Marshall Memo 919

A Weekly Round-up of Important Ideas and Research in K-12 Education
January 17, 2022

In This Issue:

Quotes of the Week

"Of all teachers' responsibilities, perhaps none is more consequential, with more implications, than assigning grades."

Joe Feldman (see item #1)

"What confidence or uncertainty do you have that two teachers in your school who teach the same course would assign the same grade to a student?"

Joe Feldman (*ibid*.)

"Fear of failure is inversely proportional to curiosity and joy in learning."

Beth Cooper Benjamin (see item #2)

"Like the experimental method in science and the revision process in writing, every discipline leverages flaws to produce higher-quality and more creative and innovative work. If we want students to be successful in their schoolwork and tackle thorny real-world problems, then tolerating and learning from imperfection is a muscle we must help them build."

Beth Cooper Benjamin (*ibid*.)

"By failing to correctly identify *how* and *why* something didn't succeed and address it with relevant feedback, it is nearly impossible for an individual or team to improve in future iterations."

DeShanna Reed (see item #3)

"A confluence of circumstances in U.S. public life, including the proliferation of digital media outlets, the diminished role of information gatekeepers, and entrenched ideological polarization, have made one of the core competencies of political engagement – staying informed about current events – an increasingly fraught endeavor."

Nicole Mirra, Lauren Leigh Kelly, and Antero Garcia in "Beyond Fake News: Culturally Relevant Media Literacies for a Fractured Landscape" in *Theory Into Practice*, Fall 2021 (Vol. 60, #4, pp. 340-349)

1. The Equity Dimension with Traditional Grading Practices

"Of all teachers' responsibilities," says veteran educator Joe Feldman in this article in *Independent School*, "perhaps none is more consequential, with more implications, than assigning grades." Here's why:

- A student's grades affect course placement, athletic eligibility, college admission, scholarships, and job opportunities.
- Grades affect what students think they're good at, their level of stress, and whether school seems like a place where they can excel.
- Grades affect how parents evaluate their children's schools.
- Grades give educators important data on students' errors and misconceptions, what worked and didn't work instructionally, PD and staffing needs, and achievement gaps.

The shocking thing, says Feldman, is that in many schools, grading practices are inaccurate and widen economic and racial opportunity gaps. In all too many schools, "teachers choose their own individual way to grade, guided by their best sense but uninformed by either research or best practices," and administrators hesitate to encroach on teachers' "professional autonomy."

Feldman lists six grading beliefs and practices that have a negative effect on teaching and learning – most acutely on fairness and equity:

- The belief that students are primarily motivated by extrinsic rewards like grades and points; research shows that learning and creativity are undermined by extrinsic rewards;
- Counting errors in homework and classwork against students' grades; these two areas work best when they are low-stakes opportunities to practice and learn from mistakes;
- Averaging grades across a semester, which penalizes students who steadily improve from a low baseline and reach mastery after weeks of effective effort and feedback;
- Using a 0-to-100 percentage scale where a zero can have a devastating effect on a student's summative grade; using a 0-to-4 scale, a poor grade has a proportionate impact;
- Including effort, participation, homework completion, and behavior in academic grades, which can be highly subjective and tends to work against disadvantaged students; keeping these areas separate from academic achievement levels the playing field;
- A pressure-cooker environment in which everything is graded "sows distrust, shame, and deceit," says Feldman; studies have shown that a less-pressured classroom fosters

psychological safety, relationships, and trust and encourages participation, risk-taking, and hard work.

On top of these is the unfairness and inequity that result when teachers are free to decide their grading practices. "What confidence or uncertainty do you have," asks Feldman, "that two teachers in your school who teach the same course would assign the same grade to a student?"

Over the last six years, Feldman has worked with a number of schools on improving grading policies. In one independent school in Washington, D.C., the principal saw the need for change but knew that top-down reforms would spark resentment and resistance. She shared a few articles with the faculty and issued an open invitation to dig deeper into the instructional and equity dimensions of grading. To her surprise, almost half of the faculty expressed interest, and she and Feldman led a series of workshops exploring the impact of different grading practices. Feldman suggested three criteria:

- Accuracy – grades are a valid reflection of a student's academic performance;
- Bias-resistance – the design reduces subjectivity and implicit bias;
- Motivation – grades encourage students to strive for academic success, accept struggles and setbacks, persevere (including retaking tests), and gain critical life skills.

Members of the committee tried out new practices for a year and were so impressed by the results that they insisted on implementing them for the whole school.

In the schools he's worked in, Feldman has found that improved grading policies have seven positive effects:

- Students are less stressed, student-teacher relationships are stronger, and classrooms are more relaxed and productive.
- Grade inflation decreases because teachers aren't padding grades with homework completion, behavior, and students "doing school."
- Grades provide teachers, students, and families with more-accurate data on actual learning.
- The percent of students receiving As goes down, most dramatically among economically advantaged students.
- The percent of students getting Ds and Fs decreases, most dramatically among students of color and those from low-income families.
- There's a stronger correlation between teachers' grades and their students' standardized test scores, especially among less-advantaged students.
- Finally, says Feldman, "Teachers find that learning and implementing these grading practices improves their work as educators and has led to improved student learning."

"Letter Perfect?" by Joe Feldman in *Independent School*, Winter 2022 (Vol. 81, #2, pp. 72-77)

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2. Helping Adolescents Deal with a Toxic "Achievement Culture"

In this article in *Independent School*, consultant Beth Cooper Benjamin lists the factors that created a perfect storm of stress for many teens, even before the pandemic reared its ugly

head: academic demands, homework, grades, extracurricular activities, pressure from parents, insufficient sleep, complex social lives, social media, peer comparison and competition, political polarization, racial issues, and financial obligations. All these are heightened in schools that have a high-pressure "achievement culture" and an unspoken belief that the effort required to live up to a cultural ideal should be kept hidden (development expert Rachel Simmons believes a "cult of effortless perfectionism" is especially common among girls).

The higher the pressure, says Benjamin, the greater the danger of anxiety, mental distress, depression, rule-breaking, and substance abuse. She describes the steps some schools are taking to dial back on "impossible expectations of success" and foster a saner and more-supportive school culture:

• *Reframing rigor* – "Moving away from centering *difficulty* toward an emphasis on *challenge*," says Benjamin, "enables schools to push back against the idea that rigor necessarily requires suffering."

• *Nurturing growth mindset* – "Fear of failure is inversely proportional to curiosity and joy in learning," says Benjamin. The antidote is "normalizing mistakes as both inherently human and necessary for learning and excellence. Like the experimental method in science and the revision process in writing, every discipline leverages flaws to produce higher-quality and more creative and innovative work. If we want students to be successful in their schoolwork and tackle thorny real-world problems, then tolerating and learning from imperfection is a muscle we must help them build."

• *Rethinking entry time and scheduling* – Later start times allow adolescents to get much-needed sleep, and longer, less-frequent blocks of instructional time can improve pedagogy and decrease the total amount of homework.

• *Building metacognitive awareness* – "Achievement pressure and perfectionism are the water students are swimming in," says Benjamin. "It's so normative that it can be difficult to recognize." When educators name and describe the problem and the solutions being implemented, "it helps students recognize it, destigmatize it, and build capacity for critical analysis of the social world."

• *Building students' resilience* – Teachers and counselors can bolster teens' capacity to understand and push back against achievement pressures and experience fewer negative effects.

• *Addressing root causes* – School leaders need to see where unhealthy pressures are coming from, says Benjamin, and build a school culture in which "students experience real joy in learning and where they know that their human value is evident and appreciated, not determined by their grades or team stats or where they will be admitted to college."

"The Perfect Problem" by Beth Cooper Benjamin in *Independent School*, Winter 2022 (Vol. 81, #2, pp. 43-46)

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3. Using the U.S. Army's After-Action Reviews in Schools

(Originally titled "How a Military Feedback Model Could Foster Instructional Change")

In this *ASCD Online* article, teacher/writer DeShanna Reed says educators have three challenges when they believe there's a performance problem:

- When to give feedback;
- How to give it;
- What the recipient does with it.

A common mistake, says Reed, is *solutionitis* – jumping quickly to a solution before fully understanding the issue. "By failing to correctly identify *how* and *why* something didn't succeed and address it with relevant feedback," she says, "it is nearly impossible for an individual or team to improve in future iterations."

Noticing solutionitis in her schools, Reed decided to try a technique she learned serving in the U.S. Army: the after-action review. Soldiers huddle after an operation and ask:

- What was supposed to happen?
- What actually happened?
- Why did it happen?
- What are we going to do next time?

After-action reviews are designed to make learning routine and focus on group accountability.

Reed says she has successfully applied after-action reviews in K-12 coaching sessions, consultations, and one-on-one meetings. After a classroom observation, she suggests:

• *Remove the emotion*. Feedback should be about a person's performance, not who they are. The teacher has to feel safe, trusting that the feedback is not an attack on them.

• *Ask what was supposed to happen* – the lesson objective, materials, sequence, etc. Reed believes this is a much better question than *How do you think it went?*

• *Describe what actually happened*. The observer is "respectfully direct and specific" about what was observed, says Reed, avoiding statements like "I feel like…"

• *Ask how and why questions*. The observer elicits higher-order thinking about the teacher's role in how the lesson unfolded and whether those factors were within the teacher's control.

• *Identify what we are going to do differently next time*. "The use of the word *we* is intentional," says Reed. "We succeed and fail together."

An after-action review with a teacher, a PLC, or an entire faculty could take 15 minutes or considerably longer, says Reed. Army guidelines call for spending 25 percent of the time on the first two questions, 25 percent on the third, and 50 percent on the fourth. The key is shifting from individual blame to group accountability. "After all," Reed concludes, "teachers and school leaders are one unit with one mission: to equip students with the knowledge and skills they need to make positive changes in their lives and in the community at large."

"How a Military Feedback Model Could Foster Instructional Change" by DeShanna Reed in *ASCD Online*, January 7, 2022

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4. A New Hampshire Science Teacher Takes On Three Hot Topics

In this article in *American Educator*, veteran teacher Alyson Miller says that science educators like her "are tiptoeing through political and religious minefields as we teach climate change, evolution, and genetic engineering." How can teachers prevent students "from being susceptible to propaganda, pseudoscience, and misinformation?" she asks. How can teachers "feel confident enough in our content knowledge to stride boldly into those minefields?"

A starting point is building trusting relationships. Early each school year, Miller helps her New Hampshire high-school students think about their common humanity in the broadest possible way. "Every human on the planet has survived an obstacle-filled marathon of epic proportions," she says, asking students to think about the wars, poverty, or hardships their parents and grandparents may have experienced. "Then I have them think farther back to the last 200 years… world wars, genocides, pandemics, famines, and droughts. Their families suffered, yet in every generation someone had a child who survived long enough to have a child of their own and pass bits of the family DNA into the future. Again, no matter how bad things got, someone had a child and that child lived and had a child until the child of that child ended up in my classroom."

Miller traces the chain of life further back, "through ice ages, tectonic shifts, floods, and *five* mass extinction events," describing how "a little baton of DNA was passed from one generation to the next… like little candles of life, until they plopped into the too-small desk chairs in front of me… DNA is the most amazing molecule in the universe," she enthuses, "and it's in every cell in their bodies as a tiny reminder of the thousands of generations that kept going long enough to pass the torch to them. As educators, we gain patience, compassion, and respect when we cherish our students as fellow survivors in the struggle for existence."

After immersing students in this story, Miller has them create comic books, write short stories, and add panels to a hallway-long geological timeline, driving home the point that "life on Earth is very, very old, and that their roots run deep." She stresses the importance of genetic diversity as essential to enduring in changing environments, and how affiliative behavior is a key to human success. "Embracing our differences and recognizing each other as fellow shipmates on the journey into the future is not a tree-hugging political statement," she says; "it is a mandate for survival."

Several years ago, Miller stumbled on an easy, straightforward way to answer students who pushed back on science concepts with statements about "God's will" or intelligent design. "That may be true," she said, "but it assumes supernatural causation, and we can't test that. Alas, in science we are limited to studying the natural world." To her surprise, students quickly grasped the concept of the natural – what can be observed and proved – versus the supernatural – which may be compelling but isn't subject to verification. Students also understood that what is observable can extend beyond our five senses: the low-frequency calls that elephants use to communicate over long distances, detectable by scientific instruments; the patterns on butterfly wings and flower petals that are visible only under ultraviolet light; the way birds sense and navigate by the Earth's magnetic field; and the tectonic and chemical evidence of the Earth's

development over billions of years. “No hard feelings, no judgments,” she tells her students, “but science is limited to the natural – not the supernatural – world.”

Miller describes how she has successfully handled three challenging topics: climate change, evolutionary theory, and race.

• *Human-induced climate change* – There’s lots of information and emotion on this topic, says Miller, and students can be overwhelmed and either shut down, ignore it, or deny it’s true. “By offering a simple, testable story…” she says, “we educators can provide a starting point for discussions and for research projects on what we can do to help.” She believes students need to understand two things: the carbon cycle and the sequestering of carbon eons ago. Kids can create a diagram of the carbon cycle by observing the world around them: photosynthesis in plants, respiration in animals, the burning of fossil fuels in cars, weed whackers, and jet planes. Back in the classroom, they can learn about the combustion cycle: hydrocarbon + oxygen creates heat energy + carbon dioxide + water.

To learn about the hydrocarbons in fossil fuels, students need to time-travel back 300 million years to the Carboniferous Period: abundant plants in humid swamps, dying plants, their carbon trapped under water, lower levels of greenhouse gases in the atmosphere, cooler temperatures and less humidity, swamps drying up, mammals taking over, and then 300 years ago humans industrializing and beginning to extract the fossil fuels, increasing the amount of greenhouse gases in the atmosphere by 46 percent, trapping heat and warming the planet. Just the facts – and students get it.

• *Evolutionary theory* – Miller’s father was a fundamentalist preacher and the idea that humans were “descended from monkeys” gave her mother fits. “I vividly recall my own days as someone who did not ‘believe’ in evolution,” says Miller, “and how difficult it was for teachers and friends to chip away at the defensive wall I had built against it.” She understands how challenging it can be to teach this material, and yet, as a science teacher, she agrees with the adage that “nothing in biology makes sense except in light of evolution.” That’s why evolution is infused in every life science standard and curriculum unit.

Over the years, Miller has schooled herself on the evolution debate (she especially recommends the *Nova* documentary, *Judgment Day: Intelligent Design on Trial*) and has developed several strategies to avoid threatening students’ core beliefs. At the beginning of the school year, she conducts an anonymous survey that includes questions on evolution, and several students usually mention that it goes against their religious beliefs. Later in the year, Miller makes two offhanded but carefully planned comments:

- Many religions recognize that the human body evolved through natural processes; decades ago, Pope John Paul II said that “the theory of evolution is more than just a hypothesis.” But religious leaders assert that the human soul (a supernatural construct that is beyond scientific proof) did not evolve.
- Evolution does not explain how life began; it explains how organisms changed and diversified into millions of species over time, but has not solved the mystery of life.

"By conceding that we don't know how life began," says Miller, "educators give resistant students the chance to step back, take a breath, and feel as if they have permission to learn about common ancestry because their religious beliefs are not threatened."

Miller also uses the term evolution frequently when dealing with cells, genes, and how organisms interact with each other. Students get used to the concept in this realm and she gets no pushback.

"While some nonscientists are still arguing whether evolution is real," says Miller, "scientists are not." But our understanding of evolution has evolved since Darwin first proposed evolution through natural selection. Miller presents his theory as simply as possible: organisms reproduce, there's variation in their offspring, and some pass along their genes to the next generation more than others, often because of differences in environmental conditions. She shows how this works through fossil evidence, vestigial structures, and contemporary evidence (like the coronavirus).

The second phase of evolutionary theory (in the mid-1900s) was the merger of Darwin's work with that of Mendel (a contemporary of Darwin whose work he was not aware of). For a long time, scientists were at this phase, believing that the way genetic traits and mutations were passed to offspring explained evolution.

The third phase, which began about 15 years ago, is evolutionary developmental biology or Evo-Devo. This includes research on how what was previously thought to be "junk DNA" turns out to be the software for creating bodies from a single fertilized cell. "This is where the 'variation' part of evolution takes center stage," says Miller, "because the genes on this DNA *regulate* other genes, switching them on and off to guide where cells go in an embryo." Miller encourages her students to do research projects, and Evo-Devo is the most popular topic because kids are fascinated with the discoveries being made every year.

• *Race* – Miller says that "very few students are unmoved" when she presents them with Nina Jablonski's charts showing the direct correlation of human skin color and geography – darkest at the equator, progressively lighter further north and south. Students grasp how skin color evolved over thousands of years as humans migrated to different parts of the world with different intensities of sunlight: closer to the equator, humans with more melanin in their skin were able to block ultraviolet light, which reduced birth defects; further from the equator, humans with less melanin had the ability to absorb enough vitamin D to prevent rickets. The evolution of other physical traits – for example, a narrow nose to help warm incoming air in very cold climates, a wide nose to allow more air to be inhaled with less effort in hot climates – "showcase the astonishing fitness of our bodies to specific environments," says Miller.

"But, ahem, humans are global movers," she adds. "What happens when a body that is perfectly adapted to one environment moves to a different latitude?" Light-skinned people living close to the equator have figured out how to block sunlight and add folic acid to bread products, and dark-skinned people living closer to the poles supplement their vitamin D intake. Miller urges all her students in New Hampshire to monitor their vitamin D levels to make sure they're getting enough to stay healthy.

"Much like our class discussions of climate change and evolution," she concludes, "our scientific explorations of race are far less charged than such discussions tend to be when they focus on perceptions, cultures, or values. In the few years that I've taught skin color as a trait shaped by the environment, I've yet to have a student who already knew this information. When the conversation is focused on skin color as an adaptive trait, students learn something about themselves, their health risks, and their backgrounds that they didn't already know. Like understanding that their DNA has survived millions of years of catastrophes, learning why their bodies look the way they do makes science education deeply personal."

"Using Science Education Skills to Address Controversial Topics" by Alyson Miller in *American Educator*, Winter 2021-22 (Vol. 45, #4, pp. 4-11)

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5. Structuring Academic Talk in Primary Classrooms

In this *Edutopia* article, consultant Cheryl Abla says the more students talk about what they're learning, the better they will understand and the more they'll retain. The problem is that kids often talk about off-topic stuff, it's noisy and can feel out of control, and teachers worry about wasting time. Those are legitimate concerns, says Abla, but with the right structures and some practice, paired and small-group conversations can increase academic talk and boost learning. She suggests three strategies that have the added benefit of getting students out of their seats in a controlled fashion:

• *Red line, blue line* – Students stand up, form two parallel rows (red and blue), and pair up. The teacher poses a question on the content being studied – *What are the four stages of a butterfly's life?* or *What would happen to the larval stage of the butterfly if its habitat didn't receive the normal amount of rain that season?* – and students on the red side share their thinking with their blue partners. Then the blue side shifts one person to the right (the student on the end goes to the other end), and blue-side students share their thinking.

"The purpose is to have students, listen, talk, think, and possibly debate their thinking," says Abla. "After two or three conversations, they'll have a good understanding of the four stages of a butterfly, and, depending on the level of questions, they'll have moved to a higher level of thinking."

• *Numbered heads together* – Students form groups of four and each student gets a number 1-2-3-4 (if there's a group of three, #3 also answers for #4). Groups are asked a comprehension question or given a problem to solve, and students individually write down their answer and then discuss as a group. The teacher then calls out a number – two, for example – and that number student in each group gives the answer. This continues with other questions or problems. Competition can be introduced by awarding points for correct answers and extra points for especially thoughtful answers or solutions.

• *Dance-freeze-share* – Students stand up, the teacher poses a question, and starts music playing. Students mill around and when the music stops, they freeze and pair up with the person nearest them and share their answers. The music starts and stops two more times, with students pairing up and sharing with a different classmate each time.

"3 Ways to Guide Early Elementary Students to Talk About Their Learning" by Cheryl Abla in *Edutopia*, January 7, 2022

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6. Ideas for Indoor Recess in Elementary Schools

In this *Learners Edge* article, Marcee Harris suggests ten ways to engage students when the weather nixes outdoor recess:

• Finger knitting – Inexpensive yarn and their fingers are all students need to create a bracelet, scarf, or belt (see a YouTube video with directions at the link below).

• Directed drawing – The link below has an *Art for Kids Hub* video for drawing an ice cream tower.

• Virtual field trips – Students can visit a rain forest, the ocean floor, a museum in Paris, and more.

• A magic bin – Invite students to use odds-and-ends materials to create their own invention, inspired by the book, *Miss Makey and the Magic Bin*.

• Origami – See the link below for easy-to-follow directions for making a dragon and other origami projects.

• Code.org – This website introduces students to the basics of coding – creating poetry, an app, or a video game.

• GoNoodle – Release pent-up energy with dance-along, sing-along, workout music videos.

• Chopstick challenge – This team-building activity needs only chopsticks – see the video below.

• Human tic-tac-toe – Student teams race each other to make three in a row using their bodies or other classroom items.

• Several classic games, including *Heads Up 7 Up* and *Silent Ball*.

"Fresh Ideas for Indoor Recess" by Marcee Harris in *Learners Edge*, January 11, 2022

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7. Short Item:

a. Latest Media Bias Chart – Here's the updated Ad Fontes Media Bias Chart, displaying a plethora of print, web, and TV news sources ranked by news value and reliability (vertical axis) and left-right bias (horizontal axis).

"Media Bias Chart 9.0" by Vanessa Otero, *Ad Fontes Media*, January 2022

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If you have feedback or suggestions,
please e-mail kim.marshall48@gmail.com

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 52 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 150 articles each week, and selects 8-10 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
Learning for Justice (formerly Teaching Tolerance)
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
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