On Dyslexia

Introduction

Two of my colleagues recently made statements about dyslexia that surprised me. Try taking this true/false test about dyslexia (no, it won't be graded):

1. Dyslexics see letters backwards
2. Dyslexics write letters backwards.
3. Dyslexics are smart.
4. Dyslexics are stupid.
5. Dyslexics are lazy.
6. Dyslexics have ADHD.
7. Dyslexia doesn't really exist.
8. Dyslexia can be cured.
9. Dyslexia is acquired when students aren't taught properly.
10. More boys have dyslexia than girls.
11. Smart dyslexics can just pick up reading easily.

The answer to all of the above is false (more or less, because we're talking about human beings, who vary). This handout covers information about dyslexia, including:

1. What is dyslexia?
2. How is dyslexia diagnosed?
3. What causes dyslexia?
4. Can dyslexia be cured?
5. What are common symptoms or results of dyslexia?
6. How dyslexics learn: "The Gift of Dyslexia"
7. Additional resources

Part 1: What is dyslexia?

Reading is complicated. It involves visual acuity (the ability to see clearly); correct eye functioning (the ability to focus both eyes on the same spot simultaneously; the ability to follow a straight line); aural acuity (the ability to distinguish sounds clearly); the ability to associate sound with written symbol; the ability to associate aural symbol, visual symbol, and pictorial symbol (the word *dog* = a picture of a dog) and to associate each with a physical object; the ability to associate symbol with symbol (*dog* = dog = DOG—note how different the *g* is in each case); the ability to connect objects with objects with symbols (a dachshund and a St. Bernard both = dog, real, written, or spoken), memory, and so on.

The word *dyslexia* means unable to read, which isn't helpful. People can't read for many reasons (being blind is an obvious reason). When we can't find a good reason a person can't learn to read, the general term is "reading disorder" or "dyslexia." The person may be able to see well and clearly, hear adequately, be of at least normal intelligence, have access to adequate education, be properly nourished, and yet read slowly and with difficulty for no reason that anyone can figure out. A dyslexic is a person whose brain doesn't process print efficiently.

Part 2: How is dyslexia diagnosed?

A reasonably accurate diagnosis can now by made by using a variety of technologies that record how a person's brain works. Neurologists track the way a brain processes print, and clearly some brains don't process print well. An interesting video on this research can be found at http://www.readingrockets.org/shows/launching/brain/.

Dyslexia may co-exist with other conditions that impede reading. Hearing-impairment can affect reading, but a hearing-impaired person may also be dyslexic. So the answers to the quiz questions 1-4 from last week are false: dyslexics do not see or write backwards and they are not necessarily of either above or below normal intelligence. And neurologists are proving that dyslexia—a brain processing condition that makes reading difficult—definitely exists.

Part 3: What causes dyslexia?

Many people learn to read even if they aren't being taught well or conditions aren't optimal. Their brains are wired to process print efficiently. Dyslexics are born with an inability to process print efficiently. Their brains are slow and inefficient in coordinating the many actions needed to read. Dyslexia is an inherited condition that runs in families. To date, no one has proven

that it is more prevalent in men than women (if you find a reliable study that shows otherwise, let me know).

An analogy: Suppose we agree to meet in downtown Glens Falls for lunch. I turn left out of the College, zip down Bay Road, park, and wait for you. You, in the meantime, having a brain that doesn't process direction well, go the way you know. You turn right out of the College, go up to exit 20, get on the Northway, go down to exit 18 and drive into Glens Falls. Your brain is wired in a way that doesn't process spatial relations well, you can't figure out that Glens Falls is south of the college, and you end up arriving so late that I've finished my lunch and left. In general, dyslexics process print so inefficiently that by the time they are through, many of us have finished the text and left.

Dyslexia can be acquired if the brain is injured. People who have strokes, for example, may have difficulty processing print.

Part 4: Can dyslexia be cured?

The severity of dyslexia varies widely: one dyslexic may have such a mild condition that he is able to compensate on his own, while another may need intensive specialized instruction for a year or more. Dyslexia can't be "cured." It doesn't go away. However, most dyslexics can learn to read reasonably efficiently if they are given specialized instruction. Research shows that people's brains are highly adaptable. When dyslexics learn to read, they may also be retraining their brains so print is processed more efficiently. Like any other skill, the more a person practices, the better the skill gets.

So the answers to 8, 9, 10, and 11 are false. Dyslexia isn't caused by bad teaching, it can't be "cured," and, by definition, no matter how bright a dyslexic, they may not be able to "pick up" reading. Dyslexia doesn't discriminate by gender. Depending on a variety of circumstances, however, dyslexic's brains can be trained so that they process print more efficiently and reading is easier.

Part 5: What are common symptoms or results of dyslexia?

When I spent a semester in Israel, I audited courses at Hebrew University which were, of course, taught in Hebrew on a college level. My Hebrew listening, speaking, reading, and writing are nowhere near college level. I could barely follow the lectures and take minimal notes. However, I was there voluntarily, out of interest, and no one was judging my work. The experience was still frustrating.

Transfer that scenario to an average or bright seven or eight year old. She's sitting in her classroom (not voluntarily) and she hasn't been able to read the homework. When the teacher calls on her to read, she is barely able to stumble through the words. People talk about things she can't understand because she hasn't been able to do the reading. She knows her report card will reflect the fact that, as she thinks, she's just stupid. How does she act?

If she has any intelligence she fidgets. She draws. She asks to go to the bathroom. She daydreams. She gets farther and farther behind in her work and stops working. So people may say that she has ADHD, or she's lazy (or both). Neither medication nor punishment addresses the underlying condition, and her behavior may become more problematic.

(It doesn't help that we are now insisting that children must read and write by age five, when most children—not all, but most—are not physiologically developed enough to engage in the complicated processes needed to read.)

Fast forward to college. This child has been bright enough to figure out how to get around the system. She does a lot of guessing. She's learned to listen carefully, and her guesses are often right. She's been allowed to do modified assignments and praised for what she does well. She's been told that "it's OK you're not good at reading (or math) because you're so nice." She's been told, "It doesn't matter if you read the exact word, as long as you have the general meaning." And she's been told she has to go to college or "you'll work at McDonald's all your life."

So she arrives in a college classroom where, even in remedial classes, things move quickly. She has 15 weeks to pack in all kinds of new behaviors and patterns, and she can't read. In her accounting class, there's no such thing as a good guess; if the answer isn't right, it's wrong. So she stops working. She gets farther and farther behind.

I work with a colleague who I respect tremendously and with whom I am honored to work. We have one major area of disagreement. This colleague will describe a student as "lazy" and I will say, "No, he isn't. He's just terrified, the same way I would be if you stuck me in the middle of a varsity basketball game and told me to play." (I'm 61 inches tall, and I'm afraid of balls.) One intelligent response, in this situation, is to avoid the situation. Don't do the homework. Run away from the ball court.

So the answers to questions 5 and 6 in the introduction are "more or less false." Yes, an individual dyslexic might be lazy or might have ADHD. But these behaviors are not an integral part of dyslexia. They may disappear if a student is taught to read and has something to do in the classroom besides feel stupid.

The happy flip side is that many dyslexics figure out how to get around the system and use those "getting around the system" talents to find work their brains are wired to do well and that requires minimal reading (or earns them enough money to pay someone else to do the reading and writing). Successful entrepreneurs have a higher-than-average dyslexic population.

Or maybe someone finally teaches them to read (even if they are successful entrepreneurs).

Part 6: How Dyslexics Learn: "The Gift of Dyslexia"

The Gift of Dyslexia is a controversial book by Ronald D. Davis. I read half of it when I taught a functionally-illiterate 29-year-old to read because he chose it. Brian (not his real name) works in a highly specialized medical imaging field. He's also a marathon runner.

Davis describes how dyslexics are able to manipulate images in 3D in their minds. "Can you do that?" I asked Brian, "because I have no idea what he's talking about."

"Sure," said Brian, "it's easy."

"That's why you're so good at what you do," I said. "Show me an x-ray, and however long you explain it, all I see are wavy black-and-white lines. But you look at an image and see it in 3D and see what's happening to that part of the body."

"That's why I like this book," said Brian. "No one ever told me I had a gift. I just had something wrong with me that needed to be fixed."

Dyslexia exists because our society depends heavily on the ability to decode and comprehend alphabetic symbols (the ability to read). People who are good at this are "smart." People who aren't are "slow," "disabled," or "stupid." But dyslexics are able to think in images and manipulate the images mentally to visualize possibilities. They tend to think in video. They are good at things that don't involve heavy reading, like graphic design, architecture, a wide variety of art forms, sports, and looking at challenging problems in new and different ways. (There are persistent attempts to diagnosis Leonardo da Vinci with dyslexia. For fun, see http://www.dyslexia.com/famous.htm, but remember that not everything on the internet is true.)

Dyslexia may not be a gift any more than the ability to absorb printed information quickly and accurately is a gift. Each, however, is a skill, and it generally possible for humans to develop new skills at every stage of life. A company in Brian's area of specialty developed new technology and the manufacturer offered him a job training other people in using this technology. He said to me, "Before we began, I never would have considered taking this job. I

would have just assumed I couldn't do it. But now I can read." The last I knew, Brian was teaching sessions in his specialty at local and national conferences.

"We believe that every student has a right to be taught in the way he or she learns best," was the motto of the Massachusetts General Hospital Reading Disabilities Unit, established in 1934 and dismantled in 2008.

My mildly dyslexic daughter glances at the diagram, tosses it aside, says, "You don't need this, Mom," and proceeds to assemble the gadget that I've spent 30 minutes trying to figure out. It becomes humiliating when she adds, kindly, "You didn't need to buy a kit, Mom. You could have just gone to Lowe's and bought the pieces and put them together." Honey, I wouldn't have a clue how to figure out what pieces to buy, let alone be able to measure them correctly.

She and I both read voraciously. But I walked into the GREs cold, having done no review and studied no math for six years (I couldn't even remember the formula for the area of a circle) and still got a 50% on the math portion. In spite of my daughter's honors associate's degree in math, and the fact that people in her engineering ecology program consistently compliment her on her math skills, we both know that she's going to have to study for months just to top that 50%. I'm lucky; I can do standardized tests. She's smart—she can't.

Part 7: Resources

This is a list of reliable resources. It is not comprehensive. It is not an endorsement. I hope it's helpful.

Websites:
International Dyslexia Association (interdys.org)
Academy of Orton-Gillingham Educators and Providers (www.ortonacademy.org/)
LD Online (www.ldonline.org)
Reading Rockets (www.readingrockets.org)
National Centre of Literacy and Numeracy for Adults, a New Zealand website with some useful videos. (www.literacyandnumeracyforadults.com/resources/355696)
Everyonereading.org (formerly the NY Branch of the International Dyslexia Association)
Video: "Demystifying Dyslexia" at http://www.thinkbright.org/dyslexia/about/default.asp

In general, be wary of .com websites. Some may be excellent, but they are primarily selling reading programs.

Journals

Perspectives on Language and Literacy, a publication of the International Dyslexia Society, is available through JSTOR (and my office)

The Annals of Dyslexia is a technical research journal, also published by the International Dyslexia Society, and available in my office.

Journal of Adolescent and Adult Literacy, a publication of the International Reading Association, is available through JSTOR (and my office)

Books

Sally Shawitz, *Overcoming Dyslexia*, is currently one of the leading books in the field.

Philip Schulz, *My Dyslexia* is a memoir of a dyslexic author (who is also a Pulitzer Prize winner).

Marianne Wolf's *Proust and the Squid* is a popular (as opposed to technical) book on how the brain works.

I have a lot of specialized material, ranging from first-person narratives to highly-technical articles on the link between rhythm and dyslexia. Please let me know if you are looking for any special information.

> If you could see the world the way I do,
> With nothing keeping up or keepin' time,
> Your sense of self would tear your heart in two,
> While you try to tell the world your feelin' fine.
> Inside that's how I feel
> So I reach for something real
> And hold on.
>
> Chris Smither, "Hold On II." The song isn't about dyslexia, but it epitomizes what I suspect is a common feeling of many learning disabled people.