

THE TOP TWELVE RESEARCH-INFORMED STRATEGIES EVERY TEACHER SHOULD BE DOING WITH EVERY STUDENT

My point is that perceptual bias can affect not just jobs and scientists alike. If we hold too rigidly to what we think we know, we ignore or avoid evidence of anything that might change our mind.

—Martha Beck

Why wait until the end of this book to provide the reader with what he or she really wants to know, and that is: “What are the research-informed strategies that teachers should be using to enhance student achievement and the learning experience?” So in this chapter we will give you the top twelve. However, you need to read the remainder of the book to understand better the research and rationale for each. We will also give you what we call *the unconscionable list*. Knowing what we do about how students learn best, having research about what works and what doesn’t work, there has to be a list of practices that it is now unconscionable that teachers still do.

THE UNCONSCIONABLE LIST (AKA THE DESPICABLE BAKER’S DOZEN): THINGS A TEACHER SHOULD NEVER DO AGAIN

1. Pop quizzes for a grade.
2. Starting a class by going over homework.

3. Ending a class by teaching all the way to the bell.
4. Coaching students to use passive studying techniques, such as reviewing for a test by just rereading their notes or textbook.
5. Defining kids by an individual style, such as "This person is an auditory learner, that person is a kinesthetic learner."
6. Varying the modality of teaching to match these perceived individual learning styles.
7. Applying simple labels to students, such as "lazy" or "smart," rather than making judgments based on observations.
8. Believing students have a fixed level of ability (despite their being in a time of great brain plasticity, able to work in ways that will rewire their brains to make them better learners and higher-achieving students).
9. Content delivery dominated by lecturing.
10. Assessment dominated by tests, particularly multiple-choice tests.
11. Always being the sage on the stage and never the guide on the side.
12. Praising achievement rather than effort.
13. Not recognizing the connections between emotion, identity, and health to learning.

While it is tempting to rush you forward to the top twelve list of strategies at this point, that would not be good practice. Instead, we would like you to use the space below to take a moment to reflect.

Take two minutes for this: What do you see? Don't try to interpret yet, don't ask questions, just say what you see in this list.

Take two minutes for this: What do you think? Don't pose questions yet, just say what you think based on what you have seen in this list.

Take two minutes for this: What do you wonder? Just say what questions this list raises for you.

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1. Class periods should be designed with an understanding that what students will recall most is what takes place in the first part of the class and what students will recall second most will take place in the closing minutes of class.¹
2. Students should be given more frequent, formative, low-stakes assessments of learning.²
3. Students need more opportunities to reflect, think meta-cognitively, on their learning and performance.³
4. Students need to know that the pervasive way they choose to study is actually hurting their ability to learn for the long term and that self-testing is much more effective than reading one's notes.⁴
5. Students, parents, teachers, and school leaders need to understand that sleep is critical to memory consolidation. Without sufficient sleep we create a system that perpetuates the illusion of learning.⁵
6. Students need to know that "effort matters most," and that they have the ability to rewire their brain to make themselves better learners and higher-achieving students (the concept of "neuroplasticity").⁶
7. Students need more, but well judged, opportunities for choice in their learning, which enhances engagement and intrinsic motivation.⁷
8. Students need to love their limbic system and recognize the impact stress, fear, and fatigue have on the higher-order thinking and memory parts of their brain.⁸
9. Students need opportunities to transfer their knowledge through the visual and performing arts.⁹

10. Students need their teachers to vary the modality of teaching and assessment based on the content (as well as the time of day): What methods suit this topic best? What methods have I just used and will use soon so that I can provide a range of challenges? All students learn best when taught in a variety of modalities, and when the modality is chosen with the content in mind rather than the student.¹⁰
11. Students need to know the anatomy of their brain, especially the role the prefrontal cortex, amygdala, and hippocampus play in their learning.¹¹
12. Students need frequent opportunities during the school day to play.¹²

We have learned from doing workshops with many groups of teachers that research from mind, brain, and education science upholds many things that teachers already consider good practice, but people tend to find the research behind it interesting—it all seems to make sense about *why* a particular method works. This is our “in.” It makes it easier to digest and accept the cases where MBE science provides research that says a common practice from the standard canon of teaching is actually something we should not be doing. Fortunately, as you can probably see in this chapter, MBE science often suggests an alternative.

Think stakeholders. The top twelve list includes things the teacher should do and things the student should do. Teachers have an important and perhaps more active role in coaching students than they might be used to. Parents have an important role in supporting, coaching, and praising students in ways that at times will seem unfamiliar. School leaders and policy makers can decide to make excellent teaching, informed by research in the field of MBE science, a priority to improve learning and achievement for all students.

Take a look at the lists in this chapter again. We think the most striking point is that both the “stop doing this” and “do this” lists are dominated by *simple* changes. If the only changes we make in schools are the things listed in this chapter (MBE science goes much deeper, but even if these are the *only* changes we make), learning will be better for all students.

But it does not quite end there because teachers have an interesting role they can choose to play in this enterprise. The research base of MBE science is expanding. The lists above will, rightfully, evolve over time, and teachers can be a part of this. This could happen formally, through partnerships between research institutions and schools, maybe collaborating on studies of sufficient rigor to be published in peer-reviewed journals. But there is also a need for teachers to conduct less formal but just as necessary

research. High-quality observational and qualitative data can be collected by all teachers. The results can be used to inform personal practice, school-wide practices, or future more in-depth research studies and collaborations.

The teacher has a role as researcher, but also in creating cohorts of interested people and collaborators in his or her school, expanding the circles of people whom the research touches, seeding the next studies. It is ground-up professional development. It is more than action research. We call it Action Leadership. We hope this book suggests possible avenues to explore, gives you an accessible beachhead into the literature base, and helps put you in touch with a network of like-minded colleagues.

Without looking back from this page, what are the *three* most salient points you take away from this chapter of *Neuroteach*?

What are *two* things you would like to do “tomorrow” with the information you learned from reading this chapter?

What is *one* question you have after reading this chapter?

NOTES

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