

Chapel Talk  
Sarah Bowers  
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One day in 1848, a dynamite worker named Phineas Gage was just doing his job. He was using a steel rod to tamp down a piece of dynamite into the solid rock ground in preparations for a new railroad line. For those of you who aren't familiar with the various tools found around a railroad yard, the tamping iron itself was 3 feet, 7 inches long. It weighed 13 ½ pounds. It was 1 ¼ inches in diameter at its widest. And when Gage accidentally tamped the dynamite too early, the entire rod traveled through his left cheek, into his brain, and out the top of his head, landing several yards behind him.

Strangely, Gage was alive. In fact, he wasn't just alive. Almost immediately after the accident, he could both walk and talk. Imagine the freakiness of the scene. Railroad employees gathered around as the dust settled, certain of his death. And Gage sat in the middle of it all, essentially unharmed except for the fact that he had a huge hole in his orbitofrontal cortex.

The aftermath of Gage's accident is a cognitive psychologist's dream scenario. In fact, we discussed Phineas Gage in at least half of the psychology courses I took in college (and I was a psych major, so that's actually a lot of classes). It seems implausible that you could remove a big chunk from the 3-pound lump of gray and white matter that is responsible for our physical, emotional and intellectual functioning, and still be all right. After only a short time, in fact, it became clear that Gage wasn't all right. Remarkably, his intellectual abilities still seemed intact. His personality, however, was not. The man who had formerly been described as "industrious and energetic" was now according to his physician, Dr. J. M. Harlow, "fitful, irreverent, indulging at times in the grossest profanity... [having] the animal passions of a strong man." And, if you read anymore of Gage's history, you soon learn that he never held a steady job again. His childish, irresponsible and enraging behavior, none of which had existed prior to his accident, ensured that he could no longer be a normal-functioning member of society.

The point of this story, and its appeal for psychologists, is the clearly identifiable pathway of cause and effect. You take a man who acts a certain way, put a pole through his head, and observe how his actions change. Aside from the gore factor, it's actually a wonderfully clean history of one person's cognitive functioning. In the case of the five students with whom I spent the 2004-2005 school year, I would have given anything to understand the roots of their cognitive abilities as clearly as I understand Phineas Gage's.

Unfortunately, very little was clear or easy to trace with these boys. For the most part, they were very similar to my current students. When I say that I worked in special education last year, people tend to assume that I was teaching kids with autism or cerebral palsy, but that wasn't the case. These guys were essentially normal teenagers. They liked video games and sports. On Mondays, they regaled me with fantastic, if slightly exaggerated, stories of their weekend escapades, in which every girl they'd passed on the street, in the mall or on the Metro, had asked them for their phone number. They appreciated the melodic strains of artists Lil' Wayne and 50-Cent. It was only when you sat them down and demanded any kind of academic performance from them that you realized something was indeed, severely different.

Their ages were, as follows: Aaron, 13; Brent, 13; Dominic, 15; Steven, 16; William, 20. Their reading levels were, as follows: Aaron, 2nd grade; Brent, 4th grade; Dominic, 2nd grade; Steven, 6th grade; William, 2nd grade. Why did I want to understand the root of their cognitive functioning so badly? One reason might have been to reconcile how these boys had made it through so many years in the Washington DC public school system with these severe impairments before being referred to special education. Another might have been that all my insecurities as a teacher were brought up everyday, as I struggled to find ways to present the information so that these students would understand it. When they didn't get it, I felt like a failure. But the main reason for wanting to understand why these students' brains worked the way they did, was that their disabilities, for lack of a better word, were the source of intense personal suffering for them. These wonderful, energetic, kind, hilarious kids were ashamed. And I wanted to fix that, as quickly and effectively as possible.

The kids in my class were grouped together because of their severe deficits in reading specifically. Consider your average homework load on a given night. How much of it involves reading? When explored at the cognitive processing level, reading is this incredible feat. You look at a page of *Pride and Prejudice*. Somehow your brain recognizes the weird stick symbols on the page as letters, regardless of whether the stick symbols are in Times New Roman or Britannic Bold, capital or lowercase or cursive. Then your brain associates the symbol with a sound. Even more impressive, you're reading English, which means that we have these delightful exceptions to rules: "y" is only a vowel sometimes, and for some strange reason, "cough" and "though" are spelled the same way, but pronounced differently. The bizarre intricacies of the English language caused Irish playwright George Bernard Shaw to note that in English, "g-h-o-t-i," ghoti, could be pronounced as "fish." If you have no idea what I'm talking about, try to figure it out on paper after chapel.

At any rate, decoding letters and associating them with sounds isn't enough to be able to read fluidly. You have to put the sounds in order to form a word, understand what the word means, do the same thing for the word next to it, then link the words together and understand the meaning of the phrase, and then continue reading. Simply writing out the whole process to share with you is arduous, as should be hearing it read out loud. But breaking down the mechanics of reading, step-by-step, should make you realize how much we take for granted. The 3 lb. lump of gray and white matter inside our skulls is doing all these things without our even realizing it. We've been doing it since we first learned to talk, read, spell in preschool or kindergarten. And now you see what huge ground my students had to make up.

The horrible irony of special education is that these kids, who are four, five or six years behind their grade level, have to make up for lost time. They do, in fact, need to learn at a faster rate than your average student. As these boys' teacher, I was charged with getting them through at least two years of material in the nine months that we were in school. Furthermore, trying to fill in the gaps in their knowledge was like a horrible guessing game. Although they had not really been achieving outside of special ed., they had been in school since kindergarten. And they had learned some things, quite well in fact. Dominic, who was probably the weakest reader in the class, knew all his times tables (up through 9) better than any of the other students in the class. It was also Dominic

who would become extremely offended if I attempted to teach him something he'd even glanced at before, regardless of whether he'd mastered it, which usually, he had not. Then he would shut down. A champion scowler, he would glower at me from his desk with a steady stream of barely audible swearing issuing forth.

There were certainly times when I sympathized with Dominic's frustration. For one thing, it's extremely difficult to develop a reading skills curriculum for a bunch of teenagers. Aside from their academic abilities, they were functioning pretty normally for their age. Their listening skills were still perfectly intact. Imagine if, instead having a discussion about *Wuthering Heights* during class, you had to talk about *Clifford the Big Red Dog*, or *The Lorax*. I spent hours searching for books that they might be able to follow along with that would still be interesting and would not make them feel, well, like little kids. *The Outsiders* by S.E. Hinton was a big hit. I would read aloud, and we would define and review the vocabulary words together. There were many books, however, that we had to abandon halfway through, either from sheer boredom with the subject matter or frustration at the difficulty of the reading level. We actually expect quite a bit from our 4th and 5th graders in terms of their reading abilities. Consider this excerpt from *Tales of a Fourth Grade Nothing* by Judy Blume:

It's an old apartment building, but it's got one of the best elevators in New York City. There are mirrors all around. There's a soft, cushioned bench for you to sit on when you're too tired to stand. The operator's name is Henry Bevelheimer. He lets us call him Henry because Bevelheimer is very hard to say.

The language sounds deceptively simple. But look at the individual words. "Apartment," "elevator" and "operator" aren't even the worst part, although they are some of the longest words in the passage. It was more likely that a second-grade reader like Aaron would be unable to decode the word "building" because of the strange "ui" vowel combination, or "cushioned" because of both the "sh" blend and the "io" combination. "Bevelheimer," would be impossible for Aaron to decode correctly. And this is from a book for fourth graders.

The disparity between understanding and reading ability was especially hard for William to accept. At 20 years old, he couldn't read the bus schedule, couldn't take a driving test and couldn't fill out a job application. And although I tried to provide him with more "grown-up" reading material like newspaper articles about sports or music that he liked, he simply could not read them. At this point, he'd already made remarkable progress: he had moved from being unable to read two letter words to reading full sentences, and decoding some simple, phonetic words. Considering his diagnoses - dyslexia, mild mental retardation, emotional disturbance - and the fact that he was twenty, this was a huge accomplishment. It is a fact that as we age, our language acquisition slows rapidly. William's limits were frustrating for me as a teacher, and I can't imagine how frustrating it was for him.

The stories of Phineas Gage and William overlap on the day that William completely lost it in my classroom. On this particular day, the intense dissatisfaction with the limits of his cognitive abilities came to a head, in a horrible combination with his diagnosed emotional disturbance. Angry and insulted that he was being asked to read what he considered "baby" material, he threw all his work on the ground. I told him that if he couldn't behave responsibly, he could leave the classroom. Screaming things that I wouldn't dare repeat in a chapel, he started towards me as if to hit me. And I was very, very scared, considering that he was a completely grown, 6 foot 1, 200-some pound man. Aaron went out into the hall and got one of the aides, huge guys who were stationed throughout the school for this very purpose. Afterwards, alone in my classroom, I cried for half an hour.

Later that day, I was sitting in the library, two floors below the principal's office. William was in that office with the principal, the director and the program monitor. I was told later that he panicked, tried to run, swung punches, broke a wall, and had to be physically restrained. Hearing it two floors down, it sounded horrible. There was screaming, thumping, and worst of all, the sound of William crying and sobbing, calling for help and sounding like a very young child. It was the sound of someone who was definitively out of control, of his emotions, of his thoughts, of his actions. I also started to cry, for the second time that day.

I never had William in my classroom again. He stopped coming to school for several weeks, and then decided that he wanted to continue to work on his reading. The school told him he could return in the 2005-2006 school year. It's confusing and frustrating (that seems to be a key word in this chapel talk) to think about why William lost control. Before this incident, he'd never said a hurtful word to me. He'd brought me chocolates on my birthday. He was diligent, quiet and responsible, and we would have long discussions about the most effective ways to address his reading difficulties. As his teacher, I wished that I could have known what set him off - the equivalent of the rod that went through Phineas Gage's head. I wanted to know what had happened, cognitively, to all my students, because somehow, I felt that knowing this information could help me teach them. Better. It would take away the guesswork, and give me a clear pathway to addressing their very specific learning and emotional needs.

It wasn't until the year was ending that I finally stopped caring about why. In the nine months that I had spent with these boys, we hadn't made it through our assignment of two years worth of material. But we had learned. Their math skills were sharper. They could recognize more words on sight, rather than sounding them out. They'd added 30 lists to their spelling vocabularies. And I had seen a place of need that I didn't even know existed, coming out of my 17 years of private education. Maybe knowing why could have made me into some super-teacher who I don't know can even exist. What matters is not so much the why, but where we go, who we meet, what we do, and how we come to care about each other.