

Tree Fish

Anna Morgenthaler

*Everybody is a genius, but if you judge a fish by its ability to climb a tree
it will live its whole life believing that it is stupid.*

—Albert Einstein

The intent of this project is to make teachers more aware of all aspects and features of dyslexia, and make them more capable of educating dyslexic students. Through compiling both biography and research, I hope to reanalyze our current understanding of dyslexia and propose a new, positive view and approach to it. I hope to deconstruct preconceived notions of what dyslexia is, provide a personal account to allow for a better understanding of the personal hurt and challenges the dyslexic student faces, and propose a new view of looking at dyslexia that considers not only its challenges, but more importantly, its strengths. I will provide resources for how to change not only individual thinking, but collective thinking, in the hopes of impacting the future education system. With the compilation of resources I have provided, I hope to illustrate how the positive features of dyslexia can be utilized in the classroom to help the dyslexic student develop, not only academically but emotionally as well, and to show how this more dynamic and integrated approach to teaching is beneficial for all students. This is not a guide to understanding the language-based challenges of dyslexia, and how to “correct” or “cure” them. Rather, this is a detailed analysis of the dyslexic mind, its capabilities, the emotional and academic experience of being dyslexic, and how positivity and acknowledgment of the strengths of the dyslexic mind can allow for academic and general success.

...

I remember realizing for the first time that I was stupid. It was during my second grade DIBELS testing. DIBELS (Dynamic Indicators of Basic Early Literacy Skills) is a short, one minute test that measures literacy skill acquisition (University of Oregon Center). It is a timed fluency measure that assesses the big ideas of reading—a dyslexic student’s worst nightmare. I was taken to the school library by a parent volunteer, who would be administering the test to collect data on my reading and comprehension skills for the school. We sat down at a table near the entrance, my pulse racing with apprehension, as the test administrator removed the instructions and read a passage from the folder in her hands. By this point in my life, I understood that I was not a good reader, and this was about to be proven. I was going to be asked to read aloud, racing against the clock, and I was determined to succeed.

My tester read the instructions aloud; I would read a passage while she timed me, and at the end of one minute she was going to stop me and ask me some questions about what I had just read. She placed the passage in front of me, the end of each line labeled with a number that would later be used to calculate my score, then pressed the start button on the timer. *Beep.*

In one minute, I managed to make it about three lines or so down the page, stumbling and stuttering over the words. It was at the end of this one minute that I felt it. The thoughts and emotions of my tester poured off of her. She did not even have to say anything; I heard her thoughts, the general sentiment of which were, “Oh man, this kid is screwed.”

I felt her judgment, her negative analysis of me. I had been determined to prove my ability, but instead I had been dragged into the light, my challenges had been exposed, analyzed, and I had been found wanting. I felt how my performance defined me for this woman, how she understood me. I felt the weight of my performance, what it meant, its essential role in determining my intelligence and self-worth, and recognized that I had failed.

I cannot tell what the passage had been about, any more than I could have told my test administrator what it had been about on that day that I read it. However, I can still remember many of the obscure visual and poignant emotional details of that experience. I remember that the folder that the testing materials had been in was red, that the table we sat at was placed at the end of the first shelf of books in the library, and that the alphabetical label of this shelf was mounted on blue and lime-green paper. I can tell you that the table was round, the chairs incongruently square, the tabletop a light grey encased in a pale artificial wood. I can tell you that a statue of Dobby the house elf, donated to the school upon the release of the second Harry Potter film, stood to my right beside the table, his tennis ball sized eyes staring in total terror of the monster that stood before him, his fear reflecting my own.

I can tell you all of these things for the same reason that I was unable to tell my test administrator what happened in the passage beyond the third line: I am dyslexic. My being dyslexic is what allowed for this moment to exist as it did, as it does in my memory, with the combination of the challenges I faced in acquiring reading and writing skills, the negative emotional impact that resulted from having such challenges, and the strong visual strengths that my dyslexic processing style has granted me.

The Challenges... All of them

Children with dyslexia face two special challenges during the years from birth through mid-adolescence: 1) mastering the basic brain functions that underlie reading, writing, and other academic skills; and 2) developing a healthy self-concept. The language-based challenges of dyslexia are greatly understood and documented. Dyslexic individuals face many challenges with language acquisition, often talking late, leaving out and inverting parts of words, struggling to retrieve words from memory, and being slow to master grammar rules. During their elementary years, dyslexic students struggle to master the skills of reading and writing, struggling to break down words and learn the names and sounds of different letters (encoding and decoding language).

Challenges with literacy, language, and other aspects of learning have remained the almost exclusive focus of dyslexia research and education. As a result, dyslexia has come to be seen as essentially synonymous with these challenges. However, these challenges of reading and writing are only half the battle. The hyperfocus on fixing the weaknesses of dyslexia threatens the dyslexic individual's self-concept, as it fails to foster and consider the numerous and powerful strengths of the dyslexic processing style. This is one of the biggest problems with our current education system and a key reason why so many dyslexic students emerge from their early school years feeling scared, defective, and defeated—patterns and emotions which follow them up through higher levels of education, and on into their lives.

The concept of dyslexia is a human invention, and the way we use it to understand and analyze individuals has the ability to either narrow or expand and clarify our view of them. As

the introduction to this concept, consider this excerpt from Brock and Fernet Eide's groundbreaking book *The Dyslexic Advantage*:

Imagine you live on a remote island and you've never had contact with the people or products of the outside world. One morning as you walk along the beach you spy a shiny cylindrical tube half buried in the sand. You pick it up, clean it, and carefully examine it. With growing excitement, you realize it's a product of human design, but what it is, or what's it for, you can't immediately decide.

As you inspect the tube you find that it's...gently tapered so that one circular end is nearly twice as wide as the other...You peer cautiously through this large end, and after a moment's adjustment you begin to see a familiar yet marvelously transformed image: it's a... miniature of the beach stretched out in front of you. With awe and astonishment, you realize what you've discovered: a remarkable device for making things look small. (6-7)

Just like the telescope described above, we have stumbled across dyslexia, and have approached its analysis and use in the wrong way. We use dyslexia as a tool to analyze and assess individuals, but we use it "the wrong way around," allowing it to shrink our understanding of the dyslexic thought pattern/process, and thus, truly allow this difference to negatively impact dyslexic individuals. This backward approach enables what are only surmountable challenges, to be truly disabling. "We've recognized the phenomenon of dyslexia, but missed its significance...because we first recognized dyslexia as a learning disorder rather than a learning or processing style" (Eide, 8).

It is easy to focus on the challenges of dyslexia. I would propose that the classification of dyslexia as a learning disability is a result of standardized education, which, although detrimental to all students to some extent in limiting the recognition of individuality, is extremely detrimental for students who have learning differences such as dyslexia. Standardized measurements of these students designate them as being below average and less capable than other students, as they fail to capture the strengths and unique abilities of the dyslexic learning style. It is essential that these students' unique abilities are acknowledged. It must be recognized that these students are capable of achieving the same things as other students, although it may take them more time, and require the use of different methods and skills.

It is important that educators reanalyze their perceptions of dyslexia and the impact these perceptions can have on the dyslexic student (Rosenthal). We must come to consider the positive features of dyslexia and how to utilize these in the classroom to help the dyslexic student develop, not only academically but emotionally as well. When utilized correctly, the strengths of the dyslexic learning style can help these students excel academically. The education system should not be trying to “cure” people of dyslexia, but rather, help them become better at “being dyslexic.” We need to broaden the way we think about, recognize, and understand dyslexia so that we no longer only consider the challenges but also the important talents and strengths that derive out of the dyslexic brain. It is time for the academic world to acknowledge and embrace the fact that dyslexia is not something people have, but rather, something they are, and that it is not a bad thing.

...

My mom was told that I was dyslexic when I was in the second grade. She was pulled aside by my classroom teacher and the special education teacher; they told her that I needed to receive special accommodations outside the classroom to help with my learning disability. My mom refused though—she refused to have me labeled, she refused to have me removed, and she refused to tell me that I was disabled. Rather, she focused on my intellectual strengths, telling teachers that posed concerns about my shortcomings that I was a very visual learner, providing them with a *can* rather than a *can't*. She sought programs and tutors outside the classroom that would help hone my strengths, helping me learn to read and write and cope with the struggles I faced with reading and spelling. Slowly but surely, I grew, as *The Dyslexia Advantage* describes, it was a slow bloom, but a bloom nonetheless. I developed my skills slower than most of my classmates, but the skills came all the same.

It was not until I was in sixth grade that I heard the words, “learning disability,” used in reference to the challenges I had grappled with all my life in learning to acquire reading and writing skills. It was after my sixth-grade conference and came from the mouth of the learning aid, a wisp a woman, standing in the hallway, just outside my homeroom. My mom and I, the learning aid, and my homeroom teacher had just spent the last half an hour discussing my performance in the classroom and looking over my standardized test scores. The scores indicated that my reading and writing skills were below the targeted proficient line, but my teacher said that otherwise I had been a bright, engaged, well mannered, and promising student for the whole first quarter of the year.

The learning aid looked to my mom, the manila folder containing all the files illustrating my shortcomings in hand, and said, “I would be willing to help Anna after school, I help lots of students with learning disabilities just like her, at that time.” And just like that, that frail woman, who looked as though she could have been whisked away with a gentle breeze, sent my entire being crumbling, smashing to the ground with just one word, “disability.” My gut clenched at her use of this word in relation to myself. My eyes filled with tears, as my brain recognized itself for the first time, as the rest of society did. It gave a devastating explanation for why red ink always crowded my papers, why underlying whispers from fellow pupils always accompanied my slow labored reading in class, why I had to go to a tutor, and why the graphs of my reading and writing standardized test scores always hung in the yellow just below the green proficient line.

I cried that night, as this new understanding, this new lens, settled over my perception of my challenges. I no longer looked upon them as challenges to be overcome, but as indications of all that I lacked. My lack of intelligence, my lack of ability. The self-consciousness that had always lingered beside my weaknesses expanded and latched onto me. The way I viewed myself, my academic abilities, and my reading and writing skills had been changed forever.

It’s ironic how we can place so much importance on language, use it to make graphs and charts, and measure and quantify people, their abilities, and their progress, and then throw it around so carelessly, yet fail to even realize its devastating and destructive results.

Differences

Neurological: The Roots

Dyslexia, or the dyslexic processing style, is not just a barrier to learning how to read and spell; it's also a reflection of an entirely different pattern of brain organization and information processing, one that predisposes a person to important abilities along with the well-known challenges. The dyslexic processing style shows increased reliance on right hemisphere processing (Norton et al.). This tendency is significant, as it reflects an absence of the usual leftward shift that occurs in individuals as they learn to read and process language. When first learning how to read, individuals utilize both sides of their brain heavily. With practice, most readers gradually shift to largely left sided processing circuits when engaging with language, but dyslexic individuals maintain this dual sided processing style (Shaywitz et al.).

Each hemisphere processes language in a unique way. The left hemisphere focuses on the primary meaning of words, comprehending the most common of literal meanings, and thus is precise and rapid at interpretation. The right hemisphere, by contrast, processes secondary, or more distant meanings and word relationships (i.e. synonyms, antonyms, figurative meaning, humorous connections, themes), and thus, is slower at processing but much richer in its outcomes.

The dyslexic mind's reliance on the right hemisphere helps explain not only the challenges dyslexics face in their slow and labored processing and accumulation of language skills, but also highlights some of this processing style's important skills. This right hemisphere dominance results in the strengths of big picture processing and problem solving. This unique processing style, and reliance on the right hemisphere, gives rise to "dyslexic readers." Dyslexic readers are dyslexic individuals who have learned to produce the right to left shift in their

reading circuit, who still generally read slower than the average individual, but with highly interconnected, imagery-based reading comprehension, that results in exceptional analysis of texts.

The dyslexic brain is also distinct in its cell to cell connections. It was discovered by Dr. Manuel Casanova of the University of Kentucky School of Medicine, that the neurons of the dyslexic brain have greater spacing between their neural connections than those of the average brain. The neurons of the average brain are tightly spaced with shorter axons, forming physically smaller and more local circuits, compared to those of the dyslexic brain, which are widely spaced, and form longer, more distant connections across the brain. These physical differences result in a significantly different pattern of functioning. The wide spanning connections of the dyslexic brain excels at recognizing overall form and context, allowing for exceptional skills in synthesis, perception of relationships, drawing unusual and insightful connections, and problem solving.

The Strengths: The Leaves

These physical differences of the dyslexic brain give rise to both the strengths and challenges of the dyslexic processing style. Dyslexic individuals, and their capabilities, appear very different depending upon what aspects of their abilities are being analyzed. If the dyslexic individual's reading and writing skills are being analyzed, it appears that they have some sort of learning disadvantage, which, with regards to these skills, they do. However, if these individuals are observed doing any other task, they appear very capable, and even specially advantaged. The dyslexic brain excels at seeing gist and essence, giving rise to its strengths of comprehending

multidimensionality of perspectives, seeing new and unusual connections, recombining things in novel ways, and inventiveness. “Dyslexic brains store information like murals or stained glass, connect ideas like spiderwebs or hyperlinks, and move from one thought to another like ripples spreading over a pond” (Eide, 42-43).

Dyslexic individuals are not talented despite their dyslexia, but because of it, with the strengths and weaknesses of the dyslexic processing style acting as two sides of the same neurological coin. The weakness of dyslexia is simply the opposite of its strengths. In *The Dyslexic Advantage*, Brock and Fernet Eide classify these strengths into four categories: material reasoning, interconnected reasoning, narrative reasoning, and dynamic reasoning.

The strength of material reasoning is the exceptional ability to reason about the physical characteristics of objects and the material universe. It is recognized as one of the most common and important talents of dyslexic individuals. Individuals with this strength show a strong acuity for using a 3D perspective to reason about big pictures, spatial features, and strong creative skills. These individuals often struggle in the early grades but show the late blooming pattern of development, common to dyslexia. This strength of the dyslexic mind is well applied in the action of construction and creation.

Interconnected reasoning involves exceptional ability in spotting connections between different objects, concepts, or points of view. This ability to create webs of meaning results from the microcircuit of the dyslexic brain and its advanced top-down processing. These individuals excel at working from big picture inputs to in-depth thought and consideration of fine details.

While this big picture acuity form of processing is often slow and inefficient, these skills prove extremely useful in fields that require analysis.

Dyslexic individuals who show strengths in narrative reasoning are talented at constructing a connected series of mental scenes from fragments of past and personal experiences. These individuals are then able to use these “narratives” to explain the present, consider future scenarios, and understand and test concepts. This strength is made possible by the dyslexic brain’s strong episodic, or personal, memory capabilities. The memories stored in episodic memory are recalled in a scene-based format, where these concepts are recognized by the individual as experiences or enactments, as they internally “see” their thoughts and recollections. This strength is well applied in the areas of storytelling, imagination of the future, and problem solving.

The strength of dynamic reasoning allows individuals to make predictions of the past and the future, even when provided with variable, incomplete, or ambiguous information. To do this, like in narrative reasoning, the dyslexic individual utilizes their exceptionally strong episodic memory. These individuals also utilize the dyslexic brain’s tendency toward big picture processing to read and match patterns. This strength allows these individuals to be talented in forming working hypotheses, useful in the areas of research and other fields of discovery and creation.

Teaching to the Dyslexic Strengths

The strengths of the dyslexic individual often provide the key to their success and thus should be applied in their education. When they are given proper support and the strengths of the

dyslexic student are utilized they can overcome their challenges. You would never ask someone to use their weakest muscle to accomplish a task; you would encourage them to use and play to their strengths. Why should the approach to dyslexia be any different? Ability should be utilized to work towards greater ability.

In teaching to the dyslexic strengths, it is important to recognize the dyslexic processing style's tendency toward episodic memory. This means that these students are more likely to remember images and scene-based experiences, rather than abstract and non-contextual facts. Providing examples and cases help play to the skills of narrative and dynamic reasoning, which thrive and excel with interaction, particularly when applied in social and conversational contexts. The use of examples and visuals is helpful for making learning an experience that is more easily encoded into the strong episodic memory of the dyslexic brain.

It is also beneficial to the dyslexic learning style to place knowledge, subjects, and curriculum in a big-picture and interconnected framework. Organizing abstract concepts and procedures into narrative or case-based information helps students who possess narrative reasoning encode information. This focus on the big picture concepts and connections between material would be especially valuable to those who rely on interconnective reasoning. These students would thrive when provided summaries, outlines, and multisensory approaches. Students talented in interconnected reasoning would excel when asked to make associations and analogies between information and would be very good at the integration of new subjects with those that they previously studied.

The dyslexic learning style, in general, would benefit from more hands-on, active, and creative learning, as it would allow dyslexic individuals to access their strengths in applied reasoning of any variety. This style of learning would allow individuals to utilize their advanced big picture processing and problem-solving skills, through applied and tested reasoning. In turn, this would help students encode information that is both applicable and easily accessible by their different processing style.

With the proper support and utilization of their strengths, the dyslexic student can learn to not only overcome their challenges with language but truly excel in their learning. This is the value that working with ability toward ability can provide to the dyslexic student.

...

When I was in second grade, I started seeing a tutor to help me with my learning difficulties, her name was Kelly. Kelly acknowledged my strengths and used them to help me learn to read and write. Without Kelly I know I would not be where I am today in my education, in my understanding of myself, or in my love of English and the written word. She worked magic, not only in supporting me academically, in helping develop my reading and writing skills, but in supporting me emotionally. She gave me the academic, psychological, and emotional support that I needed to face a language based world, the world that had such a narrow understanding of my processing style. Kelly made me believe in myself and know my worth. She made me understand that I was capable, utilizing my visual and interconnected reasoning strengths to help me through my challenges. She played off my strengths rather than dwelling on my weaknesses.

We worked together to practice my reading and writing skills. She helped me practice spelling words, writing out the words in bright colors, utilizing my visual strengths. I remember practicing my spelling words in the car, my mom listing off a word, and me closing my eyes as Kelly had taught me, and imagining each part of the word, blocked in its own color. Kelly provided me with the resources that my conventional classroom failed to give me, playing to my visual strengths, to help me access and decode language.

Besides this spelling practice, Kelly gave me one of the most valuable things that helped me develop beyond the challenges of dyslexia, she listened to me and encouraged me. She not only acknowledged my strengths in terms of academics but across contexts. She got to know me beyond the practice of tutoring, recognized me as an individual, and showed me, unlike so many academic settings had before, that my challenges with language were a minor element of my much greater and worthier being. She, like the woman who administered the DIBELS test to me in the second grade, didn't have to say anything specifically. I could feel it, the fact that she believed in me, and was never worried that I was not going to be okay. She knew I would learn, grow, and succeed. I heard her thoughts, and they were something along the lines of, "Oh man, this kid will be just fine. Better than fine."

Support: Recognizing Ability and the "So What?"

Fostering and supporting dyslexic students is essential in ensuring that these students' challenges with reading and writing do not become emotionally and academically disabling. Dyslexic students are constantly at risk of suffering from their apparent inferiority, as their contact with repeated failure can result in a sense of powerlessness. This constant negative

emotional bombardment can lead to extreme self-deprecation and the understanding that their challenges are “permanent (or unchangeable), pervasive (affecting not only the areas where the failures occurred but every aspect of life), and personal (or due to some defect within themselves, which they believe to be inescapable or even deserving of punishment)” (Eide, 209).

To help limit the impact of these negative emotional and psychological effects, teachers and other support structures should help the dyslexic student not only recognize, but utilize, their strengths and abilities. They should highlight the dyslexic learning style’s tendencies toward late-blooming development, ensuring that the student understands that their challenges are surmountable. More than this, it is important to acknowledge how the strengths of the dyslexic mind can not only be used to cope with its challenges but also be used to open up unique and amazing opportunities for them. It is important to teach dyslexics that their “challenges are temporary and conquerable...and due to specific patterns of brain organization and function rather than to a lack of effort or merit on their part” (Eide, 209), to deter any tendency toward a fixed growth mindset. The support of teachers and parents in encouraging the “cans” of dyslexia, rather than the “can’ts” is crucial to the development of the student. The recognition and praise of hard work and strengths promotes future efforts and eventual growth.

Beyond encouraging the strengths of the dyslexic processing style, it is important to minimize the weight given to the weaknesses and challenges of the dyslexic mind—what I will refer to as the, “So what?” I encountered this approach of the “So what?” in one of my final tutoring sessions with Kelly. I had been seeing Kelly for almost four years at that point and had experienced exceptional growth in my reading and writing skills. I still struggled, and continue to

struggle, with my spelling ability. My mom asked Kelly what the next step should be in helping me grow in my spelling capability. Kelly responded simply, “Anna is never going to be a great speller. So what?” At that moment, Kelly took the power away from my weakness, not allowing it any unjust strength, and redirected the power to me. She empowered me and lent me strength that has kept me motivated throughout my schooling, despite my poor spelling and the self-consciousness I still experience about it.

Fast paced reading and proper spelling are just one part of the puzzle, and definitely not the most important pieces. There is so much more to the individual, and their abilities, than these challenges. These are challenges that one cannot only live with but thrive in spite of, as their talents and abilities exist beyond these weaknesses. Recognizing the quality of thinking that lies behind superficial errors is important for supporting the dyslexic student and correctly identifying their true intelligence and capabilities. It is not that these skills should not be worked toward or strengthened, but in most cases the dyslexic student is doing all they can to produce their best work, and the act of cluttering a paper with red ink is only detrimental. An act like this can be so devastating and defeating to the student, and yes, I speak from personal experience. What is one, or even twenty, misspelled or misread words, to an entire education; to a life; to an individual, their self-motivation, and their self-worth?

The education system should encourage the placing of dyslexic students’ abilities, rather than their disabilities, at the center of what it means to be dyslexic. A revision of thinking would not only impact the way we educate and teach these individuals, but also the way these individuals feel about themselves, their abilities, and their futures. Dyslexia does not imply

inevitable failure; like anything, it comes with its challenges, but also a set of strengths that can be utilized to not only cope with these challenges, but help individuals accomplish significant achievements in a variety of fields.

Reshaping Education

The current structure of the education system allows students who learn differently, like dyslexic students, to be left behind. If they are to learn the skills and methods that work best for their way of thinking they are forced to learn these outside the “normal” classroom. So, perhaps it is time to consider making the classroom less “normal.” The current standardized education and testing system favors students with conventional learning styles and left-brain dominance. It values logical, analytical, and verbal learners, and disregards global, visual, and creative learners. The current education system lends no value to, and provides little acknowledgment of, visual and kinesthetic learning styles (Vlachos). Curriculums should be restructured to incorporate more dynamic lessons that appeal to a larger variety of learning styles. When teaching styles are compatible with student learning styles, students retain information longer, apply it more effectively, have a more positive attitude toward their subjects and are greater achievers (Vlachos, 2). This more dynamic and integrative style of teaching has been proven to be beneficial for not only dyslexic students, but students in general, through methods that embraced both Gardner’s Theory of Multiple Intelligences and Bloom’s Taxonomy.

Gardner’s Theory of Multiple Intelligences illustrates that all individuals learn through more than one style, in a range of intelligences, including: visual, naturalist, interpersonal, intrapersonal, kinesthetic, musical, mathematical and linguistic. Gardner argues that “a

contrasting set of assumptions is more likely to be educationally effective” than simply teaching to the more linguistic and logical-quantitative modes which the educational system tends towards (Gardner, 1992). It is recognized in the field of educational psychology that intelligence goes beyond test scores but encapsulates good judgment, intuition, forming relations, adaptation, purposeful action, planning, comparing memory, problem solving, all of which are things that the dyslexic processing style allows for exceptional performance in. Gardner’s approach to learning encourages the application of problem solving and creation in the classroom, which, as discussed above, is not only suited to benefit the strengths of the dyslexic learning style, but is proven by Gardner to benefit all students (Gardner and Hatch). This evidence supports the concept of not just asking students to remember, understand, and apply, but also to analyze, evaluate, and create, with their education. This concept is further supported by the structure of Bloom’s Taxonomy: a multi-tiered model used to classify thinking according to six cognitive levels of complexity, which moves through the levels of remember, understand, apply, analyze, evaluate, and create (Forehand).

There is a call for the differentiation of curriculum that acknowledges students’ diverse strengths and abilities, rather than their deficits, and provides learning formats that cater to individual learning needs. A combination of the practices of Gardner’s Theory of Multiple Intelligences, in tandem with the structure of Bloom’s taxonomy, allows for a more integrative and inclusive classroom, and has proven successful, through observational study, in helping students grow and hone their own personal learning styles, and achieve academic success (Noble).

...

Everybody is a genius, but if you judge a fish by its ability to climb a tree it will live its whole life believing that it is stupid.

—Albert Einstein

What can we change? We cannot change the fish. It is and always will be a fish, as it should be. We cannot change the tree, it is necessary and important, it is a foundation of our society and an important foundation for every individual. But we can change the verb: “climb.” We need to recognize that there are so many ways to get to the top of the tree, all legitimate, and this should be supported and understood by the education system. The fish may not be the best climber, but it is an excellent swimmer. Educators and society in general should recognize this; they should respect, acknowledge, encourage, and utilize the strengths of individuals to help them reach their full potential. We need to change the verb, change our understanding and approach to dyslexia within education, so we can allow all students to see the view from the top of the tree.

Works Cited

- “Definition of Dyslexia.” *International Dyslexia Association*, <https://dyslexiaida.org/dyslexia-at-a-glance/>. 2019.
- Duffy, Frank H., et al. "Dyslexia: Regional differences in brain electrical activity by topographic mapping." *Annals of Neurology: Official Journal of the American Neurological Association and the Child Neurology Society* 7.5 (1980): 412-420.

- “Dyslexia at a Glance.” *International Dyslexia Association*,
<https://dyslexiaida.org/dyslexia-at-a-glance/>. 2019.
- Eide, Brock, and Eide, Fernette. *The Dyslexic Advantage*. Plume, 2011.
- Flink, David. *Thinking Differently: An Inspiring Guide for Parents of Children with Learning Disabilities*. HarperCollins Publishers, 2014.
- Forehand, Mary. “Bloom’s taxonomy.” *Emerging perspectives on learning, teaching, and technology* 41.4 (2010): 47-56.
- Gardner, Howard. *Multiple intelligences*. Vol. 5. Minnesota Center for Arts Education, 1992.
- Gardner, Howard, and Thomas Hatch. "Educational implications of the theory of multiple intelligences." *Educational researcher* 18.8 (1989): 4-10.
- Noble, Toni. “Integrating the revised Bloom's taxonomy with multiple intelligences: A planning tool for curriculum differentiation.” *Teachers College Record* 106.1 (2004): 193-211.
- Norton, Elizabeth S. et al. “Neurobiology of dyslexia.” *Current opinion in neurobiology* vol. 30 (2014): 73-8. doi:10.1016/j.conb.2014.09.007
- Rosenthal, Robert. “The Pygmalion Effect Lives.” *Psychology today* (1973).
- Shaywitz, Bennett A., et al. “Disruption of posterior brain systems for reading in children with developmental dyslexia.” *Biological psychiatry* 52.2 (2002): 101-110.
- The Pygmalion Effect: Robert Rosenthal’s Study on the Power of Positive Expectations. Perf. Robert Rosmenthal. YouTube. Heroic Imagination Project, 13 June 2013. Web. 17 Nov. 2016.
- “Top-Down Processing and Perception.” *verywellmind*,
<https://www.verywellmind.com/what-is-top-down-processing-2795975>.
- University of Oregon Center. “UO DIBELS® Data System.” *Dynamic Indicators of Basic Early Literacy Skills : UO DIBELS Data System*,
 dibels.uoregon.edu/assessment/dibels#measures.
- Vlachos, Filippou, Eleni Andreou, and Afroditi Delliou. "Brain Hemisphericity And Developmental Dyslexia." *Research In Developmental Disabilities* 34.5 (2013): 1536-1540. Education Full Text (H.W. Wilson). Web. 23 Oct. 2016.