen C. MacDonald² and Mark S. Seidenberg^{2*}

¹ Program in Communication Sciences and Disorders, Educational Psychology and Special Education, Georgia State University, Atlanta, GA, USA

² Psychology, University of Wisconsin-Madison, Madison, WI, USA

³ Communication Sciences and Disorders, University of Wisconsin-Madison, Madison, WI, USA

Edited by:

Frederic Dick, Birkbeck University of London, UK

Reviewed by:

Luca Onnis, Nanyang Technological University, Singapore

Janna Oetting, Louisiana State University, USA

***Correspondence:**

Mark S. Seidenberg, Department of Psychology, University of Wisconsin-Madison, 1202 W. Johnson St., Madison, WI 53706, USA
e-mail: seidenberg@wisc.edu

Can some black-white differences in reading achievement be traced to differences in language background? Many African American children speak a dialect that differs from the mainstream dialect emphasized in school. We examined how use of alternative dialects affects decoding, an important component of early reading and marker of reading development. Behavioral data show that use of the alternative pronunciations of words in different dialects affects reading aloud in developing readers, with larger effects for children who use more African American English (AAE). Mechanisms underlying this effect were explored with a computational model, investigating factors affecting reading acquisition. The results indicate that the achievement gap may be due in part to differences in task complexity: children whose home and school dialects differ are at greater risk for reading difficulties because tasks such as learning to decode are more complex for them.

Keywords: reading, dialect, African American English, achievement gap

Dialect Density

- It is not just the mismatch between Standard Classroom English and dialect that puts children at risk for poor reading outcomes, it is the **magnitude of the difference** that matters.

Dialect Density

- Method for quantifying dialect use
- An index of the degree/rate of dialect used by speakers

Low

$\leq 10\%$

Moderate

High

$\geq 50\%$



Dialect Density

- Dialect Density impacts:
 - Spelling (Terry, 2006; Kohler et al, 2007)
 - Reading (Washington et al, 2018; Washington & Craig, 2001; Craig et al, 2009; Terry et al, 2012)
 - Writing (Horton-Ikard & Pittman, 2010; Ivy & Masterson, 2011)

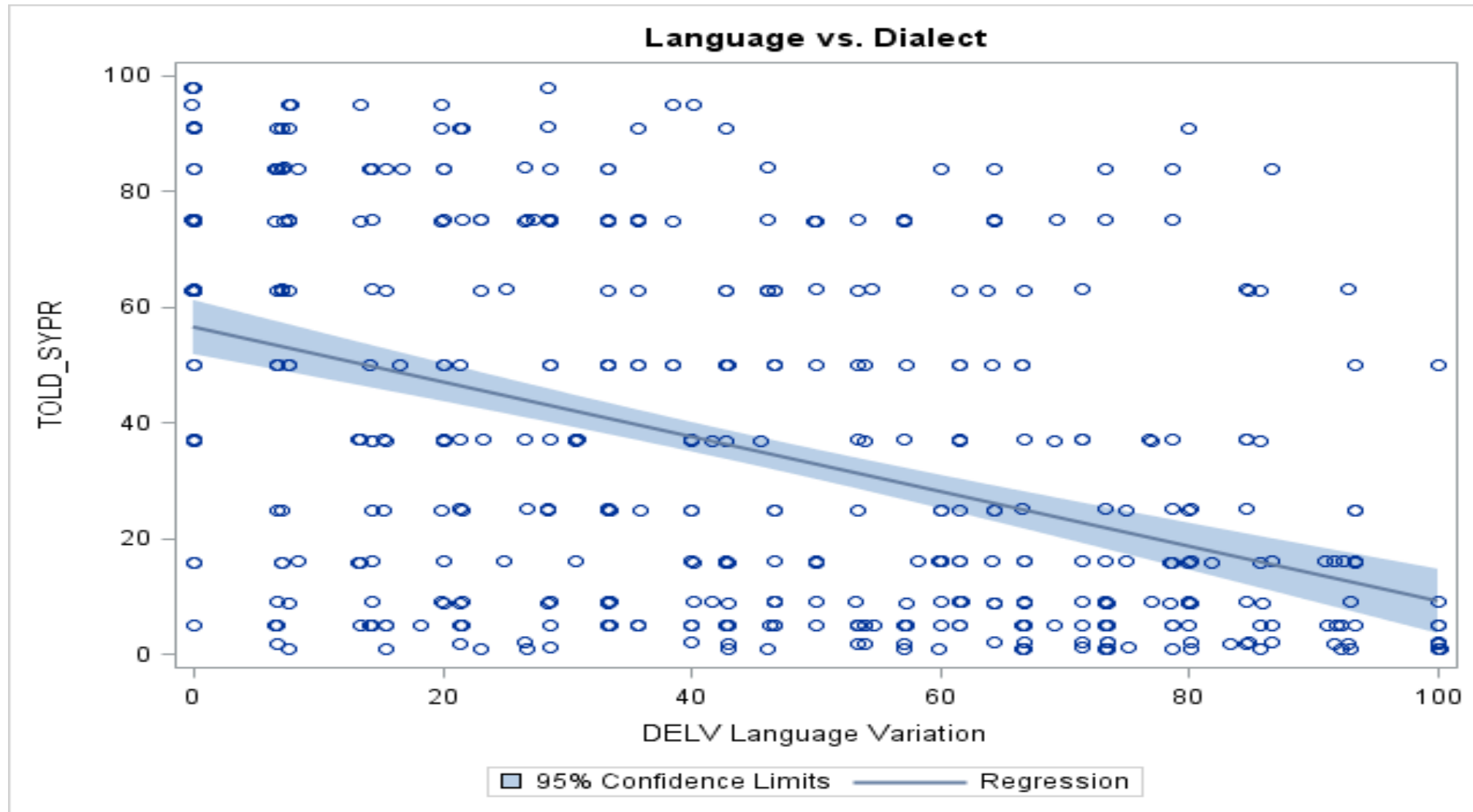
Washington, Branum-Martin, Lee- James & Sun (2018)

- The relationship between dialect density and reading is reciprocal:
 - Ability to read well was a strong predictor of shifting between AAE and SAE.
 - That is, **strong reading skill facilitates code switching.**

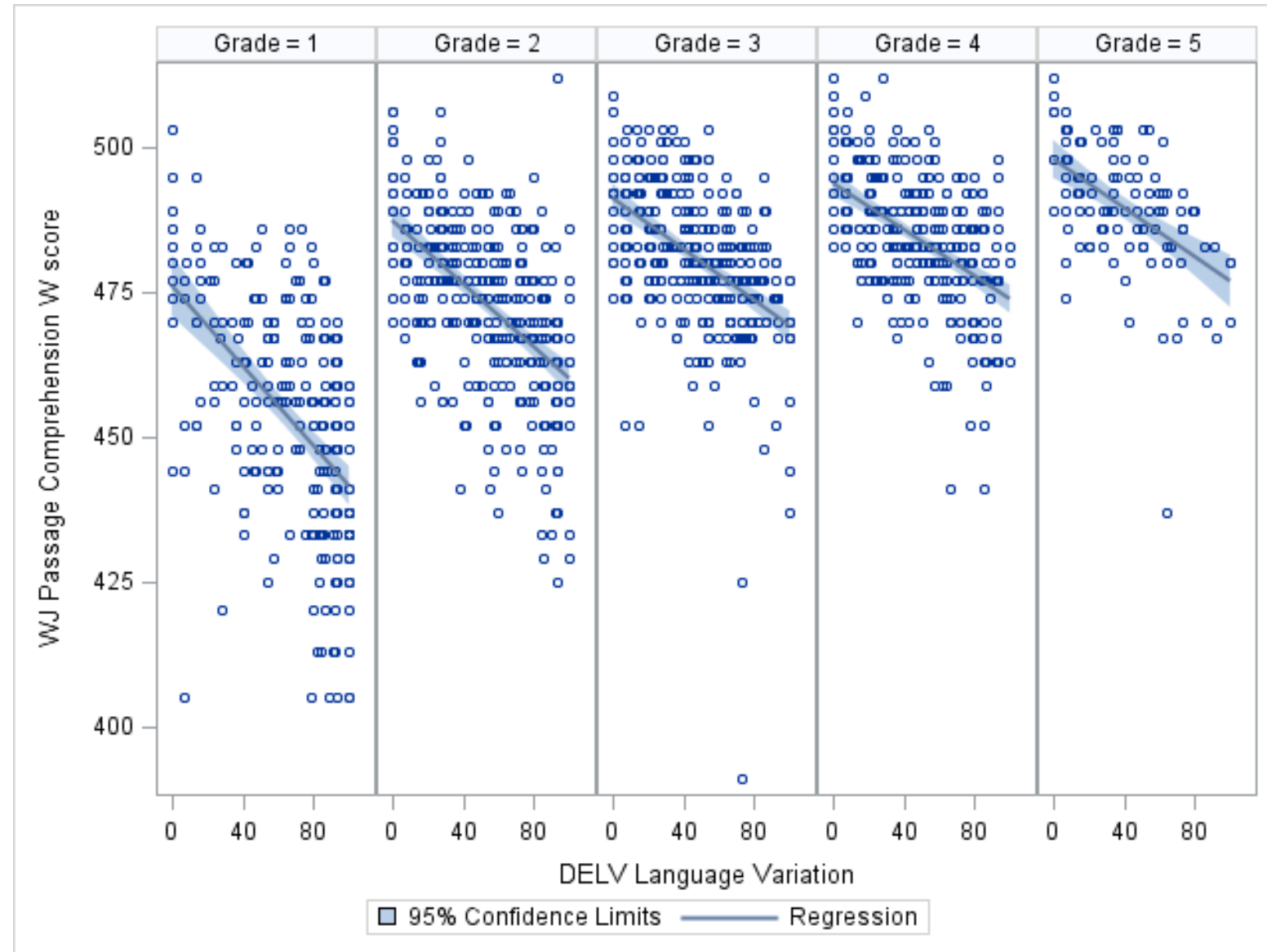
Washington, Branum-Martin, Sun and Lee-James (2018)

- Children with the highest dialect density after an initial decrease in first grade may still be producing densities as high as 70% in fifth grade. These are the children at greatest risk for reading problems.

DD Matters for Language



...and for reading



Holly K. Craig
Lingling Zhang
Stephanie L. Hensel
Erin J. Quinn
University of Michigan, Ann Arbor

African American English–Speaking Students: An Examination of the Relationship Between Dialect Shifting and Reading Outcomes

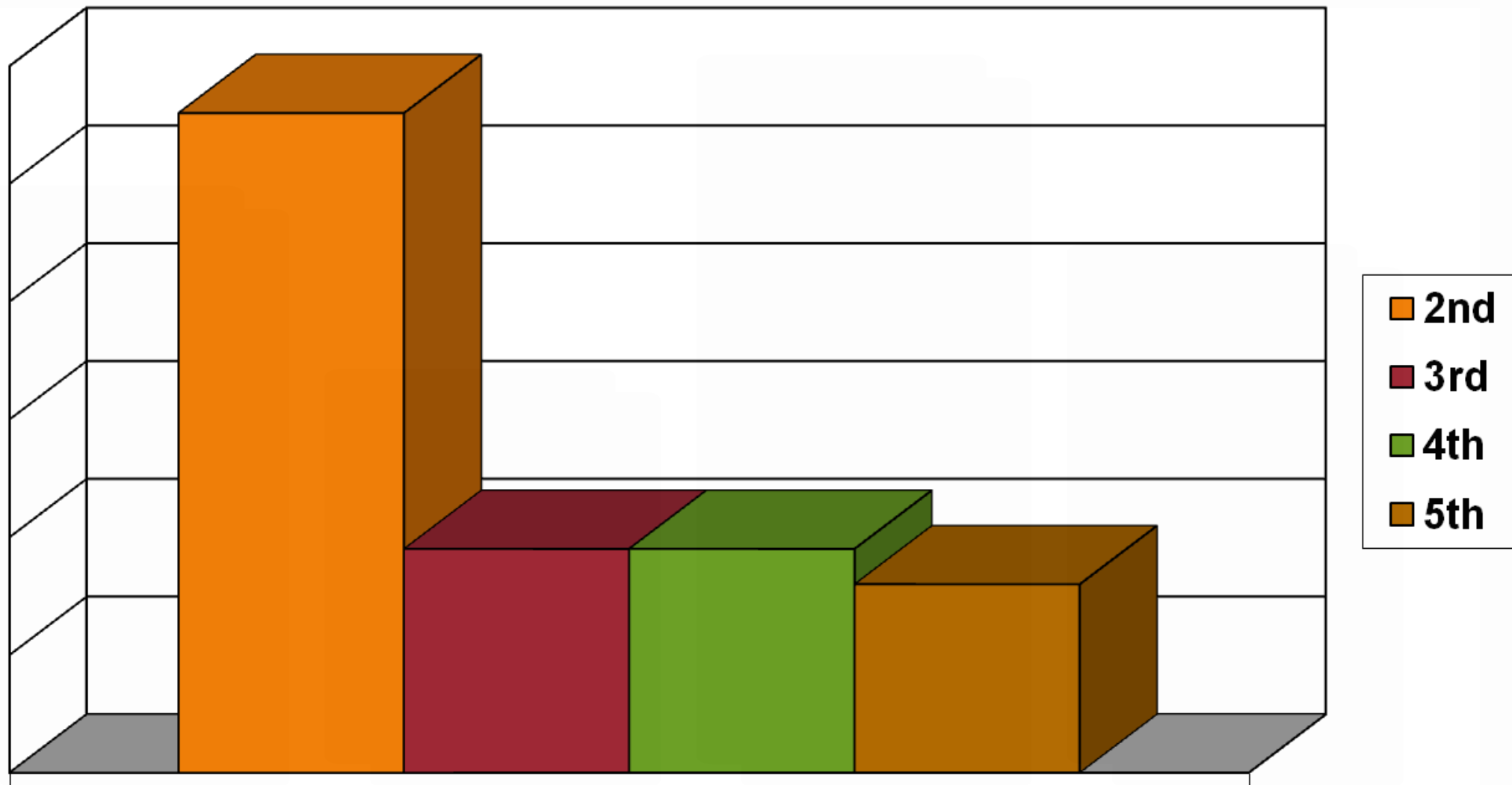
**Ability to *shift* between AAE and SAE was
strong predictor of early reading achievement**

Importantly...

- **Low dialect users do not show comparable patterns of reading and language risk**, suggesting that perhaps the language used by high dialect users is so far away from the language of testing (and reading), that it negatively impacts their performance.
- These (high dialect users) are the students for whom access to the curriculum is impeded by their language differences.

Learning the Language of School is Important!

Among African American students those who have not learned to use the school language code by the end of second grade are one or more grade levels behind by the time they get to 4th or 5th grade!



Use of Dialect during Reading (Craig, Thompson, Washington & Potter, 2004)

Why are language differences important?

- If you have a code that differs in the written and oral domain your ability to resolve/manage those differences will influence how well you read, write and comprehend!

Couldn't Do This Work Without:

- Lee Branum-Martin
- Nicole Patton Terry
- Mark Seidenberg
- Mi-Young Webb
- Ryan Lee-James
- Congying Sun
- Lakeisha Johnson



Couldn't Do This Work Without:

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