



THE SCIENCE OF LEARNING

A HOW-TO GUIDE FOR PARENTS, TEACHERS & MANAGERS



**THE
LEARNING
AGENCY**

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FOR PARENTS, TEACHERS, AND MANAGERS

Up until recently, no one had systematically studied the role of educators and how exactly they promoted learning. Certainly, experts have been theorizing about the practice of instruction for centuries. The Socratic Method dates back to ancient Greece. The apprenticeship model goes back to medieval Europe. The Han Dynasty in China may have pioneered a high-stakes testing approach to schooling—it offered the first civil service exam.

Still, no dedicated researcher had tried in a reliable fashion to measure the difference between a great teacher—and an average one—using robust data like test scores, surveys, and videos. Some years ago, Microsoft founder Bill Gates became fascinated with this fact. He had come across a research paper on the topic of teacher quality—and crowded the document with

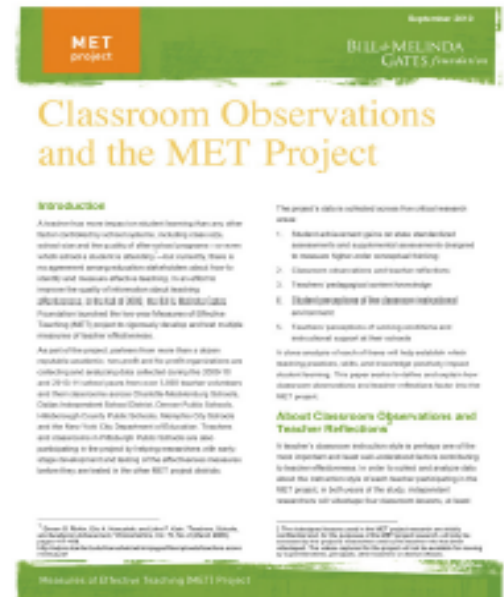
notes and scribbles. Gates couldn't understand why one of the most basic questions in education had not been answered with modern research tools. "It was mind-blowing how little it had been studied," Gates told a reporter.

Eventually, the world's richest man poured some \$40 million into the research project, and it was massive: Dozens of researchers, thousands of teachers, almost a hundred thousand students. As part of the project, researchers developed a new type of video camera that would give a "panoramic" view of a classroom during a teacher's lesson. Every student in the project filled out surveys. Some 500 people were trained just to evaluate the videos of the teachers.

Known as the MET study, the project lasted two years, and some of the findings were notable.

Relatively few teachers in the study pushed students to create their own ideas. Student participation in tasks that required meaning making was rare.

But in many ways, the more interesting results were something else, and it turned out that when it came to teaching, there were two main drivers of student outcomes, according to Harvard's Ron Ferguson who helped study the data. First, there's what the researchers called "academic press," or the degree to which a teacher pushed a student academically. This was a matter of the educators encouraging students to work hard, to really engage with the material.





SET EXPECTATIONS

There's no getting around it: Learning is hard. Gaining expertise re-quires cognitive struggle, and learning is often a matter of mental doing. What this means is that people seeking expertise need support and encouragement, and so you should offer lots of praise to people learning something.

Be sure, however, to focus on process, not outcomes, so people remain motivated. More specifically stop using the word “smart.” People who are told they are “smart” often become complacent, performing under their ability, according to work by Carol Dweck. So praise methods, not performance: Great job working so hard. This is going to be hard. Keep it up.

Teachers—and parents—should also communicate rigorous norms and goals. Tell people what you expect. Even more important, be sure to model this behavior to others and show effective ways to manage struggle and overcome failures. If you make a mistakes, tell yourself—and others: What a great opportunity to learn.

BREAK IT UP

People learn better when learning is delivered in smaller chunks—and over a longer peri-od of time. So encourage people to break up their learning and space it out over time. It's a lot more effective, for instance, for people to study one large pile of flashcards rather than lots of smaller piles of cards because it helps space out their learning. Same with homework: It's far more effective to spread it out over time rather than do it all in one evening.

Employers should also take this approach, too, and instead of one-time training programs, employers should also provide more material for employees on an as needed basis. So rather than train new employees on their first day on how to do things like fill out expense reports, put an instructional video on a website for them to reference when they need it. Similarly, employers should try and account for forgetting and help employees revisit key material periodically.

PROMOTE FOCUS

It's easy to get distracted. It's even easier to get distracted while learning. So create spaces where people can focus on their learning. This means spaces without music or television or loud talking. Many organizations have caught on to this trends and doing away with distracting environments. While Google, for instance, is known for its open floor plan, the tech firm now encourages employees to book a private office if they need to really focus.

Likewise, less is often more when it comes to the presentation of ideas. If there's too much information, people's working memory becomes overloaded. So when you're putting together a PowerPoint, don't crowd the slides with graphics. Just have a single message on each slide. Or, if you're giving a talk, make sure you're clear about your core message, repeating it often in case the audience is distracted.

SUPPORT MISTAKES

For a long time, failure was a dirty word for learners. But today, we know that students need to fail in order to succeed.

Part of the reason is that failure helps us understand where our thinking went wrong. Plus, errors often promote learning, helping us to remember.

Teachers, parents, and managers can encourage failure by praising failure. My favorite example is the company SurePayroll, which offers an award for errors. SurePayroll's president, Michael Alter, started the practice, offering the "Best New Mistake" award, giving a few hundred dollars to the winner each year.

To support mistakes, people should not give answers to students too quickly. Let students struggle. As Nobel Prize winner Carl Wieman argues, if students land an answer too early, they don't gain from making errors. At the same time, make sure to support the emotional side of learning and offer people emotional support when they fail.



USE ANALOGIES



Analogies often spark memories of IQ tests (Nest is to bird, as dog house is to ____). But analogies help us often serves as true mother of invention. Johannes Gutenberg invented the printing press after seeing a wine press, while Twitter is half SMS, half social media. People can use analogies to help explain new ideas. Smart marketing companies know this, and they are famous for using analogies to introduce new products. The insurance firm State Farm, for instance, has long relied on the jingle: Like a Good Neighbor, State Farm is There.

Analogies can also promote creativity. The phrase Uber but for ... is a great example, and people have used the car sharing company to come up with various new startups. The company Blue Apron has presented itself as the Uber for high-end cooking. The drycleaning company DRYV has been described as Uber but for dry cleaning.

PROMOTE REVIEW

We're all overconfident. Sometimes this is a good thing. No one would lead a company—or keep up a blog—without some streak of brashness. But when it comes to learning, we often think that we know more than we do, and teachers, managers, and parents should help others review what they've learned.

For an example, the next time that a person—your boss, your wife, a friends—gives you a set of detailed, multistep instructions, take time to verbally repeat back the instructions. By reciting everything back, you take steps to create that knowledge, and you'll be far more likely to remember the information.

If you found this guide helpful and insightful, you will like the full Learn Better course, check it out [here](#)



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