Marshall Memo 897

A Weekly Round-up of Important Ideas and Research in K-12 Education
July 26, 2021

In This Issue:

Quotes of the Week

"I believe the absence of math literacy in urban and rural communities throughout this country is an issue as urgent as the lack of registered black voters in Mississippi was in 1961."

Robert Moses, a heroic civil rights leader who went on to found the Algebra Project, in his book, *Radical Equations* (Beacon Press, 2002). Moses died at 86 on July 25, 2021; here are obituaries in the Washington Post and the New York Times.

"Data awareness and data literacy are needed to not only be an effective employee but also function in the modern world… If we do not help students become data literate, they will be vulnerable to people who are misrepresenting issues and data."

Jo Boaler, Tanya LaMar, and Cathy Williams (see item #5)

"A child who has more to learn to reach a goal needs more time to get there. It takes ample learning opportunities, sufficient practice, and, for many children, additional instruction."

Julie Washington and Mark Seidenberg (see item #1)

"Owning a personal library is thought to promote a *scholarly culture*, a set of practices and preferences that are associated with reading development and school learning."

Susan Neuman, Donna Celano, and Maya Portillo (see item #2)

"Today's wide availability of digital reading devices and the rich tradition of children's paper books beg the question of which reading format is better suited for young readers' learning."

May Irene Furenes, Natalia Kucirkova, and Adriana Bus (see item #3)

"Summer has always provided me the mental space to play with ideas and mentally wander through possibilities. I know I am firmly into summer break and relaxation mode when the days have blended together and it takes some mental energy to figure out exactly what day of the week it is."

Heather McKay in *Read by Example*, July 23, 2021

1. Linguistically Sensitive Literacy Instruction

In this article in *American Educator*, Julie Washington (University of California/Irvine) and Mark Seidenberg (University of Wisconsin/Madison) share research and best practices for literacy instruction with children whose oral language from home differs from the linguistic structure of their schools. "There is a large and growing body of evidence," they say, "indicating that language variation impacts reading, spelling, and writing in predictable ways."

Many black children grow up hearing and speaking African-American English (AAE), and a major task upon entering school is becoming *bidialectal* in General American English (GAE) – the language of instruction, commerce, and mainstream media. AAE has often been seen as "bad English," "poor grammar," and "ghetto" by people outside that community of speakers, say Washington and Seidenberg, and these negative views "sometimes become conflated with the children who speak it, and expectations for them are lowered… The social stigma surrounding varieties spoken by linguistic minorities can be compounded by race and class." Successfully handling this challenge is essential to closing persistent opportunity gaps.

That's why it's important for educators to understand that AAE is equal in linguistic complexity and consistency to GAE – it's different, not inferior. The main variations are in verb morphology, syntax, and phonology, all of which come into play when African-American children learn to read in school. Here are some of the most common features, with examples for each:

<u>Verb morphology</u>

- Variable past tense – *The cow jump over the moon*.
- Variable plural – *She saw three cat in the window*.
- Variable third person – *My friend want to buy some candy when he get to the store*.
- Variable possessive – *I rode in my uncle car. They waitin' for they car*.

<u>Syntax</u>

- Variable subject-verb agreement – *My friends was runnin' fast to catch the bus*.
- Variable inclusion of *to be* in linking and auxiliary forms – *They watchin' the girls jump rope*.

<u>Phonology</u>

- Consonant cluster reduction – *Col* for cold, *fiel* for field, *cas* for cast
- Dropped g – *jumpin, waitin, goin*
- Unvoiced consonants – *wit* for with, *wif* for with, *bave* for bathe
- Th- replaced with d – *dis* for this, *dem* for them, *dat* for that
- Consonant cluster movement – *aks* for ask, *ekscape* for escape

A key issue for teachers is determining *dialect density* – the amount of dialect present in a child's language. This can range from 10 percent to more than 50 percent, and is directly linked to socioeconomic status. "The higher the dialect density," say Washington and Seidenberg, "the further the child's speech is from the language used in reading and writing. Simply put, *linguistic distance* influences how much instruction and practice a child is likely to need to bridge the differences between oral language at home, oral language spoken by the teacher, and the written language of books and other texts." The key is extra instructional time and sensitivity to the cultural and linguistic issues involved.

Isn't it more difficult for English language learners than African-American students to become proficient in reading? Not so, say Washington and Seidenberg. They argue that the learning curve of a child who speaks AAE may be steeper: "The subtle transformations between the cultural and the general varieties of a single language may be even more difficult for young children to detect and resolve than the more obvious differences between two languages," they say. "By design, curricula and instructional activities for children who are learning English take their dual language status into account."

"Similar to bilingual speakers," the authors continue, "bidialectal speakers engage in monitoring their own speech to evaluate its appropriateness and self-correct as needed. They may actively avoid speaking in fear of producing non-GAE expressions. They may consciously engage in mental translation from AAE to GAE before speaking, and they may compose utterances to confirm to linguistic expectations rather than speaking freely…Assuming different personas in differing contexts, in this case school and home, creates the 'double consciousness' described by sociologist W.E.B. De Bois. Monitoring the presentation of self, which includes language, carries cognitive and emotional costs. Cognitively, it is an additional task to be performed while engaged in other activities (such as reading). Emotionally, it involves continuous self-evaluation, criticism, and correction."

Washington and Seidenberg have six recommendations for steps schools can take to support and engage African-American children as they become bidialectal and learn to read proficiently – always building on children's knowledge rather than disparaging it:

• *First, enhance teachers' knowledge of language variation*. As argued above, it's essential for educators to have a non-pejorative understanding of the differences between GAE and AAE, tune in to differences in dialect density among their students, and use effective methods. A key insight for teachers, say the authors, is that "learning more about GAE does not require extinguishing knowledge of AAE, any more than learning a second language requires unlearning the first. Rather, it places AAE speakers on a more equal footing with children who have learned GAE in the home, while still honoring the need, and desire, to communicate with their families, communities, and friends who also use AAE."

• *Second, expand children's knowledge of language in preschool*. "Young children are exceptionally good language learners," say Washington and Seidenberg. In a high-quality, language-rich preschool, AAE speakers gain knowledge and facility with GAE – and a sense of when and where to use each kind of language – through exposure and daily use. This is enhanced when preschool educators communicate frequently with parents and encourage them

to read and converse with their children. A key policy and funding priority, say the authors, is increasing the number of children of color in exemplary preschools.

• *Third, use classroom materials and practices that are effective with AAE speakers*. Few published curriculum materials "accommodate differences in language background or provide clear guidance about appropriate practices for children who need support to become bidialectal," say Washington and Seidenberg. That's why teachers must supplement commercial texts and materials with their own insights on what works for different children. Here are some important areas:

Rhymes are often used by teachers to develop children's phonological awareness (for example, bear/care), but some rhyming pairs will be confusing to children speaking AAE – for example, *thing* may rhyme with *king* or *rang*, and *cold* with *hole*, depending on how students pronounce them.

Phonemic awareness exercises involving final consonants can confuse AAE speakers – for example, the pronunciation of words like *cold* when the final consonant is omitted. "When children take longer to acquire such knowledge, we should not assume that they are less capable learners," say the authors.

Phonics involves matching letters with sounds, which is a vital step in decoding, fluent reading, and comprehension. But an AAE-speaking student may be confused when the teacher sounds out the four letter sounds in the word *gold*. One study found that because of omitted final consonants, children speaking AAE had to do extra cognitive work with half of the words on a list of common monosyllabic words.

Children reading aloud is an important literacy activity, but AAE-speaking children sometimes slow down to deal with AAE-GAE discrepancies (affecting fluency) or make errors in comprehension. "When reading aloud occurs in front of other students," say Washington and Seidenberg, "the appearance of lower proficiency can be deeply embarrassing and can create aversion to reading."

"Children who are still learning the school dialect have to focus greater attention and effort on understanding the teacher's speech," say the authors, "which can detract from being able to focus on the content." This is especially difficult in an active classroom, even more so when there are distracting discipline problems. It's helpful for teachers to provide in writing, or with visual supports, anything important that's presented orally. And it's important for teachers to be familiar with AAE to better understand some students' predictable misunderstandings and confusions.

• *Fourth, provide enough time on task*. "A child who has more to learn to reach a goal needs more time to get there," say Washington and Seidenberg. "It takes ample learning opportunities, sufficient practice, and, for many children, additional instruction." This means rethinking time-honored pacing schedules in the early grades and providing the additional time needed for children to become proficient and confident readers by the time they reach the middle grades. An essential component is supplementing children's background knowledge from home with plenty of school knowledge, providing "velcro" for new learning.

• *Fifth, respond constructively to AAE use in the classroom*. Some educators ignore students' use of AAE in an effort to be culturally sensitive. Washington and Seidenberg believe this further disadvantages African-American students by depriving them of teachable moments on the road to mastering both dialects. At the other extreme is correcting AAE usage in ways that make students feel their home language is "bad." A researcher observed a teacher repeatedly correcting a third grader in front of his classmates when he read *street* as *skreet* (a regional dialect). When the teacher finally stopped, the boy read "haltingly, mumbling, and fearful of saying the wrong thing and being further embarrassed by the teacher," say Washington and Seidenberg, "making him likely to be more resistant to reading aloud in the future." A better approach would be for the teacher to note the boy's pronunciation of the word *street* (probably there are other children in the class who say it that way) and making it part of an all-class language lesson at another time, without calling attention to the student who said the word in dialect. Similarly, when a primary-grade student says, "This my backpack," the teacher might say, "Yes, this IS your backpack. Let's put it away." Over time, these gentle, respectful transpositions have an impact.

• *Sixth, know that becoming bidialectal is a manageable task*. The good news, say Washington and Seidenberg, is that, "with few exceptions, AAE and GAE are mutually intelligible. Given sufficient time and relevant experience, bidialectal speakers, like bilinguals, will learn to navigate the two codes in both oral language and print… Teaching children who are becoming bidialectal to read does not require an entirely new, separate theory of reading instruction. The same elements that have been identified for all developing readers to break the code are necessary for children who speak AAE as well. What differs is the delivery of these elements."

"All children," conclude the authors, "need to have the skills to make linguistic choices across contexts: formal, informal, home, school, speaking, reading, or writing. Even within these contexts, there are choices that require varied skills, such as writing a report for school, writing a thank-you card for a birthday gift, or writing a text to meet up with friends. Above all, our shared goal should be for all children to become good readers…"

"Teaching Reading to African-American Children: When Home and School Language Differ" by Julie Washington and Mark Seidenberg in *American Educator*, Summer 2021; the authors can be reached at julie.washington@uci.edu and seidenberg@wisc.edu.

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2. Insights from a Book Distribution Program in Philadelphia

In this *American Educational Research Journal* article, Susan Neuman (New York University), Donna Celano (LaSalle University), and Maya Portillo (Robert R. McCormick Foundation) describe their study of an effort to distribute almost 500,000 books to families in Philadelphia at a total cost of more than $1.4 million. "Owning a personal library," the authors report, "is thought to promote a *scholarly culture*, a set of practices and preferences that are associated with reading development and school learning." The number of books in different

homes is directly correlated with family wealth: a 2016 study found that the most economically advantaged children had several times the number of books than the poorest.

Findings like these spurred the Philadelphia program and a number of other efforts to put books in the hands of children, especially those with economic disadvantages. Neuman, Celano, and Portillo wanted to find the most strategic and effective way of accomplishing this, since many well-intentioned programs have been fragmented, poorly targeted, mismatched books with recipients, and have a mixed track record on improving children's literacy levels. The authors wondered whether there was a *causal* link between the number of books in the home and children's reading achievement. Could other factors be the true drivers of growth – family preferences around learning, adults' educational levels, the amount of time parents spend reading with children? But a 2011 meta-analysis of literacy exposure found that book ownership had an independent effect, setting in motion a "spiral of causality" that boosted children's oral language, comprehension skills, and school achievement. Other researchers speculated that books in the home might "nudge" children and adults toward productive literacy experiences. So book distribution programs can make a positive difference.

Neuman, Celano, and Portillo conducted focus groups in Philadelphia neighborhoods to gauge the impact of the books families received. Many were thrilled to get books, spent quality time reading with their children, and eagerly looked forward to the next batch. But some parents said they had more books than they knew what to do with – they got books from their doctor's office, schools, and other programs. There were also comments about getting several copies of the same book or age-inappropriate books; not enough guidance on how to read with their children (some reported that their toddlers were most interested in chewing on the books; others were impatient when older kids peppered them with questions); not enough multicultural and Spanish-language content; not enough books that built school skills; and a feeling of being condescended to with unwanted gifts.

The authors' big takeaways: fine-tune book distribution to neighborhoods and families according to need (in some cases, middle-class families received books while the poorest families did not); coordinate to avoid duplication; involve families in the program's policymaking; give parents and kids a choice of books; and provide more support on the finer points of reading with children at different ages.

"Getting Books in Children's Hands: Creating a Citywide Book Distribution Policy Using a Mixed-Methods Geospatial Approach" by Susan Neuman, Donna Celano, and Maya Portillo in *American Educational Research Journal*, August 2021 (Vol. 58, #4, pp. 815-849); Neuman can be reached at sbneuman@nyu.edu, Celano at celano@lasalle.edu.

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3. For Young Children, Which Is Better, Paper or Digital Books?

"Today's wide availability of digital reading devices and the rich tradition of children's paper books beg the question of which reading format is better suited for young readers' learning," say May Irene Furenes (University of Stavanger, Norway), Natalia Kucirkova (University of Stavanger and The Open University, UK), and Adriana Bus (University of

Stavanger and ELTE Eötvös Loránd University) in this *Review of Educational Research* article. To answer the question, they conducted a meta-analysis of 39 studies comparing the story comprehension and vocabulary learning of children ages 1 to 8 reading paper and on-screen books.

The conclusion? "We found," say Furenes, Kucirkova, and Bus, "that when the paper and digital versions of the story are practically the same and only differ by the voiceover or highlighted print as additional features in the digital book, then paper outperforms digital." They believe the key factor is limits on children's cognitive load. "The device," say the authors, "seems to attract young children's attention at the expense of attention paid to the storyline, even when the content of the paper and digital books was the same. The parsimonious resources available for processing the main information in picture books – the central narrative – may have been misallocated to the means of achieving it (e.g., point, click, and swipe), thus hampering meaning-making."

Interactive components of on-screen books can be another distraction from the content – but these components may not be as lively as the computer games children have been playing, further pulling their attention from the content. Of course these problems can be moderated or overcome by the design of digital books – or an adult's support. If the bells and whistles of digital books are closely aligned with the content, comprehension improves. For enhancing children's vocabulary, digital books with a dictionary feature that defines and explains difficult words are more effective than paper books, which don't have a built-in dictionary. But the researchers note that it is difficult for children to juggle using the dictionary at the same time as other content-related enhancements; the dictionary is most helpful when it's used alone.

An important variable is how an adult sitting with a child interacts while a paper or digital text is being read. Some studies report that with on-screen texts, the adult-child conversation is mostly about the device – or the child's behavior – rather than the story itself. With paper books, on the other hand, the adult talks mostly about the story and provides support and background knowledge that enhances the child's comprehension.

"A Comparison of Children's Reading on Paper Versus Screen: A Meta-Analysis" by May Irene Furenes, Natalia Kucirkova, and Adriana Bus in *Review of Educational Research*, August 2021 (Vol. 91, #4, pp. 483-517); the authors can be reached at may.i.furenes@uis.no, natalia.kucirkova@uis.no, and jeanetbus@gmail.com.

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4. How Effective Is Orton-Gillingham?

In this article in *Exceptional Children*, Elizabeth Stevens (Georgia State University), Clint Moore, Nancy Scammacca, Alexis Boucher, and Sharon Vaughn (University of Texas/Austin), and Christy Austin (University of Utah) report on their meta-analysis of 16 studies of Orton-Gillingham, a popular and widely used approach to reading instruction. Orton-Gillingham is described as a "direct, explicit, multisensory, structured, sequential, diagnostic,

and prescriptive" method for teaching children with (or at risk for) word-level reading disabilities, including dyslexia.

The researchers' conclusion: although the mean effect size (0.22) was positive and somewhat promising, Orton-Gillingham did not *substantially* improve children's phonological awareness, phonics, fluency, spelling, vocabulary, and reading comprehension. "Despite the continued widespread acceptance, use, and support for Orton-Gillingham instruction," conclude Stevens et al., "there is little evidence to date that these interventions significantly improve reading outcomes for students with or at risk for word-level reading disabilities over and above comparison group instruction."

This finding certainly raises concerns about the fact that a number of states have adopted legislation mandating Orton-Gillingham. "More high-quality, rigorous research with larger samples of students with word-level reading disabilities," say the authors, "is needed to fully understand the effects of Orton-Gillingham interventions on the reading outcomes of this population."

"Current State of the Evidence: Examining the Effects of Orton-Gillingham Reading Interventions for Students with or at Risk for Word-Level Reading Disabilities" by Elizabeth Stevens, Christy Austin, Clint Moore, Nancy Scammacca, Alexis Boucher, and Sharon Vaughn in *Exceptional Children*, July 2021 (Vol. 87, #4, pp. 397-417); Stevens can be reached at estevens11@gsu.edu.

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5. What Kinds of Mathematics Do Students Need for the Real World?

In this article in *Mathematics Teacher: Learning & Teaching PK-12*, Jo Boaler, Tanya LaMar, and Cathy Williams (Stanford University) report on a project that started with a phone call Boaler received from Steve Levitt of *Freakonomics* fame. Levitt had been helping his own children with their high-school mathematics homework and was struck by what he considered the antiquated nature of the work they were doing. Very little of it, he said, was the kind of math that he used in his professional and personal life.

To check this perception with a wider group, Levitt and his colleagues at the University of Chicago did a survey of visitors to the *Freakonomics* website asking what kinds of math they used on a daily basis, and 913 people responded. Boaler, LaMar, and Williams saw the results and noticed that almost 3/4 of the respondents were men, so they asked the same questions of education leaders; 427 responded, mostly women. Strikingly, the responses from the two groups were quite similar. Here are the percentages in each group saying they used each kind of mathematics "daily":

	Freakonomics	Educators
- Use Excel/Google sheets	66	56
- Access and use databases	42	37
- Analyze and interpret data	31	21
- Visual data	23	12
- Algebra	11	4

- Geometry	4	0
- Calculus	2	1
- Trigonometry	2	0

The percentages who said they "never" used algebra, geometry, calculus, and trigonometry were 28, 50, 70, and 79 respectively for the Freakonomics group and 41, 59, 71, and 82 for the educators.

Clearly these adults don't use much of the math they learned in school – but they do make heavy use of data knowledge and tools. "For generations," say Boaler, LaMar, and Williams, "high schools in the United States have focused on one course as the ultimate, college-attractive, and high-level course – calculus. This has led to a heavy focus on algebraic content in the earlier years even though a tiny proportion of students in the school system take calculus. When students do take calculus, it is often taken after rushing through years of content without the development of deep understanding." And most students who take calculus in high school end up repeating it in college, or taking a lower-level course.

The Common Core standards put more emphasis on data and statistics – but not enough, say the authors, which is why some states, including California, are beefing up data literacy in their frameworks or curriculum standards. In that spirit, the Stanford and University of Chicago teams joined with colleagues around the world and spent 18 months thinking through what needs to change. "It quickly became clear," say Boaler, LaMar, and Williams, "that all students – starting from the youngest in prekindergarten to those in college – need to learn the mathematics that will help them develop data literacy, to make sense of the data-filled world in which we all live… Whatever job your students go into, they will be making sense of data… Data awareness and data literacy are needed to not only be an effective employee but also function in the modern world… If we do not help students become data literate, they will be vulnerable to people who are misrepresenting issues and data."

This line of thinking has spawned an initiative called YouCubed; the website has had more than 51 million visitors so far. It includes a series of "data talks," which show students a data representation and ask, *What do you notice?* and *What do you wonder?* Among the topics: basketball, endangered species, popular dogs, and data ethics. Here's an example of a middle-school data talk (see the article link below for more). Naturally, Boaler, LaMar, and Williams advocate a K-12 curriculum with an alternative pathway focused on data science and statistics. "Research suggests that the content of such a pathway is much more engaging for broader groups of students," they say, "providing more-equitable participation in higher-level courses."

"Making Sense of a Data-Filled World" by Jo Boaler, Tanya LaMar, and Cathy Williams in *Mathematics Teacher: Learning & Teaching PK-12*, July 2021 (Vol. 114, #7, pp. 508-517); the authors can be reached at joboaler@stanford.edu, tlamar@stanford.edu, and cathyw11@stanford.edu.

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About the Marshall Memo

Mission and focus:

This weekly memo is designed to keep principals, teachers, superintendents, and other educators very well-informed on current research and effective practices in K-12 education. Kim Marshall, drawing on 50 years' experience as a teacher, principal, central office administrator, writer, and consultant lightens the load of busy educators by serving as their "designated reader."

To produce the Marshall Memo, Kim subscribes to 60 carefully-chosen publications (see list to the right), sifts through more than a hundred articles each week, and selects 5-10 that have the greatest potential to improve teaching, leadership, and learning. He then writes a brief summary of each article, pulls out several striking quotes, provides e-links to full articles when available, and e-mails the Memo to subscribers every Monday evening (with occasional breaks; there are 50 issues a year). Every week there's a podcast and HTML version as well.

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Core list of publications covered

Those read this week are underlined.

All Things PLC
American Educational Research Journal
American Educator
American Journal of Education
American School Board Journal
AMLE Magazine
ASCA School Counselor
Cult of Pedagogy
District Management Journal
Ed. Magazine
Education Digest
Education Gadfly
Education Next
Education Update
Education Week
Educational Evaluation and Policy Analysis
Educational Horizons
Educational Leadership
Educational Researcher
Edutopia
Elementary School Journal
English Journal
Exceptional Children
Harvard Business Review
Harvard Educational Review
Independent School
Journal of Adolescent and Adult Literacy
Journal of Education for Students Placed At Risk (JESPAR)
Kappa Delta Pi Record
Knowledge Quest
Language Arts
Literacy Today (formerly Reading Today)
Mathematics Teacher: Learning & Teaching PK-12
Middle School Journal
Peabody Journal of Education
Phi Delta Kappan
Principal
Principal Leadership
Psychology Today
Reading Research Quarterly
Rethinking Schools
Review of Educational Research
School Administrator
School Library Journal
Social Education
Social Studies and the Young Learner
Teachers College Record
Teaching Exceptional Children
Teaching Tolerance
The Atlantic
The Chronicle of Higher Education
The Journal of the Learning Sciences
The Language Educator
The Learning Professional (formerly Journal of Staff Development)
The New York Times
The New Yorker
The Reading Teacher
Theory Into Practice
Time
Urban Education