Effective teaching:
10 tips on what works and what doesn't

A new report from the Sutton Trust has reviewed the evidence around successful teaching practices. Here are the key points you need to know

From learning styles to managing behaviour, here are the key points to take away from the Sutton Trust's research on what makes a great teacher. Photograph: Alamy

Sarah Marsh

Friday 31 October 2014 06.53 EDT

The question of what makes a great teacher has been around for a long time. It's an enquiry that poses many problems because there's simply no set recipe for success, and different approaches work for different professionals and students.

The Sutton Trust has published a report that reviews the research into effective teaching, finding that popular practices, such as lavishing praise on students or allowing them to discover key things for themselves, actually have no grounding in research.

The author of the report, professor Robert Coe from Durham University, says this is a "starter kit" for thinking about what makes good teaching. So, what does the report recommend? Here are 10 salient points to take away:

1. Know your subject

The report, which looked at more than 200 pieces of research, found that there were six main elements to great teaching and one of the most important ones was subject knowledge. It may seem obvious, but the report found that the best teachers have a deep knowledge of their subject, and if that falls below a certain point it has a "significant

impact" on students' learning. Targeted help for teachers, giving them an understanding of particular areas where their knowledge is weak, could be effective.

2. Praise can do more harm than good

The wrong kind of praise can be harmful for students, the report found. A number of studies conducted by education experts, including Carol Dweck professor of psychology at Stanford University and Auckland University professors John Hattie and Helen Timperley, have observed this.

Deborah Stipek, the dean of the Stanford Graduate School of Education, said that praise is meant to be encouraging but it can actually "convey a teacher's low expectations". Stipek said that if a pupil's failure was met with sympathy rather than anger then they were more likely to think they had done badly due to a lack of ability.

The report adds the caveat that the findings are open to interpretation, however, as teachers can do things well or badly, and some methods are not appropriate in all circumstances.

3. Instruction matters

The quality of teaching has a big impact on the achievement of students' from poorer backgrounds, and effective questioning and assessment are at the heart of great teaching. This involves giving enough time for children to practise new skills and introducing learning progressively. Defining effective teaching isn't easy, the report conceded, but research always returns to the fact that student progress is the yardstick by which teacher quality should be assessed.

4. Teacher beliefs count

The reasons why teachers do certain things in the classroom and what they hope to achieve has an effect on student progress. Mike Askew, the author of Effective Teachers of Numeracy, found that beliefs about the nature of maths and what it means to understand it, along with teachers' ideas about how children learn and their role in that process, was an important factor in how effective they were.

Evidence to support this is not conclusive, however. A study by professor Steve Higgins of Durham University and the University of Newcastle upon Tyne's David Moseley about teacher beliefs in ICT did not find a convincing relationships between beliefs and pupil progress.

5. Think about teacher-student relationships

This may also seem obvious, but the interactions teachers have with students has a big impact on learning – as well as the "classroom climate". The report said that it was important to create a classroom environment that was

"constantly demanding more" while affirming students' self-worth. A student's success should be attributed to effort rather than ability.

6. Manage behaviour

Interestingly, this wasn't as significant as subject knowledge and classroom instruction as a factor contributing to teacher success. But classroom management – including how well a teacher makes use of lesson time, coordinates classroom resources and manages the behaviour of students – was noted as important.

7. There's no evidence that setting works

Putting students in groups depending on their ability makes little difference to their learning. Although setting can in theory let teachers work at a pace that suits all pupils and tailor content, it can also create an exaggerated sense of all pupils being alike in the teacher's mind. This can result in teachers not accommodating to the various different needs within one group and in some instances going too fast with high-ability groups and too slow with low ones.

8. Don't worry about learning styles

A survey showed that more than 90% of teachers think individuals learn better when they get information in their preferred learning style. But despite the popularity of this approach psychological evidence shows that there is no evidence this actually works. You can read more about the evidence on learning styles here.

9. Learning should be hard at first

One finding that may surprise you is that approaches that appear to make learning harder in the short term can actually lead to students retaining more information in the long term. Elizabeth Ligon Bjork, professor at the University of Michigan and Robert Bjork, professor at the University of California, said that varying the type of tasks you ask pupils to do improves retention even though it makes learning harder initially.

10. Build relationships with colleagues and parents

A teacher's professional behaviour, including supporting colleagues and talking with parents, also had a moderate impact on students' learning. The report said that there may not be a direct link with these practices and student achievement, but to capture a broad definition of good teaching they should be included.

Eight Things Skilled Teachers Think, Say, and Do

Larry Ferlazzo

Among the many challenges teachers face, often the most difficult is how to engage students who seem unreachable, who resist learning activities, or who disrupt them for others. This is also one of the challenges that skilled teachers have some control over. In my nine years of teaching high school, I've found that one of the best approaches to engaging challenging students is to develop their intrinsic motivation.

The root of intrinsic is the Latin *intrinsecus*, a combination of two words meaning *within* and *alongside*. It's likely that our students *are* intrinsically motivated—just motivated to follow their own interests, not to do what we want them to do. Teachers' challenge is to work alongside our students, to know their interests and goals, and to develop trusting relationships that help students connect their learning to their goals in a way that motivates from within.

How can teachers do this? It's helpful to consider this question in three parts: What skilled teachers think, what they say, and what they do.

What Skilled Teachers Can Think

What we think guides how we view the world, including how we view challenging students. Developing and maintaining three mind-sets will help teachers maintain their equilibrium in the face of behavior or resistance to learning from certain students that would ordinarily knock us off balance.

1. Remember that authoritative beats authoritarian.
Being authoritarian means wielding power unilaterally to control someone, demanding obedience without giving any explanation for why one's orders are important. Being authoritative, on the other hand, means demonstrating control, but doing so relationally through listening and explaining. Studies of effective parenting have found that children view parents who use an authoritative style as legitimate authority figures; such children are less likely to engage in

1

delinquent behavior. The opposite is true for children of authoritarian parents (University of New Hampshire, 2012).

It's not too much of a stretch to apply this finding to teachers and students. As you interact with students, frequently ask yourself which of these two styles you use. Do you want to always lead with your mouth—or with your ears? Bring this authoritative-authoritarian question to bear on your classroom practices. In terms of instruction, are you always the sage on stage? Do you have students periodically evaluate your class and you as a teacher—and seriously consider their feedback? Do you explain to students why you teach the way you do? When a student's behavior is causing a problem, do you control the behavior at any cost, or do you try to find out what's going on with that student? Opting for the authoritative style will make students more likely to respect your authority—and probably more eager to cooperate.

2. Believe that everyone can grow.

Many teachers are familiar with Carol Dweck's distinction between a "growth" mind-set and a "fixed" one. When we have a growth mind-set, we believe that everyone has the inner power to grow and change. We see mistakes as opportunities to learn. Holding a fixed mind-set leads us to believe that people's traits—such as intelligence—are immutable. A mistake on the part of someone we believe is unintelligent seems to validate that belief.

Which mind-set we hold makes a tremendous difference. In one study, a researcher measured teachers' mind-sets at the beginning of the year. In classes led by teachers who showed fixed mind-sets, few students with learning challenges advanced academically during the year. But in classes taught by those with growth mind-sets, many previously low-performing students made gains (Dweck, 2010). Teachers with a fixed mind-set tend to immediately and permanently place students into categories. They place the primary responsibility for overcoming learning challenges on the students. Those with a growth mind-set consider responding to a student's challenges to be the joint responsibility of the student and the educator.

Teachers aren't superhuman. There are some things we cannot accomplish. But we must ask ourselves whether we too readily write off students who try our patience as "incapable," or some similar adjective, without considering whether differentiating instruction for these students might spur change and growth.

One of my students had never written an essay in his school career. He was intent on maintaining that record during our unit on writing persuasive essays. Because I knew two of his passions

were football and video games, I told him that as long as he used the writing techniques we'd studied, he could write an essay on why his favorite football team was better than its rival or on why he particularly liked one video game. He ended up writing an essay on both topics.

3. Understand that power isn't a finite pie.

I was a community organizer for 19 years before I became a teacher. A key lesson I learned was that power isn't a finite pie. If I share the power I have, that doesn't mean I'll have less. In fact, the pie will get bigger as more possibilities are created for everyone.

Power struggles are at the root of much misbehavior. William Glasser (1988) believes that students have a basic need for power and that 95 percent of classroom management issues occur as a result of students trying to fulfill this need. Having more power actually helps students learn. Giving students choices—about their homework, assignments, how they're grouped, and so on—leads to higher levels of student engagement and achievement (Sparks, 2010). Remembering that power isn't finite helps us see that asking students for ideas on what might help them feel more engaged isn't a sign of weakness, but of strength. So is seeking advice from students' parents or from teachers in other classes in which challenged learners show more success. Over the years, I've gained great insight and become a more effective teacher by asking parents, "Tell me about a time in your child's life when he or she was learning a lot and working hard in school. What was his or her teacher doing then?"

What Skilled Teachers Can Say

4. Give positive messages.

Positive messages are essential to motivation. Subtle shifts in teacher language infuse positive messages throughout our interactions. Here are three practices I've found helpful.

Use positive framing. "Loss framed" messages (if you do this, then something bad will happen to you) don't have the persuasive advantage that they're often thought to have. "Positive framed messages" (if you do this, these good things will happen) are more effective (Dean, 2010). I've had more success talking with students about how changing their behavior will help them achieve their goals (such as graduating from high school or going to college) than I've had threatening them with negative consequences. Positive messages that connect students' current actions to broader student-identified hopes or goals are different from "if-then" statements focused on what teachers want students to do ("If you don't get out of your seat without permission, then you'll get

extra credit"). As Daniel Pink (2009) notes, such extrinsic manipulations don't develop students' higher-order thinking skills or long-term commitments to change.

Say "yes." Avoidant instruction is language that emphasizes what people should not do ("Don't walk on the grass." "Don't chew gum"). Some researchers (British Psychological Society, 2010) believe that a more effective way to get a desired behavior is to emphasize what you want people to do. For example, if a student asks to go the restroom, but the timing isn't right, rather than saying no, I try to say, "Yes, you can. I just need you to wait a few minutes." Or if a student is talking at an inappropriate time, instead of saying, "Don't talk!" I sometimes go over and tell that learner, "I see you have a lot of energy today. We'll be breaking into small groups later and you'll have plenty of time to talk then. I'd appreciate your listening now."

Say "please" and "thank you." People are more likely to comply with a task (and do so more quickly) if someone asks them instead of tells them (Yong, 2010). I've found that "Can you please sit down?" is more effective than "Sit down!" Saying thank you provides immediate positive reinforcement to students. Research (Sutton, 2010) shows that people who are thanked by authority figures are more likely to cooperate, feel valued, and exhibit self-confidence.

5. Apologize.
Teachers are human, and we make plenty of mistakes. There is no reason why we shouldn't apologize when we do.
But saying, "I'm sorry," may not be enough. I often use the "regret, reason, and remedy" formula recommended by Dorothy Armstrong (2009). For example, one afternoon my students Omar and Quang were paired up in my class but were sitting passively while everyone else focused on the task at hand. I said sharply, "Come on now, get working!" A few minutes later, I said simply to the two boys, "I'm sorry I barked at you earlier. I was frustrated that you weren't doing what I'd asked you to do. I'll try to show more patience in the future." They clearly focused more energy on their work after this apology.

What Skilled Teachers Can Do

6. Be flexible.
Being flexible might be the most important thing teachers can "do" to help students who challenge us—in fact all students—to get past whatever challenges of their own they confront. Three

practices help me differentiate instruction and classroom management in a way that helps everyone.

Help them get started. Psychologist Bluma Zeigarnik identified the Zeigarnik Effect: Once people start doing something, they tend to want to finish it (Dean, 2011). If we get a disengaged or anxious student started, that's half the battle. For a task that's likely to challenge some students, present a variety of ways to get started: a menu of questions, the option to create a visual representation of a concept, a chance to work with a partner. Encourage students to launch themselves by just answering the first question or the easiest one.

Help postpone tempting distractions. Making a conscious decision to postpone giving in to temptation can reduce a desire that's getting in the way of a goal (Society for Personality and Social Psychology, 2012). My student Mai was frequently using her cell phone to text message during class. I didn't want to take her phone away, so I made a deal with her—she could text in my classroom during two specific times: from the moment she entered the room until the bell rang and as soon as the lunch bell rang. Since we made that deal, Mai hardly ever uses her cell phone during class. Even more significant, she hardly ever uses it during our agreed-on times.

Acknowledge stress. As most of us know from experience, people tend to have less self-control when they're under stress (Szalavitz, 2012). When a student is demonstrating self-control issues in my class, I often learn through a conversation with him or her that this student is going through family disruptions or similar problems. Sometimes, just providing students an opportunity to vent worries can have a positive effect.

7. Set the right climate.

Pink (2009) and other researchers have found that extrinsic rewards work in the short term for mechanical tasks that don't require much higher-order thinking, but they don't produce true motivation for work that requires higher-order thinking and creativity. However, everyone needs "baseline rewards"—conditions that provide adequate compensation for one's presence and effort.

At school, baseline rewards might include fair grading, a caring teacher, engaging lessons, and a clean classroom. If such needs aren't met, Pink (2009) notes, the student will focus on "the unfairness of her situation and the anxiety of her circumstance. … You'll get neither the predictability of extrinsic motivation nor the weirdness of intrinsic motivation. You'll get very little motivation at all" (p. 35).

8. Teach life lessons.

My colleagues and I frontload our school year with what we call life-skills lessons.[1] These simple, engaging activities help students see how it's in their short-term and long-term interest to try their best.

For example, a lesson might highlight how the learning process physically alters the brain. This particular lesson encourages a growth mind-set. It was eye-opening to one of my students who had claimed, "We're all born smart or dumb and stay that way." In terms of keeping up kids' motivation, the times throughout the year when I refer back to these concepts and reflect on how they apply to learning struggles are as important as the initial lessons.

What We Can Always Do

Consistently implementing these practices is easier said than done—and is probably impossible unless you're Mother Teresa. But most teachers already do something that makes all these practices flow more naturally, and that we can do more intensely with conscious effort—we build relationships with students. Caring relationships with teachers helps students build resilience. By fostering these relationships, we learn about students' interests and goals, which are fuel for motivation.

On Fridays, my students write short reflections about the week. One Friday, I asked them to write about the most important thing they'd learned in class that week. One student wrote, "I didn't really learn anything important this week, but that's OK because Mr. Ferlazzo tried his best."

Although I wasn't that thrilled with the first part of his comment, there's an important message in the second half. Even if we can't always think, say, and do the ideal thing to strengthen struggling students' motivation, there's always something we can do to meet them halfway. We can try our best.

» View a PDF of this infographic
» Check out our archive of other ASCD infographics

8 Great Ways
Teachers Can Reach Students

Think
1. Authoritative beats authoritarian.
2. Every student can grow.
3. Power isn't a finite pie.

Say
4. Give positive messages.
5. Apologize.

Do
6. Be flexible.
7. Set the right climate.
8. Teach life lessons.

These tips are taken from Larry Ferlazzo's online article "Eight Things Skilled Teachers Think, Say, and Do" in the October 2012 *Educational Leadership.* Go to www.ascd.org/el1012ferlazzo to read the full article.

References

Armstrong, D. (2009). The power of apology: How saying sorry can leave both patients and nurses feeling better. *Nursing Times*, 105(44), 16–19.

British Psychological Society. (2010, October 13). Don't touch! On the mixed effects of avoidant instructions [blog post]. Retrieved from *Research Digest* at http://bps-research-digest.blogspot.com/2010/10/dont-touch-on-mixed-effects-of-avoidant.html

Dean, J. (2010, December 1). The influence of positive framing [blog post]. Retrieved from *Psyblog* at www.spring.org.uk/2010/12/the-influence-of-positive-framing.php

Dean, J. (2011, February 8) The Zeigarnik effect [blog post]. Retrieved from *PsyBlog* at www.spring.org.uk/2011/02/the-zeigarnik-effect.php.

Dweck, C. S. (2010, January). Mind-sets and equitable education. *Principal Leadership, 10*(5), 26–29. Retrieved from www.principals.org/Content.aspx?topic=61219

Glasser, W. (1988b). On students' needs and team learning: A conversation with William Glasser. *Educational Leadership, 45*(6), 38–45.

Pink, D. (2009). *Drive*. New York: Riverhead Books.

Society for Personality and Social Psychology. (2012, January 30). Willpower and desires: Turning up the volume on what you want most. *ScienceDaily*.

Sparks, S. D. (2010, December 21). Giving students a say may spur engagement and achievement [blog post]. Retrieved from *Education Week: Inside School Research* at http://blogs.edweek.org/edweek/inside-school-research/2010/12/class_choice_may_spur_student.html

Sutton, B. (2010, August 28). It isn't just a myth: A little thanks goes a long way [blog post]. Retrieved from *Work Matters* at http://bobsutton.typepad.com/my_weblog/2010/08/it-isnt-just-a-myth-a-little-thanks-goes-a-long-way.html

Szalavitz, M. (2012, March 5). Decision making under stress: The brain remembers rewards, forgets punishments. *Time*. Retrieved from http://healthland.time.com/2012/03/05/decision-making-under-stress-the-brain-remembers-rewards-forgets-punishments

University of New Hampshire (2012, February 10). Controlling parents more likely to have delinquent children. *ScienceDaily*.

Yong, E. (2010, March 19). Requests work better than orders, even when we're asking or ordering ourselves [blog post]. Retrieved from *Science Blogs: Not Exactly Rocket Science*.

Endnote

[1] Lesson plans are available free at my blog.

Larry Ferlazzo teaches English and social studies at Luther Burbank High School in Sacramento, California. He is coauthor, with Katie Hull Sypnieski, of *The ESL/ELL Teacher's Survival Guide* (Jossey-Bass, 2012)

EFFECT SIZES RELATED TO CLASSROOM MANAGEMENT AND TEACHER-STUDENT RELATIONSHIPS

(0.40 = 1 YEAR'S GROWTH FOR 1 YEAR OF INSTRUCTION)

0.52 - Well-managed classroom

0.53 – Classroom cohesion – Sense that all teachers and students are working towards positive learning gains

0.53 – Peer influences – friendship, reputation as a learner, helping, tutoring, giving feedback, rehearsal, & practice

0.57 – Interventions involving direct and concrete consequences for misbehavior

0.62 – Heightened engagement

0.71 – Retain an emotional objectivity

0.72 – Teacher-student relationships across nine variables associated "person-centered teachers" (non-directivity - 0.75, empathy - 0.68, warmth - 0.68, encouragement of higher-order thinking - 0.60, adapting to differences - 0.41, genuineness - 0.29, learner-centered beliefs – 0.10) (Cornelius-White)

0.76 – Stated expectations regarding behavior and well-articulated rules and procedures negotiated with students

0.87 – Teacher-student relationships as moderators of classroom management (clarity of purpose, strong guidance, concern for the needs and opinions of others, desire to function as a member of a team)

0.91 – Disciplinary interventions by teachers

0.98 - Tangible recognition by providing students some symbol or token indicating appropriate behavior

0.98 – Group contingency strategies requiring a certain group of students to achieve a certain level of behavior

1.00 - Verbal and physical behaviors indicating appropriate or inappropriate behavior

1.29 – Appropriate mental set by the teacher

1.42 – "With-it-ness" by the teacher ("identify and quickly act on potential behavioral problems")

Referring to a study by Russell Bishop (2003) on Maori students in mainstream classrooms in New Zealand …

"When students, parents, principals, and teachers were asked about what influences students' achievement, all but the teachers emphasized the relationships between teachers and the students. The teachers saw the major influence on achievement as a function of the child's attitudes and dispositions, their home, or the working conditions of the school – it is the students who are not learning who are somehow deficient. Building relations with students implies agency, efficacy, respect by the teacher for what the child brings to the class (from home, culture, peers), and allowing the experiences of the child to be recognized in the classroom. Further, developing relationships requires skill by the teacher – such as the skill of listening, empathy, caring, and having positive regard for others." – Hattie, *Visible Learning* (2009), p. 118

"Cornelius-White (2007) notes that most students who do not wish to come to school or who dislike school do so primarily because they dislike their teacher. His claim is that to 'improve teacher-student relationships and reap their benefits, teachers should learn to facilitate students' development' by demonstrating that they care for the learning of each student as a person (which sends a powerful message about purpose and priority), and empathizing with students – 'see their perspective, communicate it back to them so that they have valuable feedback to self-assess, feel safe, and learn to understand others and the content with the same interest and concern.' (p.23)" – Hattie, *Visible Learning* (2009), p. 119. (This study involved 355,325 students, 14,851 teachers, and 2,439 schools.)

Dennis Parker
(916) 240-0133
dp1018@pacbell.net

Withitness in the Classroom

Mc Graw Hill Professional

http://www.education.com/print/using-xray-vision-substitute-teacher/

Author: Barbara Pressman
Source: McGraw-Hill Professional

What is Withitness?

A good teacher is usually great at multitasking. Their mind is able to process multiple sensory inputs at once—the random sounds in the classroom, the voices of her students, people walking by her classroom door—all while conducting a lesson and focusing on the educational content that needs to be presented. This is a characteristic that educators refer to as withitness.

When a teacher has withitness, she seems to have x-ray vision. It's almost as if the teacher knows what's going to happen before it actually does. Withitness encompasses multitasking, classroom awareness, alertness, intuition, and confidence—all in a way that projects a powerful image to every student in the classroom. The teacher is in control. She knows, and because she knows, the students know that there is no need to act out. Because she knows, she can stop misconduct with a look. Her body language and proximity enable her to maintain control effortlessly.

In an article entitled "Are You with It?," Deb Wuest presents an excellent summary of withitness and related characteristics that all lead to effective classroom management.

> Do your students think you have "eyes behind your head"? Can you deal effectively with the demands of several students at the same time? Are you effective at maintaining lesson momentum, changing activities when interest is waning or modifying activities to keep students busy? If so, you are using many of the techniques incorporated by Kounin into his discipline model.
>
> Kounin's model focuses on preventive discipline— techniques and strategies designed to prevent the occurrence of discipline problems in the first place. According to Kounin, good classroom management depends on effective lesson management. Kounin's key ideas include the "ripple effect," "withitness," "overlapping," effective transitions, class management, and satiation.

Wuest proceeds to describe two of Jacob Kounin's (Kounin, J. S. Discipline and Group Management in Classrooms. Holt, Reinhardt and Winston, 1970. WikiEd suggests an updated treatment by Charles Wolfgang. *Solving Discipline and Classroom Management Problems: Methods and Models for Today's Teachers.* John Wiley and Sons, 2001). key ideas:

Ripple Effect. The "ripple effect" occurs when the teacher corrects a misbehavior in one student, and this positively influences the behavior of other nearby students. The ripple effect is influenced by the clarity and firmness of the correction. The effect is greater when the teacher clearly names the unacceptable behavior and gives the reasons for the desist. Firmness, that is, conveying an "I mean it" attitude, enhances the ripple effect. The ripple effect is greatest at the beginning of the year and diminishes as the year progresses. At the high school level, Kounin found that respect for the teacher along with high motivation to learn lead to the greatest student involvement and minimum misbehavior by students.

Withitness. "Withitness" is a term created by Kounin to describe the teacher's awareness of what is going on in all parts of the classroom at all times. We commonly refer to this as "having eyes in the back of the head." To be effective, the students must perceive that the teacher really knows what is going on in the gymnasium. If students are off task and fooling around, the teacher needs to send a clear message that communicates to the students that the teacher sees that they are not working and they need to get started. Withitness can be improved with practice, such as learning how to effectively use systematic techniques to scan the class. Keeping your "back to the wall" as you move throughout the class helps you see the broader picture and be more aware of what is going on.

The effectiveness of withitness is increased when the teacher can correctly identify the student who is the instigator of the incident. Teachers who target the wrong student for a desist or a reprimand are perceived by the students as not knowing what is really going on (i.e., not "witit"). When several incidences of misbehavior occur at the same time, it is important that teachers deal with the most serious incidence first. Timing is another aspect of withitness. Teachers should intervene early and quickly in dealing with misbehavior. Failure to do so allows the misbehavior to spread.

Both the ripple effect and withitness are important ideas. When taken together, they can help you to project an aura that leads students to believe you have x-ray vision.

How Do I Develop X-Ray Vision?

X-ray vision is, of course, just an illusion. But you can use a few simple tricks to make this illusion real for your students. For example, you notice that a student has just started some action that will lead to misbehavior (e.g., a student takes a cell phone out of her desk). Turn your back for a moment and write something on the board or adjust papers on your desk. Then, without saying a word, quietly walk over to the child. In a soft but commanding voice say, "I'd like the cell phone, Nastasha. Please give it to me."

Nastasha will look up, eyes wide. "How did you know?"

Your answer, "I know everything that happens in my classroom."

This dialogue, if handled with subtle drama, will foster the illusion that you have x-ray vision. Later, when you notice that Natasha has changed her behavior for the better, react to her in a positive way. Walk to her desk and quietly say, "Thank you, Natasha. I noticed how you are really trying to listen, and I want you to know that I appreciate it."

Stopping student misconduct using nonverbal techniques is another important way to give the illusion of x-ray vision. I was given a long-term subbing assignment in a primary classroom with an inclusion student, Justin, who had serious emotional issues. He had poor socialization skills, and his behavior was extremely disruptive.

Another child in the class, Ian, was genuinely sensitive and kind to Justin, and the two became classroom friends. I decided to ask Ian to help me handle Justin's disruptive behavior, and together we developed a strategy. Every time Justin would act out toward another student, Ian would step in and remind him that his behavior was a problem or distract him with something else. Justin respected Ian and wanted to maintain the friendship. Ian was a natural at managing Justin's volatile temper. It worked beautifully.

I rewarded Ian by giving him a special sign each time he did his "job." Our eyes would meet, and I would smile and give him a subtle thumbs-up. Ian would beam with pride.

Justin never knew our little secret, and Ian's self-esteem soared. No time was taken away from learning. No words were needed. A smile and a thumbs-up were all that were necessary.

The illusion of x-ray vision will provide you with a subtle technique for classroom management that doesn't interrupt the flow of your lesson. Effective teachers never waste time with continual nagging, repeated warnings, or engaging in unnecessary dialogue with students. Their discipline is almost invisible.

Should I Use x-ray Vision on the Whole Class or Just with Individuals?

The x-ray vision illusion is most effective one-on-one. Other students will notice your interaction, and it will make an impression.

Whenever possible, it is best to have personal interactions. Whole-group conversations should be kept to a minimum. In general, most students are well behaved. It's usually two or three students that are disruptive. Unfortunately, their behavior can ruin a perfectly wonderful group.

If you can show these individuals that you are aware of their behavior and will deal with it appropriately on a personal level, you will have good results. The ability to stop problems before they begin is the reason you want to foster the x-ray vision illusion.

Is There a "Look" that Can Help?

Many teachers have a special look that they use to indicate that they are displeased. If the look is effective, they can continue teaching the lesson without interruption or verbal interaction. Professional educators call this "controlling behavior using a nonverbal technique." It's discipline without interrupting instruction.

In a very funny book, Phillip Done describes his methods of mastering THE LOOK to a student teacher that is training in his classroom. (Done, P. 32 *Third Graders and One Class Bunny*. Touchstone, Simon & Schuster, 2005.)

> *Every teacher has a collection of looks. You have to or you won't survive. . . . Let me explain. Basically there are five different teacher looks. The first one is called the Raised Eyebrow. It's easy. Simply raise both eyebrows as high as you can. Do not speak. Keep your head perfectly still. Stare at the child for five to ten seconds.*

Done goes on to describe all five looks and when to use them in a wonderfully comic style. The body language that you use, including your look, will be a wonderful tool for classroom management.

But please remember to use your "look" with a sense of humor. Children need to know that you are serious about your expectations for them, but they must feel that you have a human side to go along with the "look." When used properly, the "look" can defuse a tense situation.

Can X-Ray Vision be Used to Read Someone's Mind?

Good teachers have a way of being able to read the emotional needs of their students. You must develop a keen sense of observation to develop this sixth sense. When a student is upset, depressed, or agitated, he will provide you with a set of cues. Some are visual (e.g., hunched shoulders, head tilting downward), others are auditory (e.g., a shaky voice), and still others may be more outwardly behavioral. Through observation, you must try to sense when a student is upset and "ready to explode." Those are the times when you need to just back off. Conversely, teachers need to be able to sense when a student needs positive reinforcement and move to provide it. The same visual, auditory, and behavioral cues will help.

Just as important, good substitute teachers must know when they need to "read someone's mind." You'll know when it is necessary to intercede to avoid disruptive behavior and act appropriately to provide positive reinforcement.

To illustrate this point, I want to give you a personal example. I was subbing in a ninth-grade classroom and encountered a young lady whose academic skills were weak. To mask her weakness, she enjoyed disrupting class as an escape from doing her work. Ignoring directions was a good way to procrastinate. Defying her teacher was another pastime.

I noticed that she loved to wear jewelry (a visual cue) and she had a wonderful sense of style (or at least as wonderful as any ninth grader could have).

During an unstructured time, I decided to compliment her on her style and good taste. I took the time to have a "fashion conversation." I asked her for some shopping advice for myself. She responded well. After that, I was sure to notice her jewelry selections and comment on them whenever it seemed appropriate. Through observation, I "read her mind," found common ground, and established a communication pathway. After that, I had very little trouble with her behavior.

Summary

X-ray vision is an illusion that effective teachers use to create an "all-knowing" image. As a sub, you can do the same thing, and, as a result, you will be better able to manage your classroom. The following guidelines will help:

- Strive to achieve "withitness." A good substitute teacher is able to anticipate situations before they happen by using a combination of multitasking, classroom awareness, alertness, intuition, and confidence.
- Recognize that the "ripple effect" can serve you well. If you can correct the behavior of one student, your effort can ripple across the classroom and positively influence all students. To accomplish this, you have to clearly identify the behavior problem and address a solution firmly.
- Focus on one-to-one interactions when behavioral problems arise. If you sense that a particular student needs your attention or is misbehaving, address that student privately rather than disrupting or punishing the entire class.
- Use little tricks to establish the x-ray vision illusion. Wait a beat before you correct a misbehavior you've observed, allowing students to believe you have eyes in the back of your head. As you develop this skill, you'll learn to take advantage of the illusion.
- Use facial expressions to convey your reactions to student conduct. If you are pleased, show it. If you are displeased, you can develop your "look."
- Try to sense and anticipate the needs of individuals and address them individually with those students. Develop a repertoire of individual responses to particular students. They will appreciate your individualized attention.

Like many other aspects of effective substitute teaching, x-ray vision comes naturally for some and is a struggle for others. But with effort and practice, you too will hear a wide-eyed student ask you, "How did you know?"

Teaching for Rigor: A Call for a Critical Instructional Shift

Why essential shifts in instruction are necessary for teachers and students to succeed with college and career readiness standards.

By Robert J. Marzano and Michael D. Toth

Our Mission

Learning Sciences Marzano Center, West Palm Beach, Florida, promotes excellence in public education by developing and providing next-generation pedagogical tools, data systems, and training for K-12 educators at the school and district level. Built on a foundation of expert research into best practices under the direction of national researcher and author Dr. Robert Marzano, the Marzano Center identifies, develops, and disseminates cutting-edge resources in educational best practices. With a staff of expert practitioners, consultants, and researchers, our goal is to support all K-12 educators to be highly effective, lifelong learners, and in doing so, to significantly impact student growth and achievement over time.

Robert J. Marzano, Ph.D.
Executive Director

Michael D. Toth, CEO

Visit **MarzanoCenter.com** to learn more.

Table of Contents

Summary

Are teachers prepared to instruct students in the cognitively complex skills necessary to meet new college and career readiness standards? Based on more than 2 million data points generated by classroom observations and analyzed by Learning Sciences Marzano Center that document the pedagogical strategies teachers are currently using in their classrooms, we have uncovered evidence that the majority of teachers are not adequately prepared to make the critical instructional shifts necessary to meet the requirements for rigor in college and career readiness standards. This monograph offers a new, focused model of essential classroom strategies to support the demanding instructional shifts in pedagogy needed in an environment where academic rigor is no longer an option but a requirement for all students.

Introduction

The ACT testing organization reported in 2008 that more than three-quarters of students who took and passed a core college-prep curriculum were nonetheless unprepared to do college-level work. Nearly half of ACT-tested 2005 high school graduates who earned a grade of A or B in high school Algebra II were not ready for college math, and more than half of those who earned a grade of A or B in high school physics were not ready for college science.

— The Hechinger Report, "Rigor: It's all the rage, but what does it mean?" (April 7, 2010)

An article published in *The Hechinger Report* summarized the anxieties of educators, parents, and reform advocates who have recognized for years that the majority of U.S. high schools are simply not matriculating students who are ready for college or career. The article quoted an estimate from Michael Kirst, emeritus professor of education and business at Stanford University, that 30% of high school students need remedial math or English at four-year colleges; and 60% require remedial courses at community colleges. If 75% of four-year college students[1] are not prepared as freshman for college English, math, reading, and science — students who have for the most part been channeled through college preparatory classes — the report makes clear that our public education system is ill-prepared to adequately develop students to succeed at college and career.

Of course, it was the recognition of this college and career readiness gap that spurred a nationwide movement, led by the Council of Chief State School Officers and the National Governors Association, to implement national K-12 Common Core and states' college and career readiness standards (CCRS). The new standards, as we know, have been designed to ensure that all students in every state will meet college and career requirements. A major focus of the new standards is their emphases on higher-order thinking skills and the ability to solve complex problems. Students planning to enter the workforce directly after high school, as well as college-bound seniors, need these essential reasoning and decision-making skills equally. This emphasis on higher-order learning is the foundation for the concept of "rigor."

Teaching for Rigor: A Call for a Critical Instructional Shift

This paper describes the essential shift in classroom instruction necessary to ensure that students achieve the level of rigor required by new state academic standards. Many districts have implemented curricula to align with the new standards; new textbooks are in the hands of students; and assessments are being chosen or developed to test students' acquisition of more rigorous content and skills. But teachers still lack a carefully calibrated model of instruction with a clear pathway of supports and data monitoring to ensure that the significant shifts in instructional strategies are being fully accomplished in every classroom with fidelity. A solution to fill this need is all the more urgent, as early student assessments aligned to Common Core and other college and career readiness standards are showing troubling drops in student achievement.

[1] Three out of four ACT-tested 2006 high school graduates who take a core curriculum are not prepared to take credit-bearing entry-level college course with a reasonable chance of success in those courses." (ACT, 2008). In 2011, just one in four high school graduates met all four college readiness benchmarks — English, reading, math, and science (ACT, 2011). Just 52% met the Reading benchmark.

Tests for College and Career Readiness Standards: What Do They Measure?

New PARCC and SBAC (Smarter Balance) assessments developed to test college and career readiness content and skills require deeper cognitively complex processing than previous state assessments, or other assessments designed to address the new rigorous requirements. In fact, subject matter and skills tested by the new assessments are likely to focus on *analysis* and *knowledge utilization* rather than mere recall of content. Linda Darling-Hammond has explained the standards-aligned tests this way:

> **Performance tasks ask students to research and analyze information, weigh evidence, and solve problems relevant to the real world, allowing students to demonstrate their knowledge and skills in an authentic way. The Smarter Balance assessment system uses performance tasks to measure skills valued by higher education and the workplace — critical thinking, problem solving, and communication — that are not adequately assessed by most statewide assessments today. (Smarter Balance Assessment Consortium, 2012)**

A UCLA analysis by Joan Herman and Robert Linn (2013) investigating PARCC and SBAC assertions about the rigor of the tests supported Darling-Hammond's description. The authors conclude their study with a warning:

> **Initial [test] results are likely to provide a shock to the public and to teachers' usual instructional practice. … the availability of resources to support that transition will make a tremendous difference in how well the new assessments are accepted and/or whether there is additional pushback to them. (p. 19)**

The demands of the new tests have already presented a "shock to the public and teachers' usual instructional practice" (Herman, 2013) in many states. In 2012, for example, with the publication of *Primary Sources*, the Bill & Melinda Gates Foundation reported that while 78% of teachers knew about Common Core State Standards, only 22% felt very prepared to teach to meet them. More than 79% of unprepared teachers felt they needed professional development to understand the standards and teach to meet them effectively.

In a 2012 blog for Core Commons, Emily Workman sounded concerns shared by many:

> **Teachers have repeatedly voiced concerns about their ability to successfully teach the standards through blog posts and other media outlets, as well as at meetings and conferences where implementation of the standards is discussed… A number of initiatives have popped up, offering teachers opportunities for training and professional development, but feedback from teachers and policy experts indicates that these resources are either not reaching enough teachers, are a one-size-fits-all approach, or are of questionable quality." 2**

Taken together, Workman concluded, teachers' concerns amount to a "cry for help."

Providing teachers with programs, tools, and professional development to support this shift in practice will be crucial if districts hope to avoid serious drops in test scores under the new standards. Preliminary

---

2A Center for Education Policy survey indicated that more than half of the 315 districts surveyed reported they had no plans to provide professional development on new standards for teachers of mathematics or English language arts during the 2011-12 school year.

reports indicate that such declines have already begun. An August, 2013 op-ed in *The New York Times* noted that the first release of New York's Common Core-aligned state test scores showed a drop even more precipitous than expected:

> **…the data show that about 31 percent of the state's students in third through eighth grades met or exceeded the proficiency standard in language arts. That is down from about 55 percent in 2012 and 77 percent in 2009, when the state tests were easier. (Chapman & Letch, 2013)**

Where is the "HOW?" Many of my fellow teachers and I understand the need for more rigor and challenging our students to help them achieve. We get it. What is lacking is the "how." How is teaching with the new standards different from teaching with the old?

New York schools with high concentrations of ELL, Special Ed, or Black and Latino students were particularly hard hit. An unpublished Annenberg analysis of 2013 state test scores, summarized in the *New York Daily News*, reported that in New York, schools with the highest concentrations of special education students dropped 64% in reading scores and 72% in math scores. Schools with heavy populations of ELL students saw scores fall approximately 70% in both reading and math. Black and Latino student scores fell 56% in reading and more than a 60% in math from 2012 to 2013.[3]

The *Baltimore Sun* pointed to similar declines with Common Core-aligned tests in Maryland:

> **…drops in test scores for both elementary and middle schools were seen in nearly every school district and were as great in the higher-performing districts of Howard and Montgomery counties as they were in Baltimore City. (Bowie & Green, 2013)**

In Kentucky, scores fell by "a third or more" in both elementary and middle school according to an article in *Education Week.* (Ujifusa, 2014). The news was equally troubling in North Carolina, where educators saw a "dramatic drop in performance by students, schools and districts on standardized tests." (Bonner, 2013)

In her 2013 blog for the National Network of State Teachers of the Year, "My View from the Common Core", teacher Kathy Powers was specific in her plea for the kind of support teachers need:

> **Where is the "HOW"? Many of my fellow teachers and I understand the need for more rigor and challenging our students to help them achieve. We get it. What is lacking is the "how." How is teaching with the new standards different from teaching with the old?**

---

[3]In a related March 3, 2014 discussion of Common Core on NPR's *The Diane Rehm Show*, high school principal and education writer Carol Burris cited as her primary concern that new standards would work to widen the achievement gap beyond repair.

Getting to How

Michael D. Toth, Learning Sciences International CEO, has described classroom visits and video analysis where "we see teachers working much harder than their students." In other words, teachers still rely heavily on traditional *teacher-centered* strategies to deliver content, strategies where students remain dependent on continuous teacher direction.

Teacher-centered instruction which emphasizes lecture, practice, and review is the pedagogy most teachers likely experienced as students themselves, later found modeled by professors in college, and then had reinforced when they entered the teaching profession. It is not surprising that teacher-centered instruction continues to be the mainstay of teaching today.

This traditional pedagogical profile may have worked for teachers in the past under less demanding standards. This is not a pedagogy, however, that will help students succeed with the new standards. Instead, it is far more likely to result in teacher burnout and student fatigue. Photos of students weeping over their homework (Twitchy, 2014) and stories of student frustration with standards-aligned assessments, students who are becoming scared of school[4] (Baker, 2014), and who suffer high anxiety over increasingly demanding content, are already going viral. Teachers and parents, too, are feeling stressed and demoralized (Hurley, 2013).

But a great deal of this stress can be alleviated when teachers are trained to make significant shifts in their pedagogy to move to *student-centered* strategies, and to support student learning by scaffolding content from basic knowledge to complex application.

....

[4]Among several prominent examples: A Feb. 16, 2014 *New York Times* article, quoted high school principal Carol Burris: "We see kids…they don't want to go to school anymore."

....

Engagement and the Student-Centered Classroom

Klem and Connell (2004) have reported that "by high school as many as 40% to 60% of students become chronically disengaged from school – urban, suburban, and rural – not counting those who already dropped out" (p. 262). Causes and consequences of engagement include the reaction to challenge, or students' coping strategies for dealing with a challenge, particularly whether they engage or withdraw: "Students who perceive the situation as challenging [as opposed to students who feel threatened, not challenged] actively persist in the face of failure through the use of effort, strategic thinking, problem-solving, information-seeking, and experimentation" (p. 262).

For new standards to be a healthy challenge and not a threatening one for students, teachers must intentionally scaffold lessons using student-centric strategies with more frequency and in greater depth. It's clear that the development of such skills requires a new way of thinking about the traditional teacher-centric classroom.

The move toward rigor places students squarely at the center of the classroom, where they will grapple with challenging content individually and collaboratively, and where they will be expected to actively demonstrate their learning. Teachers will have to embrace a shift in their instructional methods, the strategies on which they rely to teach content, to methodically empower students to successfully own their learning at the highest levels of complexity.

Teachers need models and training to help them step back to the role of skilled facilitators, to guide students to take ownership of their own learning. The teacher's role here is to equip students with tools to work collaboratively in groups, or to individually apply and solve complex real-world problems. In other words, students must learn to *use* their knowledge, to put it to work on solving problems, not to simply recall it in some fashion without elaboration. The teacher's new role will be to facilitate this transition.

Teachers need models and training to help them step back to the role of skilled facilitators, to guide students to take ownership of their own learning.

Our own research at Learning Sciences Marzano Center, an analysis of more than 2 million data points collected from observer ratings on specific classroom instructional strategies, indicates that even today, with the increased focus on rigor, the great majority of teachers still devote the highest frequency of classroom instruction to introducing and practicing new knowledge, activities which are at the lower levels of Bloom's (1956), Webb's (2002), and Marzano's (2001) taxonomies of educational objectives. Students must develop the ability to test hypotheses, analyze and synthesize in order to be successful not just on the new assessments, but also in college and in future careers. Additionally, they must be able to work collaboratively, to take knowledge and utilize it in real-world situations. If we hope to move students to these higher levels of skills and cognition, it's imperative that we equip teachers with the "how," those essential teaching strategies that will scaffold students to problem-solve and make decisions in real-world scenarios with less teacher direction.

Instructional Readiness: Where Teachers Are Now

As discussed previously, although teachers may have new standards-aligned textbooks, a carefully revised curriculum, and standards-based assessments, few teachers feel prepared, in terms of a well-developed pedagogy, to teach rigorous new standards. Until now, the focus of most professional learning has been on understanding the new college and career readiness standards – "the what" – with scant emphasis on the nec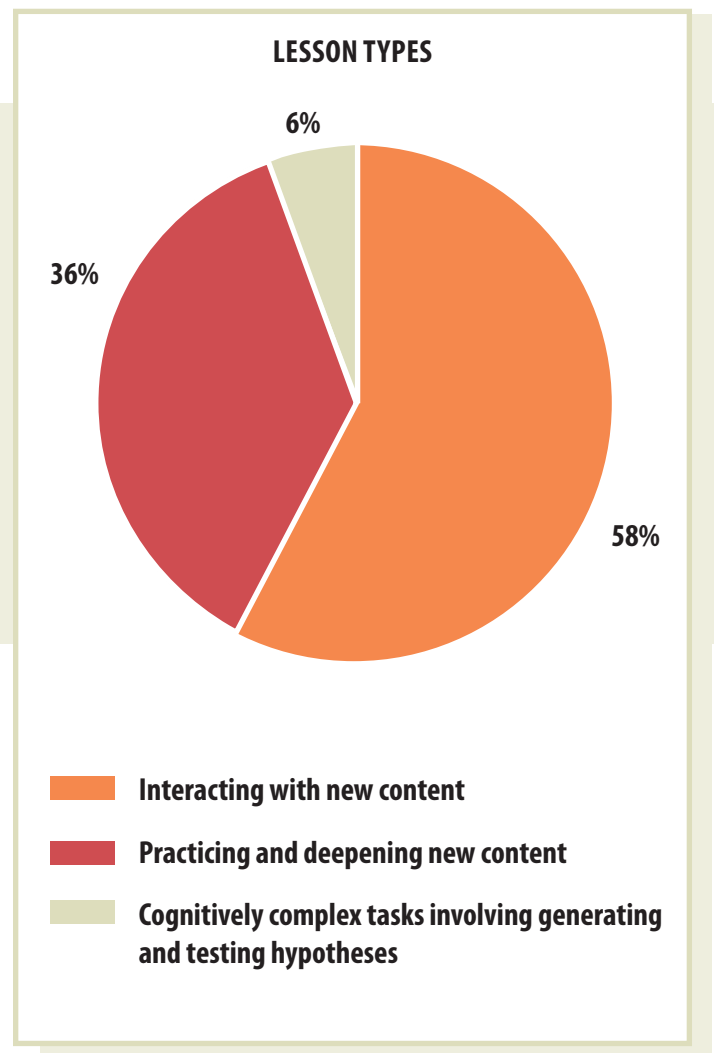essary and demanding pedagogical shifts – "the how." Data analyzed by Learning Sciences Marzano Center support this view.

Less than 6% of observed lessons were devoted to the highest level of cognitively complex tasks involving hypothesis generation and testing. The data indicate that most teachers are placing a significant majority of their classroom emphasis (58%) on teaching new content.

Learning Sciences researchers analyzed more than 2 million data points from across the nation related to the frequency with which teachers were using specific classroom strategies. The data were gathered from the classrooms of teachers using 41 identified categories of research-based instructional strategies. The data were drawn from classroom observations performed by school administrators for the purposes of evaluating teachers, and were analyzed by the Learning Sciences research team.

For the purposes of this discussion, we will focus on those strategies used in the classroom for teaching content (as opposed to planning strategies, classroom management strategies, etc.). In Figure 1, lessons are categorized into three types and indicate the frequency with which the lessons were observed.

Figure 1: Frequency of observed content lesson types

LESSON TYPES

- 6%
- 36%
- 58%

Legend:
- **Interacting with new content**
- **Practicing and deepening new content**
- **Cognitively complex tasks involving generating and testing hypotheses**
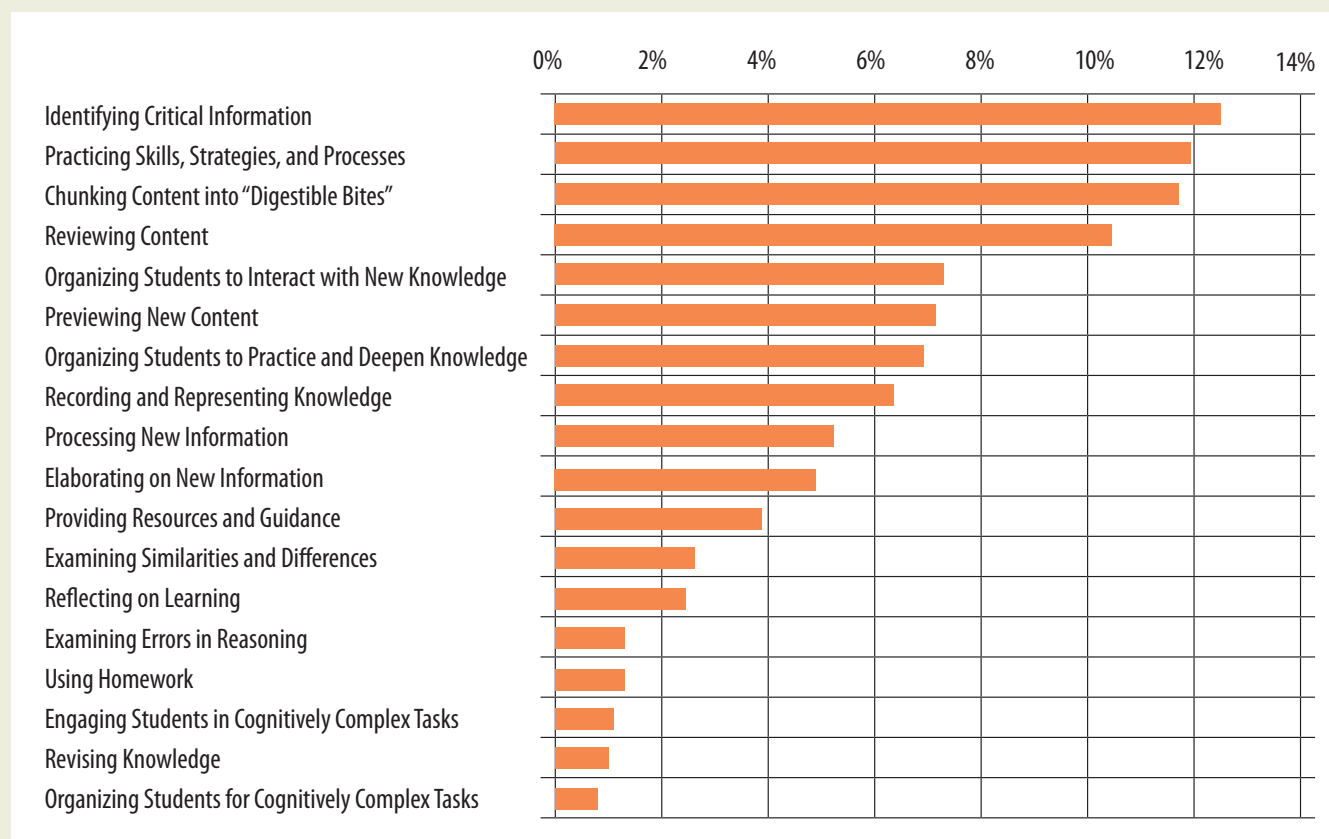
- 58% percent of observed lessons focused on **helping students interact with new content**, including previewing and processing new content, identifying critical content, etc.

- 36% of lessons focused on **helping students practice and deepen new knowledge** (such as examining similarities and differences, examining errors in reasoning, reviewing and revising knowledge).

- **Less than 6% of observed lessons were devoted to the highest level of cognitively complex tasks involving hypothesis generation and testing.**

While it is vital to ensure that students have a solid understanding of introductory-level concepts, we should see evidence that teachers also plan and implement instruction that gradually cedes control

as students move through lessons and begin to deepen their understanding. With the cognitive demands of rigorous standards, students must also quickly build on new knowledge and engage in tasks involving collaboration with peers on rigorous tasks that develop self-sufficiency. Instructional frequency should also reflect those more cognitively complex tasks.

To break it down even further, Figure 2, below, provides details that display a portrait of national teacher practice. Figure 2 illustrates the frequency with which teachers are observed using specific teaching strategies.[5] At the top of the chart, we see that nearly half of observed instructional frequency **(47%)** is devoted to four traditional, teacher-centered strategies: **Identifying Critical Information (12.5%), Practicing Skills, Strategies, and Processes (12.0%); Chunking Content (11.8%),** or teaching targeted pieces of content as appropriate for the students; and **Reviewing Content (10.7%).**

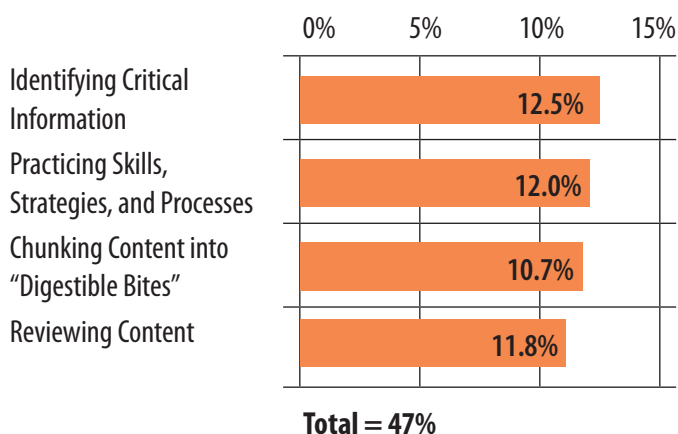*Figure 2: Frequency of observed content strategies*

In contrast, at the bottom of Figure 2, the *least observed strategies* (3.2%) are more student-centered and less teacher-directed. These strategies – **Engaging Students in Cognitively Complex Tasks (1.2%), Revising Knowledge (1.1%)** and **Organizing Students for Cognitively Complex Tasks (.9%)** – require students to think on their own or with peers as they refine higher-order thinking skills, such as hypothesis generation and testing, with few interruptions by the teacher. Such cognitively rigorous strategies are startlingly infrequent – just over or under 1%.

To put this in perspective, the data indicate that most teachers are placing a significant majority of classroom emphasis (47%) on teacher-centered instruction that can be generally categorized as lecture, practice, and review (Figure 3).

These types of lessons are hallmarks of what we describe as traditional teacher-centered pedagogy. While this lesson type is important, student ownership and independence are limited within it. Students spend the bulk of these lessons receiving information and listening to teachers. In short, teachers carry the heavy load of thinking and working, while students rely on teacher direction. Such classrooms place a high value on compliance and less emphasis on building independent cognitive skills.
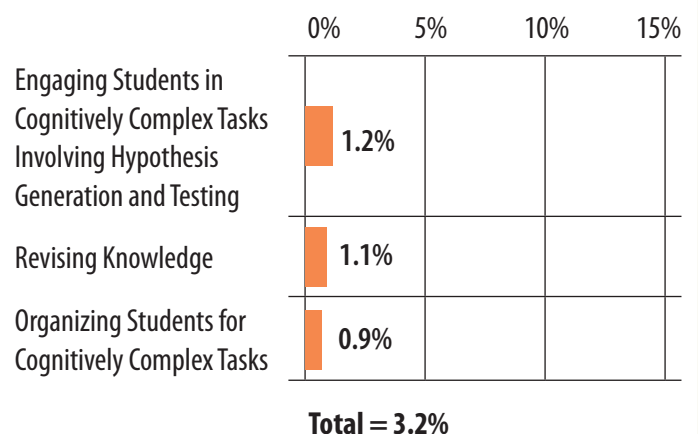
> **We should see evidence of students wrestling with new content as they build the stamina required to reach higher levels of thinking.**

If the majority of instruction is spent at lower levels of complexity, it is unlikely students will perform to standard on state and national assessments written to test cognitive complexity. As new college and career standards are implemented in classrooms, this new emphasis cannot be sustained unless pedagogical strategies change as well.

Figure 4 illustrates those strategies that are more student-centered and that demand sophisticated levels of analysis, hypothesis testing, synthesis, and collaboration in the service of applying knowledge to authentic, real-world problems. The cumulative frequency is just 3.2% – which illustrates that, while we wish students to live and operate here, in fact, they are barely visiting under the direction of their teachers.

Figure 3: *Highest frequency strategies associated with lecture, practice, and review.*

Strategy	Frequency
Identifying Critical Information	12.5%
Practicing Skills, Strategies, and Processes	12.0%
Chunking Content into "Digestible Bites"	10.7%
Reviewing Content	11.8%

Total = 47%

Figure 4: *Lowest frequency strategies, among the most critical for developing cognitively complex skills.*

Strategy	Frequency
Engaging Students in Cognitively Complex Tasks Involving Hypothesis Generation and Testing	1.2%
Revising Knowledge	1.1%
Organizing Students for Cognitively Complex Tasks	0.9%

Total = 3.2%

Instruction focused on achieving rigor is rare. The lack of such instruction amounts to a crisis if we expect students to meet the standards that have been put in place for them.

Within classrooms, there should be ample evidence of students wrestling with new content as they build the stamina required to reach higher levels of thinking. Without the opportunity to struggle with a problem or decision, for instance, students may attain surface-level knowledge of a concept, but be unable to utilize that knowledge in meaningful ways.

How will our students develop these skills if classroom lessons continue to reflect only traditional, teacher-centered instruction? How will teachers thrive in their chosen profession if the outcomes expected of their students are mismatched to pedagogical strategies customarily in use in their classrooms? It is our conclusion that instruction focused on achieving rigor is rare. The lack of such instruction amounts to a crisis if we expect students to meet the standards that have been put in place for them.

Adequate support for the shift to ensure that teachers have the necessary instructional knowledge and skills to reach the required level of rigor will hinge on the professional development they receive. Standards experts agree that the major challenge for new standards has been getting teachers the aligned training to help them refine and adjust their pedagogy[6]. To succeed with new standards, teachers will need a carefully calibrated model of instruction that clarifies and supports these instructional shifts, along with high-impact coaching. Collecting data on these shifts will be equally vital, as data give teachers the monitoring and feedback tools they need to track their own growth and the impact of their pedagogy on students. Additionally, data can be carefully monitored over time, to ensure that every classroom benefits.

Standards experts agree that the major challenge for new standards has been getting teachers the aligned training to help them refine and adjust their instructional techniques.

[6]During a March 3, 2014 discussion devoted to Common Core on NPR'S Diane Rehm Show, Michael Cohen, president of ACHIEVE, and EdWeek Associate Editor and author Catherine Gewertz both stressed that targeted professional development should be a top priority. Cohen noted that such training was in "short supply" and that "doubling down on providing support" was crucial.

Marzano Center Essentials for Achieving Rigor

In collaboration with Dr. Robert J. Marzano, Learning Sciences Marzano Center has developed a model of instruction to refine and supplement teacher instructional skills to meet rigorous new standards. The model focuses on 13 essential classroom strategies for achieving rigor, drawn and condensed from the instructional content strategies illustrated in Figure 2, along with a foundation of supported steps for standards-based planning, data reflection and action, collaboration, and setting optimal conditions for learning. As we continue our research, we will update the model accordingly.

> **College and career readiness standards require more clarity in the progressions of learning being addressed in class.**

Thirteen Essential Classroom Strategies for Achieving Rigor

A new model of instruction, developed by Dr. Robert Marzano and the Learning Sciences Marzano Center, focuses on 13 essential teaching strategies necessary for rigorous instruction.

The Marzano Center's Essentials for Achieving Rigor model posits that, while many factors influence student learning, the greatest contributor to student achievement is classroom instruction.[7]

What Rigor Looks Like

Common Core State Standards and state versions of college and career readiness standards require more clarity in the progressions of learning being addressed in class. Teachers need to plan for not only what students should understand and be able to do by the end of the learning cycle, they need to scaffold their instruction from facts and details to robust generalizations and processes in order to reach these rigorous standards. As part of this clear progression of learning, students need more opportunities to apply their knowledge and make inferences based on what they are learning. The shift to rigorous standards also requires students to make and defend claims with sound evidence including grounds, backing, and qualifiers as part of utilizing the knowledge they acquire in class.

Throughout this progression of learning, scaffolded student autonomy should also be an area of focus. Students should frequently be asked to evaluate the validity and accuracy of their thinking and beliefs. At the conclusion of a learning cycle, students should be able to demonstrate the standard independent of help and describe how the details of the lesson built to support bigger ideas and processes.

---

[7] Rockoff (2004) found, for example, that a high-performing teacher is four times more effective in driving student learning than a low-performing teacher. Sanders and Rivers (1996) demonstrated that three consecutive years with a high- performing teacher raised student achievement 40 percentile points.

This model provides teachers with the tools they need to intentionally align their instruction with higher taxonomic levels as well as purposefully plan for student autonomy.

The Marzano Center Essentials for Achieving Rigor model scaffolds instruction through the taxonomy from content retrieval to knowledge utilization while conveying high expectations to all students in a student-centered classroom. This model provides teachers with the tools they need to intentionally align their instruction with higher taxonomic levels as well as purposefully plan for student autonomy.

Figure 5 illustrates the 13 core instructional strategies. These 13 strategies, as noted, were drawn and condensed from the content strategies illustrated in Figure 2 (see p. 11). Considered and implemented as a set, these strategies represent a dramatic shift from traditional classroom pedagogy and align directly with the goals of college and career readiness standards.

Note that while these 13 strategies are listed in a linear fashion, they may be used in any phase of instruction, from building foundational content, to deepening content, to utilizing knowledge and skills to engage in complex tasks.

For example, the strategy "Identifying Critical Content" articulates the responsibility of the teacher to continually highlight the important information that is being addressed in class. Further, this strategy functions as the foundation for rigorous instruction. Identifying critical content is crucial when a teacher is introducing new information.

Figure 5: 13 Essential Instructional Strategies to Achieve Rigor

13 Essential Strategies

- Identifying Critical Content
- Previewing New Content
- Organizing Students to Interact with Content
- Helping Students Process Content
- Helping Students Elaborate on Content
- Helping Students Record and Represent Knowledge
- Managing Response Rates with Tiered Questioning Techniques
- Reviewing Content
- Helping Students Practice Skills, Strategies, and Processes
- Helping Students Examine Similarities and Differences
- Helping Students Examine Their Reasoning
- Helping Students Revise Knowledge
- Helping Students Engage in Cognitively Complex Tasks

It is just as important during content review. Even during activities designed for cognitive complexity, it is essential that students know what is critical about the content for which they are generating and testing hypotheses. The difference lies in the level at which the student is working with the critical information. All of the strategies can be used with intentionality throughout the progression of learning.

The 13 essential strategies are:

- **Previewing new content.** Previewing allows for students to access prior knowledge and analyze new content. It may be used in any level of lesson to connect new content to previously learned information.

- **Organizing students to interact with content.** Students are organized into appropriate groups that facilitate their interaction with content. Shared experience and cooperative learning are essential building blocks of the teaching-learning experience (Marzano & Brown 2009). Whether it's learning introductory content or knowledge utilization, students are provided help regarding how to collaborate in a manner that will help them interact with content and ways they might focus on cognitive or conative skills.

- **Helping students process content.** This strategy systematically engages student groups in processing and generating conclusions about content. Note: For the student-centered classroom, the focus shifts from teacher to student. The teacher is "helping students process content." Inherent in this phrase is that students are expected to work with, summarize, and elaborate on content, not just listen as the teacher discusses or lectures.

- **Helping students elaborate on content.** Helping students elaborate requires students to make inferences about the information addressed in class. Equally important, students are asked to provide evidence and support for their inferences. This strategy has great purpose in any lesson.

- **Helping students record and represent knowledge.** This strategy allows students to create their own representations of the content and processes with which they are interacting. Rigorous standards highlight the need to expand the types of representations elicited from students to include mental models, mathematical models, and other more abstract representations of content.

- **Managing response rates with tiered questioning techniques.** The teacher purposefully asks questions with ascending cognitive complexity in order to support students in deepening their thinking about content. In addition to ensuring that all students respond, the teacher ensures that student responses are backed up by evidence.

- **Reviewing content.** Reviewing content engages students in a brief review that highlights the cumulative nature of the content. For rigorous standards, the teacher also reviews activities to ensure that students are aware of the "big picture" regarding the content.

- **Helping students practice skills, strategies, and processes.** With this strategy, students perform the skill, strategy, or process with increased competence and confidence. The shift in instructional practice to demonstrate rigorous standards also requires students to both develop fluency and alternative ways of executing procedures.

- **Helping students examine similarities and differences.** This strategy engages students in activities such as comparing, classifying, and creating analogies and metaphors that address the "big ideas" and "conclusions" as well as specific details. The strategy can be useful not only when students are deepening their thinking but throughout the learning cycle. There are times when examining similarities and differences is appropriate for previewing, but it is also a highly effective strategy when students are asked to analyze at a deeper level, or to utilize their knowledge to solve a real-world problem.

- **Helping students examine their reasoning.** With this strategy, students produce and defend claims by examining their own reasoning or the logic of presented information, processes, and procedures. The shift to rigorous standards requires the analysis of information for errors or fallacies in content or in students' own reasoning, as well as the examination and critique of the overall logic of arguments.

- **Helping students revise knowledge.** Students revise previous knowledge by correcting errors and misconceptions as well as adding new information. Additionally, this instructional strategy involves viewing knowledge from different perspectives and identifying alternative ways of executing procedures. This strategy allows students to build a sense of themselves as active learners as they broaden and deepen their knowledge throughout a unit of instruction.

- **Helping students engage in cognitively complex tasks.** Engaging in cognitively complex tasks is not merely an end-of-unit or culminating activity. Students must begin to "live" in a land of cognitive complexity. Students who are presented with a complex knowledge utilization task at the end of a unit, for instance, with no questions, tasks or activities built-in along the way that required them to use that level of thinking, will have much more difficulty making meaning of the task. Effective teachers incorporate "short visits" throughout the unit to help build student capacity for complex tasks.

Students must begin to "live" in a land of cognitive complexity.

A New Standard of Professional Development

Every teacher achieving rigor for every student.

In response to the urgent need for an instructional model to align with the significant shifts required by college and career readiness standards, the Learning Sciences Marzano Center developed the Marzano Center Essentials for Achieving Rigor model based on our research and pilot projects, conducted in large and small districts across the U.S. Our analysts have examined more than 2 million specific data points related to classroom instruction, allowing us to create what amounts to a national profile of teaching.

From this profile, Marzano Center researchers have been able to draw conclusions about the effectiveness of specific instructional strategies, teachers' consistent or inconsistent use of strategies correlated with student achievement gains, and the accuracy of classroom observation as a tool for pedagogical growth.[8]

The Essentials for Achieving Rigor model has been developed to support teachers to make the necessary instructional shifts to prepare students to meet the demands of the new assessments.

> **The model was designed specifically to assist teachers to develop their pedagogy, the crucial missing component that educational researchers, district and school leaders, journalists, and above all, teachers, have been requesting.**

The model was designed specifically to assist teachers to develop their pedagogy, the crucial missing component that educational researchers, district and school leaders, journalists, and above all, teachers, have been requesting.

The Essentials for Achieving Rigor model integrates a full program of resources to support the 13 essential strategies. The program is flexible by design and can be tailored to meet the unique needs of large and small school systems in both urban and rural districts, and to align with state directives. This unique model incorporates:

- **High-quality teacher training** developed by Marzano Center practitioner experts on topics such as

    - Facilitating complex learning

    - Helping students engage in cognitively complex tasks

    - Instructional decision-making

    - Standards-based planning on measurement topics

    - Reflection on lesson outcomes, with action plans for intervention and enrichment.

- **Integrated monitoring tools,** to help teachers transition their instructional practice in profound ways.

- **Parallel training for teacher-coaches** to ensure fidelity within professional learning communities and in one-on-one mentoring.

---

[8]This report is the first in a series that will detail our analysis of this data.

- **Student feedback components** to help teachers monitor the success of their strategies, provide differentiated instruction, and recalibrate their practice as necessary.

Our trainings for the Essentials for Achieving Rigor model are designed to produce profound shifts for teachers and instructional coaches in guiding students in rigorous learning. We would like to share our insights into this research and to help develop plans to assist teachers to meet goals for achieving rigor.

"That's the direction we must move in every content area and grade level, to continue to build our teacher capacity and ultimately to provide our kids with the skills to be successful for a lifetime."

About Learning Sciences Marzano Center and Learning Sciences International

Based in West Palm Beach, Florida, and Mount Joy and Blairsville, Pennsylvania, Learning Sciences International has been at the forefront of teacher professional development, educator effectiveness, and data systems and technology to support educator growth for close to 15 years. In 2003, Learning Sciences partnered with national researcher Dr. Robert J. Marzano and in 2012, founded Learning Sciences Marzano Center. The Marzano Center has developed unique educator effectiveness systems for teachers and school and district leaders focused on an embedded model of instruction. Those effectiveness

Witnessing the Shift

Martin County High School Principal Al Fabrizio discusses the instructional shifts he observed when teachers were trained in the Marzano Center Essentials for Achieving Rigor model:

"Seeing [teacher] Laura scaffold her lessons and her rigorous approach to questioning was absolutely exciting. As we support more of our teachers moving in that direction, it's going to directly impact student achievement. Ultimately we need to develop kids who, when they leave us, are critical thinkers and problem solvers.

And what better way to work on that skill, in an age when the information is at their fingertips, than to have kids move through the process where they are using their inferencing skills, drawing conclusions, hypothesizing, and then proving what they do hypothesize? That's the direction we must move in every content area and grade level, to continue to build our teacher capacity and ultimately to provide our kids with the skills to be successful for a lifetime."

systems have since been implemented across the U.S. and abroad. Our dedicated research team and staff of 80 professionals, including more than 50 educator consultants, provide tailored training solutions and direct implementation in the four effectiveness models and the Essentials for Achieving Rigor model across the U.S. and internationally.

To learn more, or to request a demonstration of the Marzano Center Essentials for Achieving Rigor, contact us at 1.877.411.7114, or visit MarzanoCenter.com.

About the Authors

Robert Marzano, Executive Director
Learning Sciences Marzano Center

Robert J. Marzano, Ph.D. is a nationally recognized education researcher, speaker, trainer, and author of more than 30 books and 150 articles on topics such as instruction, assessment, writing and implementing standards, cognition, effective leadership, and school intervention. His practical translations of the most current research and theory into classroom strategies are widely practiced internationally by both teachers and administrators.

Dr. Marzano has partnered with Learning Sciences International to offer the Marzano Teacher Evaluation Model, the Marzano School Leadership Evaluation Model, the Marzano District Leader Evaluation Model, and the Marzano Center Non-Classroom Support Personnel Evaluation Model. The Marzano evaluation models have been adopted by school districts across the country because they don't simply measure ability, they actually help teachers and leaders grow, improving their instruction over time. Dr. Marzano also co-developed the Marzano Center Essential Strategies for Achieving Rigor, a model of instruction that fosters essential teaching skills and strategies to support college and career readiness standards.

Dr. Marzano received his doctorate from the University of Washington.

Michael Toth, Chief Executive Officer,
Chief Learning Officer
Learning Sciences International

Michael D. Toth is founder and Chief Executive Officer of Learning Sciences International, iObservation, and Learning Sciences Marzano Center for Teacher and Leader Evaluation. Formerly president of the National Center for the Profession of Teaching, a university faculty member, and director of research and development grants, Mr. Toth transformed his university research and development team into a company that is focused on leadership and teacher professional growth and instructional effectiveness correlated to student achievement gains.

Mr. Toth is actively involved in research and development, gives public presentations, and advises education leaders on issues of leadership and teacher effectiveness, school improvement, and professional development systems. He is co-author, with Robert J. Marzano, of Teacher Evaluation That Makes a Difference: A New Model for Teacher Growth and Student Achievement.

References

Baker, A. (2014, February 16). Common Core curriculum now has critics on the left. *The New York Times*. Retrieved from http://www.nytimes.com/2014/02/17/nyregion/new-york-early-champion-of-common-core-standards-joins-critics.html?_r=0

Bill & Melinda Gates Foundation. (2011). *Primary sources 2011: A first look for education nation.* Retrieved from: https://docs.gatesfoundation.org/Documents/primary-sources.pdf

Bloom, B. S. (1956). *Taxonomy of educational objectives, handbook I: The cognitive domain*. New York, NY: David McKay Co., Inc.

Bonner, L. (2013, November 7). Lower test scores for NC schools show results of tougher standards. *Newsobserver.com.* Retrieved from http://www.newsobserver.com/2013/11/07/3349011/test-scores-for-nc-schools-drop.html#storylink=cpy

Bowie, L., & Green, E. (2013). State test scores decline significantly. *Baltimore Sun.* Retrieved from http://articles.baltimoresun.com/2013-07-23/news/bs-md-test-scores-20130723_1_new-curriculum-test-scores-common-core

Chapman, B., & Lestch, C. (2013, August 11). EXCLUSIVE: Achievement gap widens for students after city's new standardized tests. *New York Daily News.* Retrieved from http://www.nydailynews.com/new-york/education/achievement-gap-widens-city-new-standardized-tests-article-1.1423531

Colvin, R., & Jacobs, J. (2010, April 7). Rigor: It's all the rage, but what does it mean? *The Hechinger Report.* Retrieved from http://hechingerreport.org/content/rigor-its-all-the-rage-but-what-does-it-mean_2222/

Gjelten, Tom (Host) (2014). Renewed Debate Over Common Core Standards and Testing. (2014). Renewed debate over Common Core Standards and Testing. *The Diane Rehm Show.* Retrieved from http://thedianerehmshow.org/shows/2014-03-03/renewed-debate-over-common-core-standards-and-testing

Herman, J., & Linn, R. (2013). On the road to assessing deeper learning: The status of Smarter Balanced and PARCC Assessment Consortia. (CRESST Report 823) *National Center for Research on Evaluation, Standards, and Student Learning.* Retrieved from http://www.cse.ucla.edu/products/reports/R823.pdf

Hurley, K. (2013). *5 Reasons the Common Core Is Ruining Childhood.* Retrieved from http://www.huffingtonpost.com/katie-hurley/5-reasons-the-common-core-is-ruining-childhood-_b_4153698.html

Klem, A. & Connell, J. (2004). Relationships matter: Linking teacher support to student engagement and achievement. *Journal of School Health,* 74(7), 262 – 273.

Marzano, R. J. (2001). *Designing a new taxonomy of educational objectives.* Thousand Oaks, CA: Corwin Press.

Marzano, R. J., & Brown, J. L. (2009). A handbook for the art and science of teaching. Alexandria, VA: ASCD.

The New York Times Editorial Board. (2013, August 8). New York's Common Core test scores. [Op-Ed]. *The New York Times.* Retrieved from http://www.nytimes.com/2013/08/08/opinion/new-yorks-common-core-test-scores.html?_r=1&

Powers, K. (2013). My view from the Common Core. [Blog post]. *NNSTOY: Teachers Leading, Policy, Practice, Advocacy.* Retrieved from http://www.nnstoy.org/my-view-from-the-common-core/

Rockoff, Jonah E. 2004. The impact of individual teachers on student achievement: Evidence from panel data. *American Economic Review,* 94(2): 247-252.

Sanders, W.L., & Rivers, J.C. (1996). *Cumulative and residual effects of teachers on future student academic achievement.* Research Progress Report. Knoxville, TN: University of Tennessee Value-Added Research and Assessment Center

Smarter Balanced Assessment Consortium. (2012). *Smarter Balanced releases sample assessment items and performance tasks.* Retrieved from http://www.smarterbalanced.org/news/smarter-balanced-releases-sample-assessment-items-and-performance-tasks/

Twitchy. (2014, February 14). What is Common Core doing to America's children? Mom shares heartrending photo. Retrieved from http://twitchy.com/2014/02/13/what-is-common-core-doing-to-americas-children-mom-shares-heartrending-photo/

Ujifusa, A. (2012, November 2). Scores drop on Ky.'s Common Core-Aligned tests. *Education Week.* Retrieved from http://www.edweek.org/ew/articles/2012/11/02/11standards.h32.html

Webb, N. (2002). *Depth of knowledge levels for four content areas.* Retrieved from http://facstaff.wcer.wisc.edu/normw/All%20content%20areas%20%20DOK%20levels%2032802.pdf

Workman, E. (2012, March 16). Unprepared teachers and the Common Core [Blog post]. *Education Commission of the States (ECS).* Retrieved from http://www.ecs-commoncore.org/blog/page/2/

Learning Sciences
MARZANO
C E N T E R

LearningSciencesInternational
LEARNING AND PERFORMANCE MANAGEMENT

Interested in learning more?
Contact us here.

1.877.411.7114
MarzanoCenter.com

West Palm Beach, FL