Marshall Memo 862

A Weekly Round-up of Important Ideas and Research in K-12 Education
November 16, 2020

In This Issue:

Quotes of the Week

"Surely there must be something more to intelligence and success in life than being born in the 'right place' at the 'right time' with the 'right parents.'"

Robert Sternberg (see item #1)

"We need to teach students to create a better world, and we can do so by changing the ways we test and the ways we teach to focus on real problems rather than artificial, contrived ones."

Robert Sternberg (*ibid*.)

"If there is a silver lining to the heavy emphasis on remote and hybrid instruction during the pandemic, it is this: students are getting more opportunities to work independently and at their own pace – and in the process, they are becoming better problem-solvers."

Madeline Will (see item #4)

"There are some students who really thrive working on their own, and some who struggle a bit more and lack the skillset."

Gavin Schiffres (quoted in item #4)

"Students who know they are safe and cared for by their community will be more comfortable having their cameras on."

Liz Byron Loya (see item #5)

"Students shouldn't have to wait for confirmation that they are struggling with a concept until they get a bad grade; they should get it as soon as we see evidence of it so that we can correct, support, and redirect students down the path of learning."

Joe Mullikin in "Focusing on Feedback in Distance Learning" in *Edutopia*, November 10, 2020

1. Robert Sternberg on the Kind of Intelligence That Really Matters

In this *Phi Delta Kappan* article, Robert Sternberg (Cornell University) says that according to conventional intelligence tests, our species deserves a big pat on the back: during the 20th century, homo sapiens' average IQ increased by about 30 points. (The goalpost of "average" has been continuously moved to keep it at 100.) But is the kind of intelligence measured by IQ tests meaningful? Imagine that sharp-eyed space aliens visited Earth and observed the planet's pollution, inexorable warming, poverty, inequality, racial tension, pandemics, weapons of mass destruction, terrorism, and warfare. Would they conclude that earthlings are intelligent?

The discrepancy between steadily improving IQ scores and the condition of our planet highlights some important shortcomings in IQ tests. "The items on them," says Sternberg, "are remote from real-world concerns; they show differences among racial and ethnic groups; they fail to take into account important skills for everyday life such as creative, commonsense, and wise thinking; and they favor those whose parents are in a position to provide their children with the resources that will enable them to thrive on the tests – such as living in neighborhoods with schools having strong academic programs and tutoring of various kinds to prepare their children for the tests. Surely there must be something more to intelligence and success in life than being born in the 'right place' at the 'right time' with the 'right parents.'"

A better way to define intelligence, Sternberg believes, is being proficient at using our brains in three *adaptive* ways:

- To change ourselves to fit better into a given environment;
- To shape the environment to better meet our own needs or desires and those of others;
- To find a new environment that is a better match than the one in which we live.

Adaptive intelligence is not measured by grades in school, going to the "right" college, or accumulating wealth, says Sternberg, but rather on "what one has done in one's life, individually or collectively, to make the world a better place to live."

The problems that one is able to solve with good adaptive intelligence are quite different from those that someone with high IQ scores can solve. Conventional intelligence tests have right/wrong answers; have questions that are well-structured, decontextualized, and can be answered quickly; and have little to do with everyday life. Adaptive challenges, on the other hand, are critically important to everyday life, messy, with multiple paths to partial solutions, and require research to define and solve. What's more, a good answer to an adaptive intelligence test helps to promote the common good over the short and long term; balances

one's own interests with those of others and the common good; and does so through the infusion of positive ethical values.

These two types of intelligence are so different that it's clear being good at one doesn't mean one is good at the other. Nor does IQ-test intelligence transfer to adaptive situations; a person can be IQ-smart and unintelligent with adaptive, ethical challenges.

IQ tests measure "general intelligence," which is not without importance. But Sternberg believes the way IQ tests are used pushes instruction in the wrong direction. We tend to prepare students for a world in which problems and solutions are simple and clear-cut – in other words, a world that doesn't exist.

How would we go about measuring students' ability to use adaptive intelligence? Sternberg suggests two assessment scenarios:

• *Elementary grades* – Several fifth-grade boys decide to litter their schoolyard, trying to outdo each other on how much lunch debris and other trash they can scatter. Tommy is uncomfortable with this but is afraid to speak up for fear of being ridiculed and rejected by his buddies. What should he do – and why?

An answer that takes into account the common good, balances the interests of multiple parties, and observes ethical principles might include these elements:

- Littering is bad for the environment; if everyone did it, the world would be unlivable.
- It's unfair for adults and other students to have to live with these boys' litter.
- In addition, the boys risk being caught and punished.
- Most important, it's just wrong.
- Tommy needs to do what he knows is right, not just for him, but for everyone else.
- He should suggest that his friends think of another way to have fun.
- The other boys may make fun of him and exclude him from the group.
- If they do, they're not friends worth having and Tommy should seek out better friends.

• *Secondary grades* – A scientist has developed a nutritional supplement that offers great promise for weight loss. As an over-the-counter supplement, it doesn't require FDA approval. The scientist tests it on 200 people, half of whom get a placebo. After three months, the treatment group loses an average of 21 pounds, the control group only one pound. A venture capital firm is deciding whether to invest $5.5 million in producing and marketing the product. What questions and suggestions are in order? Some possible answers:

- Was three months long enough to assess effectiveness and long-term impact?
- Is the product safe for children? Older people? Those with compromised immune systems? People who are very overweight? Slightly overweight?
- Have possible side effects been adequately studied?
- Might the product be physically or psychologically addictive?
- Might there be adverse interactions with other medications?
- Can the product be used by those with weight-related conditions like anorexia?

Sternberg suggests integrating dilemmas like these into the curriculum, especially in middle and high schools, so students are better prepared to address the kinds of complicated challenges they're likely to encounter as adults. "We need to teach students to create a better

world," he concludes, "and we can do so by changing the ways we test and the ways we teach to focus on real problems rather than artificial, contrived ones… By moving beyond decontextualized test and textbook problems, we will help to create students who will enter the world prepared not just to solve problems we have created but to forestall new problems before they even start."

"Rethinking What We Mean by Intelligence" by Robert Sternberg in *Phi Delta Kappan*, November 2020 (Vol. 102, #3, pp. 36-41); Sternberg is at robert.sternberg@cornell.edu. (For other articles by Sternberg on intelligence and testing, see Memos 669, 633, 286, 276, and 214.)

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2. Where the Rubber Meets the Road: Classroom Tasks

In this article in *Educational Researcher*, Miray Tekkumru-Kisa (Florida State University/Tallahassee), Mary Kay Stein (University of Pittsburgh), and Walter Doyle (University of Arizona/Tucson) say a key element in schools is the *tasks* students are assigned by teachers – worksheets, writing prompts, lab experiments, note-taking, group work. Focusing on mathematics and science in an era of ambitious national standards (e.g., Common Core, Next Generation Science), the authors follow the sequence from standards to student learning:

- Curriculum documents define the aspirational levels and types of student learning.
- Teacher-selected assignments frame the intellectual work students will be asked to do.
- Students do the tasks they are assigned in class.
- Students are assessed on the intended knowledge, applications, and sense-making.

One potential problem, say Tekkumru-Kisa, Stein, and Doyle, is significant slippage in the level and kind of thinking from the tasks as designed and presented in curriculum materials to how they are launched and carried out in the classroom by the teacher and students.

Who is crafting those tasks? According to one study, teacher-created lessons formed the basis of instruction in 75 percent of secondary-level science classrooms (the same level of teacher discretion probably exists in other subjects and grades). Teachers pick and choose material from textbooks, programs, and other sources and often write their own material. There are four potential problems:

The first is a well-documented tendency to shy away from high-level tasks because they are often messy and difficult to manage, don't have clear answers, and feel risky and stressful.

Second, say Tekkumru-Kisa, Stein, and Doyle, too many teacher-selected tasks are low-level, involving memorization, walking through a procedural script, routinely applying an algorithm, or answering a multiple-choice question.

Third, teachers' idea of rigor often doesn't align with that of standards-makers. The tasks teachers believe are cognitively demanding are often quite low-level, and even when teachers assign intellectually rich activities, they may be "proceduralized" in routine steps in classrooms.

Finally, tasks involving hands-on science experiments and math manipulatives are not always connected in students' minds to the underlying logic and ideas. Such tasks, say

Tekkumru-Kisa, Stein, and Doyle, "provide students opportunities to learn 'school math' or 'school science,' not the processes of mathematical or scientific thinking. Moreover, the goal – at least in terms of students' perspectives – is to complete the worksheets as quickly as possible. In short, many of today's tasks do not provide students with the kinds of opportunities to learn demanded by the new generation of standards."

What is to be done? The authors have two suggestions. Schools need to orchestrate effective professional learning experiences that get teacher teams collaborating on lesson plans, viewing videos of each other's lessons, and analyzing their students' work. One especially effective program is *Teaching Science with Cognitive Demand*.

And there's a need for a clear definition of cognitively demanding classroom tasks. Some possible criteria:

- The task focuses students' attention on using procedures to develop deeper levels of understanding of concepts and ideas.
- It suggests pathways that have close connections to underlying conceptual ideas.
- It is usually represented in multiple ways – visual diagrams, manipulatives, symbols, problem situations.
- It requires cognitive effort, with students engaging with conceptual ideas that underlie the procedures.
- It requires complex and nonalgorithmic thinking.
- It requires students to explore and understand the nature of concepts, processes, or relationships.
- It demands self-monitoring or self-regulation of students' cognitive processes.
- It requires students to access relevant knowledge and experiences and make appropriate use of them in working through the task.
- It requires students to analyze the task and actively examine constraints that may limit possible strategies and solutions.
- It requires considerable cognitive effort and may involve some level of anxiety for students because of the unpredictable nature of the solution process.

"Theory and Research on Tasks Revisited: Task as a Context for Students' Thinking in the Era of Ambitious Reforms in Mathematics and Science" by Miray Tekkumru-Kisa, Mary Kay Stein, and Walter Doyle in *Educational Researcher*, November 2020 (Vol. 49, #8, pp. 606-617); the authors can be reached at mtekkumrukisa@fsu.edu, mkstein@pitt.edu and wdoyle@arizona.edu. (See Doug Lemov's related article on the "stack audit" in Marshall Memo 636.)

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3. Math Coaching in Elementary Schools – What Works

In this *Phi Delta Kappan* article, Kristin Harbour (University of South Carolina/ Columbia) and Evthokia Stephanie Saclarides (University of Cincinnati) report on their study of mathematics instructional coaches and student achievement. Using NAEP data, the

researchers looked at the impact of math coaches and specialists in elementary schools across the U.S. Their conclusions:

- Elementary schools that had full-time math coaches showed significant improvement in fourth-grade math achievement; the improvement happened in all areas of the math curriculum.
- Schools with part-time math coaches did not show significant improvement.
- Improvement in student achievement was linked to math coaches working directly with teachers: one-on-one activities like modeling, co-teaching, and engaging in a coaching cycle (goal-setting, instruction, reflection); working with teacher teams analyzing classroom videos and student work and studying disciplinary content; and conducting PD for groups of teachers on content and pedagogy.
- The researchers found negative achievement results in schools where math coach-specialists worked directly with students.

"Math Coaches, Specialists, and Student Achievement: Learning from the Data" by Kristin Harbour and Evthokia Stephanie Saclarides in *Phi Delta Kappan*, November 2020 (Vol. 102, #3, pp. 42-45); the authors are at kharbour@mailbox.sc.edu and saclares@ucmail.uc.edu.

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4. Personalizing Learning During Covid-Time

"If there is a silver lining to the heavy emphasis on remote and hybrid instruction during the pandemic, it is this," says Madeline Will in *Education Week*: "students are getting more opportunities to work independently and at their own pace – and in the process, they are becoming better problem-solvers." This is especially true in schools that focused on personalized instruction before Covid-19. From her conversations with a number of these K-12 educators, Will lists these takeaways:

• *A premium on flexibility* – Many teachers are learning to nimbly adapt to students' varied situations at home, provide choice in the ways students demonstrate learning, and be prepared to shift from in-person to hybrid to remote instruction and back.

• *Flipped learning* – There are clear advantages to making short instructional videos that students can view on their own time, sometimes more than once. Flipped instruction makes kids less dependent on teacher support.

• *Targeted help* – At the same time, teachers zero in on students who need extra support with specific skills and content, providing small-group instruction, supervised work time, and virtual lunch groups.

• *Coaching on time management and completing assignments* – One school whose teachers, pre-Covid, acted as executive function coaches, now assigns those staff members to check in with their ten students every day – for example, "Let's set some goals. Do you know how to log in?" Coaching also includes channeling students' interests into academic projects.

• *Project-based learning* – Some hands-on projects aren't possible in remote mode, but schools have adapted, taking advantage of community resources that weren't tapped before. In

some schools, parent volunteers deliver project supplies to students – markers, paint, poster boards, popsicle sticks.

• *Opportunities to converse and collaborate* – Even when students are physically back in classrooms, there are safety constraints on group work, even on a quick turn-and-talk. Older students can get into virtual breakout rooms; at the primary level, some students are bringing in their favorite stuffed animal and making it a study buddy.

• *Fostering independence* – "There are some students who really thrive working on their own, and some who struggle a bit more and lack the skillset," said Gavin Schiffres of the Kairos Schools. Pandemic instruction has pushed all students to get better at self-directed learning.

"6 Lessons Learned About Better Teaching During the Pandemic" by Madeline Will in *Education Week*, November 13, 2020

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5. Persuading Reluctant Students to Turn on Their Cameras

In this *Edutopia* article, Boston teacher Liz Byron Loya says we can't force students to turn on their cameras during synchronous remote classes. The option to have the camera off should always be there, she says, giving students a sense of control and autonomy. But there are ways to persuade more students to show their faces. Words matter, says Loya, and "communication with our students needs to be rooted in *community, not compliance*." Her suggestions:

• *Build trusting relationships*. This applies teacher-to-student and student-to-student. "Students who know they are safe and cared for by their community will be more comfortable having their cameras on," she says.

• *Survey students*. Give them the opportunity, one-on-one or in a Google form, to say what's inhibiting them from being on camera during classes – and what would make them more comfortable.

• *Use icebreakers*. For example, what's the biggest yellow thing in your house that you can safely bring to the camera? Loya also suggests the YouTube videos *Within Reach* and *Pass the Pen* (see links below).

• *Play games*. One that works well in a remote setting is Rock-Paper-Scissors; so do Pictionary and Charades. See the link below to *25 Games to Play on Zoom*.

• *Use visual votes*. Check for understanding of a concept or topic with a thumbs up or down or Fist of Five.

• *Encourage popular students to be on camera*. Those with a high level of social capital may encourage others. You can identify those students by polling the class on which three classmates they'd most like to be in a breakout room with, or join in a group project.

• *Show empathy*. Share times when you, the teacher, haven't wanted to use your camera, and talk about how you prepare yourself for synchronous classes, even when you're not in the mood. "If you're self-conscious about looking prepared or about multitasking while on camera," says Loya, "talk about it. Sharing will bring out your humanness."

• *Greet students*. It's a good idea to arrive at classes five minutes early and greet students individually as you admit them, perhaps checking in about camera use.

• *Use the "Ask to Start Video" option*. As the host, teachers can click on a student's black screen, then click the horizontal "…" and select "Ask to Start Video." You can also send a private message via Chat encouraging students to turn their cameras on.

• *Encourage virtual backgrounds*. This is important for students who are self-conscious about what's in the background in their homes.

• *Provide no-face camera options*. Some students are very self-conscious showing their faces, and might be given the option of showing something else to "dip their toe" into using their camera.

• *Use activities where being visible is a criterion*. Perhaps a relevant element in a rubric involves being seen, and if it's known up front, students might be comfortable turning on their camera. "To avoid forced compliance," Loya suggests, "consider providing options for students to create their own rubric based on the objective."

• *Provide a video alternative*. The option of submitting a pre-recorded video demonstrating mastery of a skill or concept gives students more control over how they are seen, and can be kept private to the teacher. Students might also use TikTok, Vimeo, a private YouTube channel, or Instagram.

"Strategies to Encourage Students to Turn Their Cameras On" by Liz Byron Loya in *Edutopia*, November 9, 2020

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6. Quick Meetings Between Classroom and Special-Education Teachers

In this article in *Teaching Exceptional Children*, Kristine Black (Northern Illinois University/DeKalb) and Pamela Hill (Grande Reserve Elementary School, Yorkville, IL) list the desiderata for collaboration between a general education teacher and a special education colleague in inclusive classrooms:

- Parity between the two teachers;
- Shared responsibility for key decisions;
- Shared accountability for outcomes;
- Shared resources;
- Trust, respect, and a sense of community.

"At times there is misunderstanding between special and general education teachers as they each know their own craft but need to learn the other's terminology," say Black and Hill. "Teachers must make time to clearly communicate what each believes as decisions are being made."

The challenge, of course, is finding time to meet. Black and Hill have a suggestion: frequent, informal, short (10-15-minute) meetings focused on a specific question or concern, then using the information shared to fine-tune instruction for students with special needs and monitor results. Short meetings are more likely to be squeezed in during teachers' busy days. Possible areas of focus:

- Agreement on goals for students with IEPs;
- Curriculum modifications for specific students;
- Classroom management and social skills strategies;
- Instructional strategies – what's working and what isn't.

After each meeting, one of the teachers sends electronic documentation to keep track of what was decided, who is responsible, and appropriate follow-up.

"The Quick Collaborative Meeting" by Kristine Black and Pamela Hill in *Teaching Exceptional Children*, November-December 2020 (Vol. 53, #2, pp. 114-120); Black can be reached at black.kristine@gmail.com.

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7. Novels that Go with Popular Movies and Television Shows

In this *School Library Journal* feature, Abby Johnson suggests novels that students can read along with popular movies:

• *Upside-Down Magic* (Disney)
- *Bayou Magic* by Jewell Parker Rhodes (Little, Brown, 2015), grade 3-6
- *The Magic Misfits* by Neil Patrick Harris (Little, Brown, 2017), grade 3-5
- *Castle Hangnail* by Ursula Vernon (Dial, 2015), grade 4-6
- *Flunked* by Jen Calonita (Sourcebooks, 2015), grade 4-7

• *The Witches* (HBO Max)
- *The Witches: The Graphic Novel* by Roald Dahl and Pénélope Bagieu (Scholastic/Graphix, 2020), grade 3-6
- *The Bad Beginning* by Lemony Snicket (HarperCollins, 1999), grade 3-6
- *The Jumbles* by Tracey Baptiste (Algonquin, 2015), grade 4-7
- *A Tale Dark and Grimm* by Adam Gidwitz (Dutton, 2010), grade 4-8

• *Enola Holmes* (Netflix)
- *Shirley & Jamila Save Their Summer* by Gillian Goerz (Dial, 2020), grade 3-6
- *Murder Is Bad Manners* by Robin Stevens (S&S, 2015), grade 4-7
- *Unstoppable Octobia May* by Sharon Flake (Scholastic, 2014) grade 4-7
- *The Ruby in the Smoke* by Philip Pullman (Knopf, 1985), grade 7 and up

• *Black Beauty* (Disney)
- *Misty of Chincoteague* by Marguerite Henry (Aladdin, 1947), grade 4-8
- *Paint the Wind* by Pam Munoz Ryan (Scholastic, 2007), grade 4-8
- *War Horse* by Michael Morpurgo (Scholastic, 2007), grade 4-6
- *The Whole Sky* by Heather Henson (Atheneum, 2017), grade 4-8

• *The Prom* (Netflix)
- *Hold Me Closer: The Tiny Cooper Story* by David Leviathan (Dutton, 2015), grade 8-12
- *It's Our Prom (So Deal with It)* by Julie Anne Peters (Little, Brown, 2020), grade 8-12
- *The Prom* by Saundra Mitchell with Bob Martin, Chad Beguelin, and Matthew Sklar (Viking, 2019), grade 8-12

- *You Should See Me in a Crown* by Leah Johnson (Scholastic, 2020), grade 8-12

"Have a Book with that Show" by Abby Johnson in *School Library Journal*, November 2020 (Vol. 66, #11, pp. 34-37)

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If you have feedback or suggestions,
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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
District Management Journal
Ed. Magazine
Education Digest
Education Next
Education Update
Education Week
Educational Evaluation and Policy Analysis
Educational Horizons
Educational Leadership
Educational Researcher
Edutopia
Elementary School Journal
English Journal
Essential Teacher
Exceptional Children
Go Teach
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
Reading Research Quarterly
Responsive Classroom Newsletter
Rethinking Schools
Review of Educational Research
School Administrator
School Library Journal
Social Education
Social Studies and the Young Learner
Teachers College Record
Teaching Children Mathematics
Teaching Exceptional Children
The Atlantic
The Chronicle of Higher Education
The Education Gadfly
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 Magazine