

# Demystifying & Redefining Dyslexia

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Tuesday, March 31<sup>st</sup> 2015  
Jonas Boardroom

# Interesting Facts...

- Dyslexia is the most commonly diagnosed learning disability
- Eighty percent of students with learning disabilities have dyslexia.
- The International Dyslexia Association estimates that 15-20% of the American population has some of the symptoms of dyslexia
- Boys are one-and-a-half to three times more likely to develop dyslexia than girls.

# What is Dyslexia?

A neurological disorder, most commonly referred to as a reading disorder. Dyslexia is a learning disability characterized by difficulty with decoding, word recognition, spelling and reading comprehension.

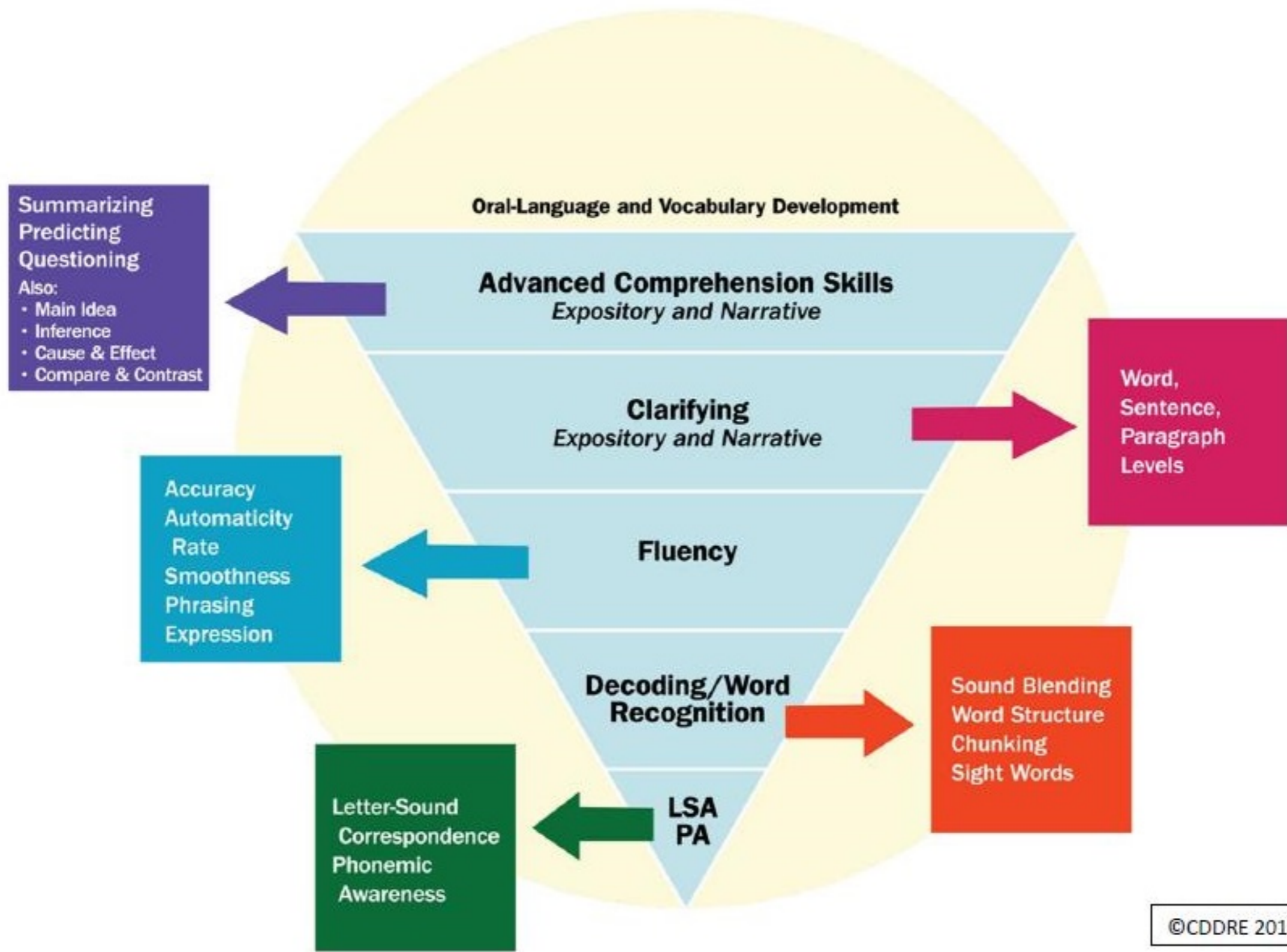
# Terms Defined

**Decoding** – awareness of the sound structure of words

**Word Recognition** – the ability of a reader to recognize written words correctly and virtually effortlessly. Reading without context

**Spelling** – the ability to transcribe the sounds of the language into alphabetic letters

**Reading Comprehension** – the ability to read text, process it and understand its meaning



# What causes dyslexia?

- Most research suggests that dyslexia involves predominantly genetic and some environmental factors
- The underlying mechanism involves problems with the manner in which the brain processes language and visual information
- It occurs most often in people with attention deficit hyperactivity disorder (ADHD) and is associated with problems with math

# Early Signs

Difficulty Learning to Read

Delay in Reaching Developmental Milestones

Speech Problems

Coordination

# Early Signs

Prone to Reversals

Spelling

Phonology Problems

Difficulty Concentrating



# How is the diagnosis made?

Clinical Psychologist/Neuropsychologist –  
Battery of Achievement Tests & Neurological  
Evaluation

Eye Doctor – Test for visual perception  
disorder (i.e. Irlen Syndrome which often co-  
occurs with Dyslexia)

# Diagnostic Criteria for Reading Disorder 315.00

Reading achievement as measured by individually administered standardized tests of reading accuracy or comprehension that is substantially below that expected given the person's chronological age, measured intelligence, and age-appropriate education.

The disturbance in Criterion A significantly interferes with academic achievement or activities of daily living that require reading skills.

If a sensory deficit is present, the reading difficulties are in excess of those usually associated with it.

# Representation at LIU Brooklyn

- Student Support Services – the office responsible for providing academic and supportive services to 1<sup>st</sup> generation/low income students as well as those with disabilities
- 28% - Students with Learning Disabilities
- 34% - Students with Dyslexia

# Accommodations

**Assistive Technology** - modifications to existing devices and technology

## Kurzweil 3000

A text to speech, learning tool with a comprehensive suite of reading, writing, test-taking, and study skill tools. It is particularly appropriate for students with learning disabilities, those who require reading intervention, students struggling with reading comprehension & English Language Learners (ELL)

# Accommodations

## Dragon Speak

Speech recognition software that translates dictated words into text. The software has three primary areas of functionality: dictation, text-to-speech and command input. The user is able to dictate and have speech transcribed as written text, have a document synthesized as an audio stream, or issue commands that are recognized as such by the program.

# Accommodations

**Reader** – The student is provided with someone to have his or her tests/quizzes read orally. Readers will only read what is on the printed page and cannot be asked to define specific terms or words, nor interpret, explain or reword questions.

**Extended Time** – The length of the exam is extended to time and a half or double time. This not only enables the student to perform closer to ability, but also allows adequate time to process the presented information.

**Alternate Test Format** – Presenting test information in an alternate format (i.e. multiple choice vs. matching) while maintaining the construct validity.

# Growing up Dyslexic

The emotional & social impact of dyslexia may be more disruptive to the individual than the difficulties it might incur.

# The Perfect Storm of Shame & Isolation





# How does the Dyslexic brain work?

## Left Brain Processing

Fine detail orientation

Rule based, step by step procedural learning

Quick Memory - Snapshot

## Right Brain Processing

Large scale conceptual understanding

Interconnections between different ideas

# How does the Dyslexic brain work?

The cortex organizes its cells into minicolumns that are connected by axons

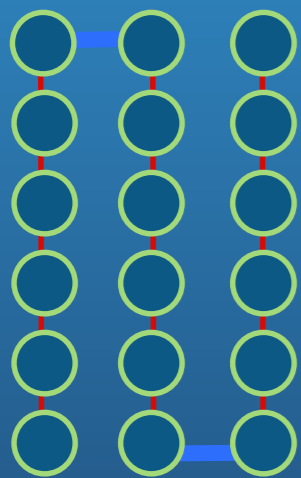
Minicolumns range from being close in proximity with **short axons** to...

Greater distant and **longer axons** connections

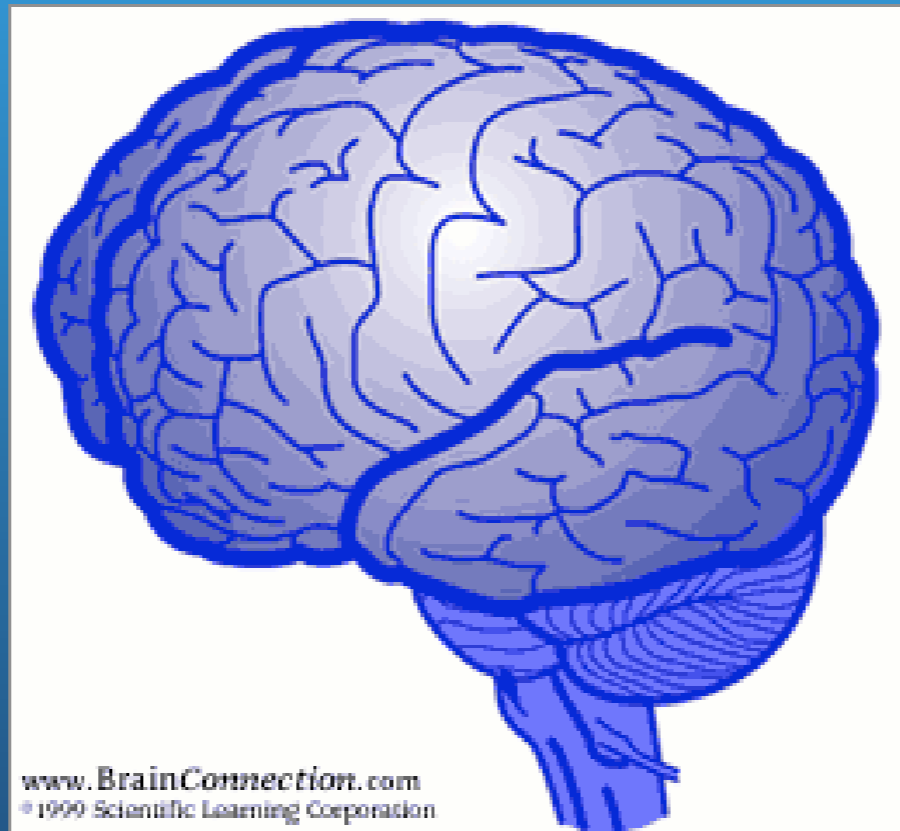
Groups of columns act like **Modular Circuits**

# How does the Dyslexic brain work?

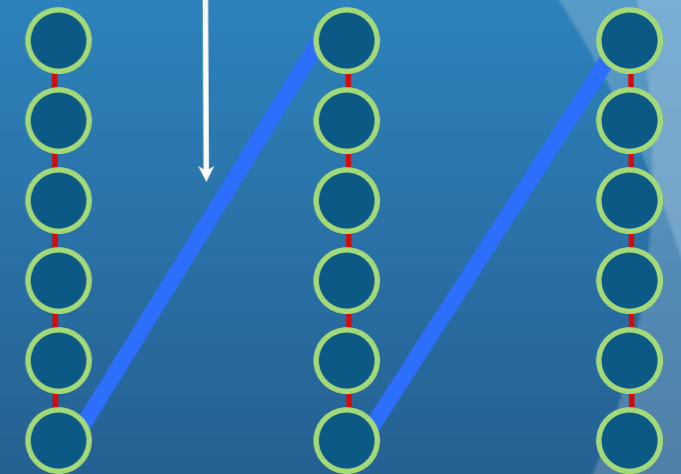
Axon



Short & Fast



Axon



Long & Deep

# How does the Dyslexic brain work?

The tighter pattern of circuits creates **local area connections** - fast memory and detailed perceptions

Dyslexics tend to have more distance between the minicolumns and longer connecting axons. Creating **broader connection** & a “**big picture**” outlook

These Modular circuits create functionality



FMRI pictures of the reading brain

# What is Dyslexic Processing?

These more distant minicolumns are slower in their connections but are also broader and deeper, having more connection in different parts of the brain

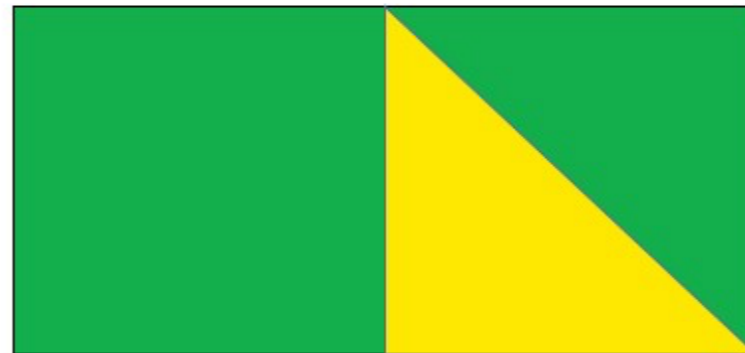
This gives the dyslexic individual strength in “big picture” understanding and Multi dimensional/interconnecting thought processes

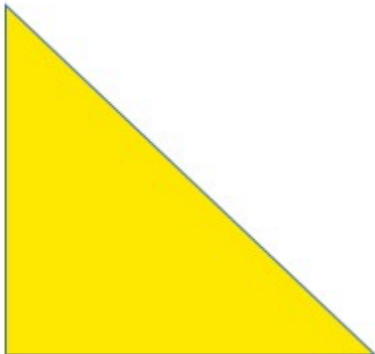





# Dyslexic Processing

These dyslexic advantages are the trade offs for some of the areas of difficulties we have.

These advantages are part of who we are as dyslexics not a gift some of us have in spite of dyslexia

# What is the solution?



 <p>1</p>	 <p>2</p>	 <p>3</p>
 <p>4</p>	 <p>5</p>	 <p>6</p>



# What are Dyslexic Strengths?

**M-Strength:** Material reasoning and 3D visualization

**I-Strength:** Interconnected reasoning – seeing broader and far reaching connections

# What are Dyslexic Strengths?

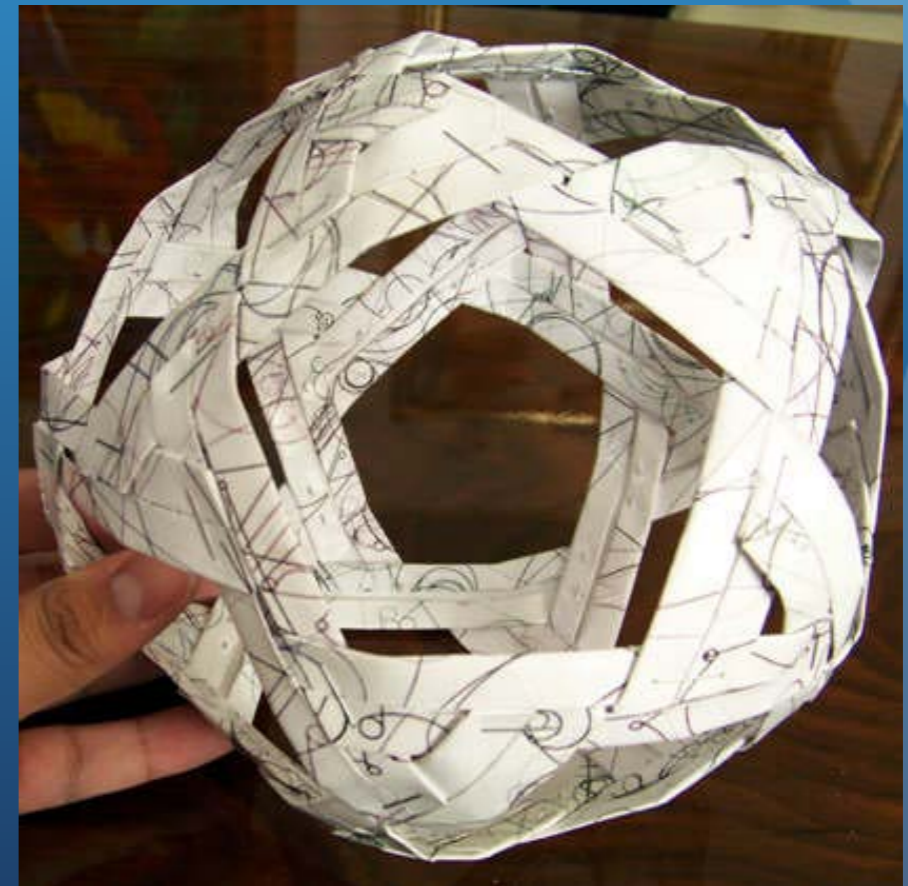
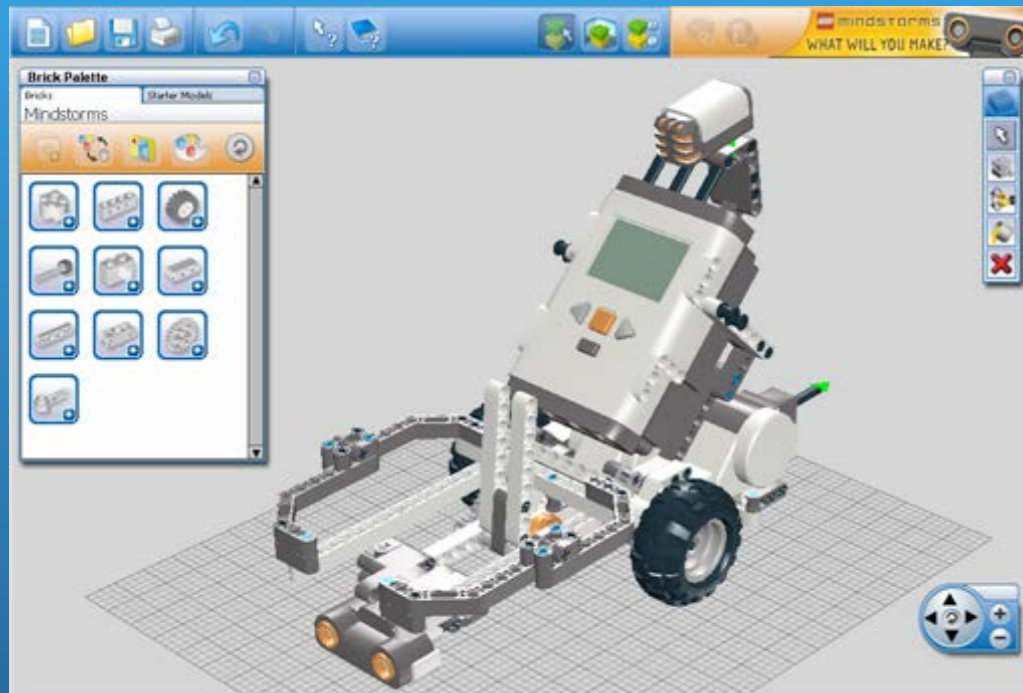
**N-Strength:** Narrative reasoning – using story patterns to ground memory & deepen understanding

**D-Strength:** Dynamic reasoning – the reading of patterns – projecting outcomes and causal relationships

# Teaching M–Strengths

- Hands-on
- Build
- Design
- Construct

# Teaching M-Strengths



# Teaching I–Strengths

- Alternatives
- Multiple uses
- Connections & relationship

# Teaching I–Strengths



- What do all of these have in Common?

# Teaching N–Strengths

- Story
- Emotional continuity
- Poetic rhythm
- Flow & Sequencing

# Teaching N-Strengths

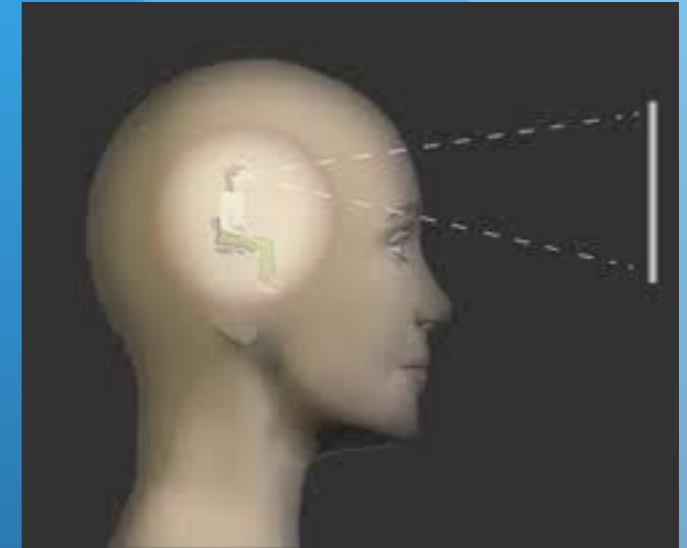




# Teaching D–Strengths

- Pattern recognition
- Visualization
- Causal & predictive projections

# Teaching D-Strengths



# Some well known Dyslexics



Sir Richard Branson  
Entrepreneur



Ann Rice  
Author



Dean Kamen  
Inventor

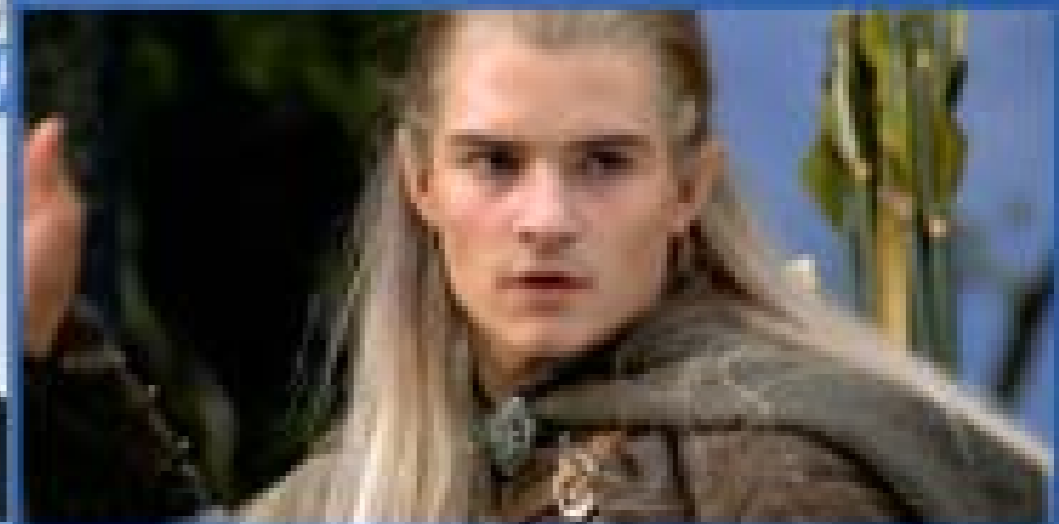
# VERBAL

## Storytelling



## Debate

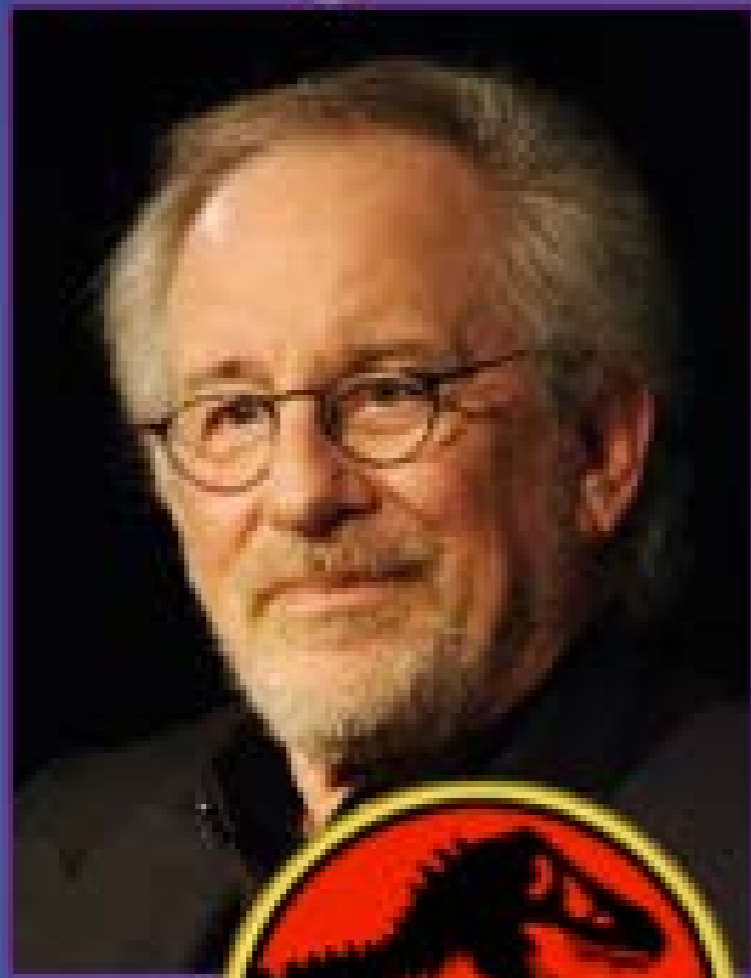
## Acting



Whoopi Goldberg, actress  
Anderson Cooper, CNN  
Keira Knightley, actor  
Orlando Bloom, actor

# NARRATIVE

## Writing



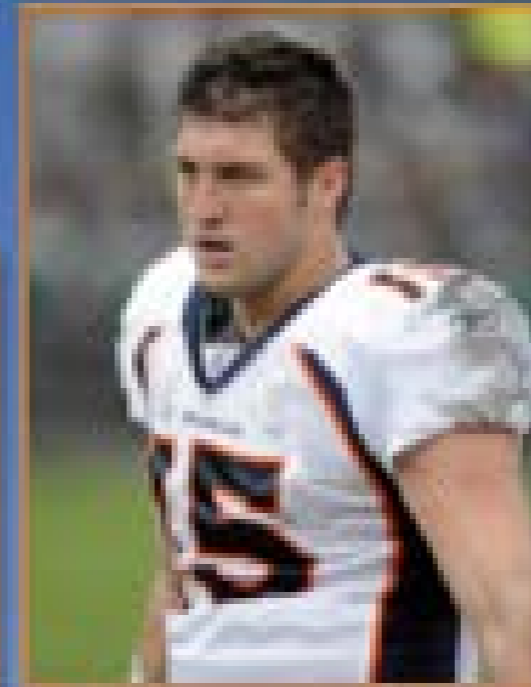
Anne Rice, author  
John Irving, author  
Steven Spielberg, film director

## Filmmaking



# KINESTHETIC

## Outdoor Activities



## Dance



## Sports



Magic Johnson, NBA star  
Sir John Young Stuart  
Tim Tebow, NFL  
Darcey Andrea Bussell, dancer & President  
of the Royal Academy of Dance

# Little Known Facts

- **Dyslexics are found in careers like:**
  - Acting, Film, Music, Artist
  - Computer Science, Engineering Marketing
  - In recent studies 25%-30% of entrepreneurs are Dyslexic

# Time for a Change



<b>Diagnosed</b>	<b>Identified / Certified</b>
<b>Remediate</b>	<b>Train</b>
<b>Overcame</b>	<b>Integrate</b>
<b>Reader</b>	<b>Eye-reader /Ear-reader Finger-reader</b>
<b>Struggled with</b>	<b>Develop new learning styles</b>



# Learning From Dyslexics

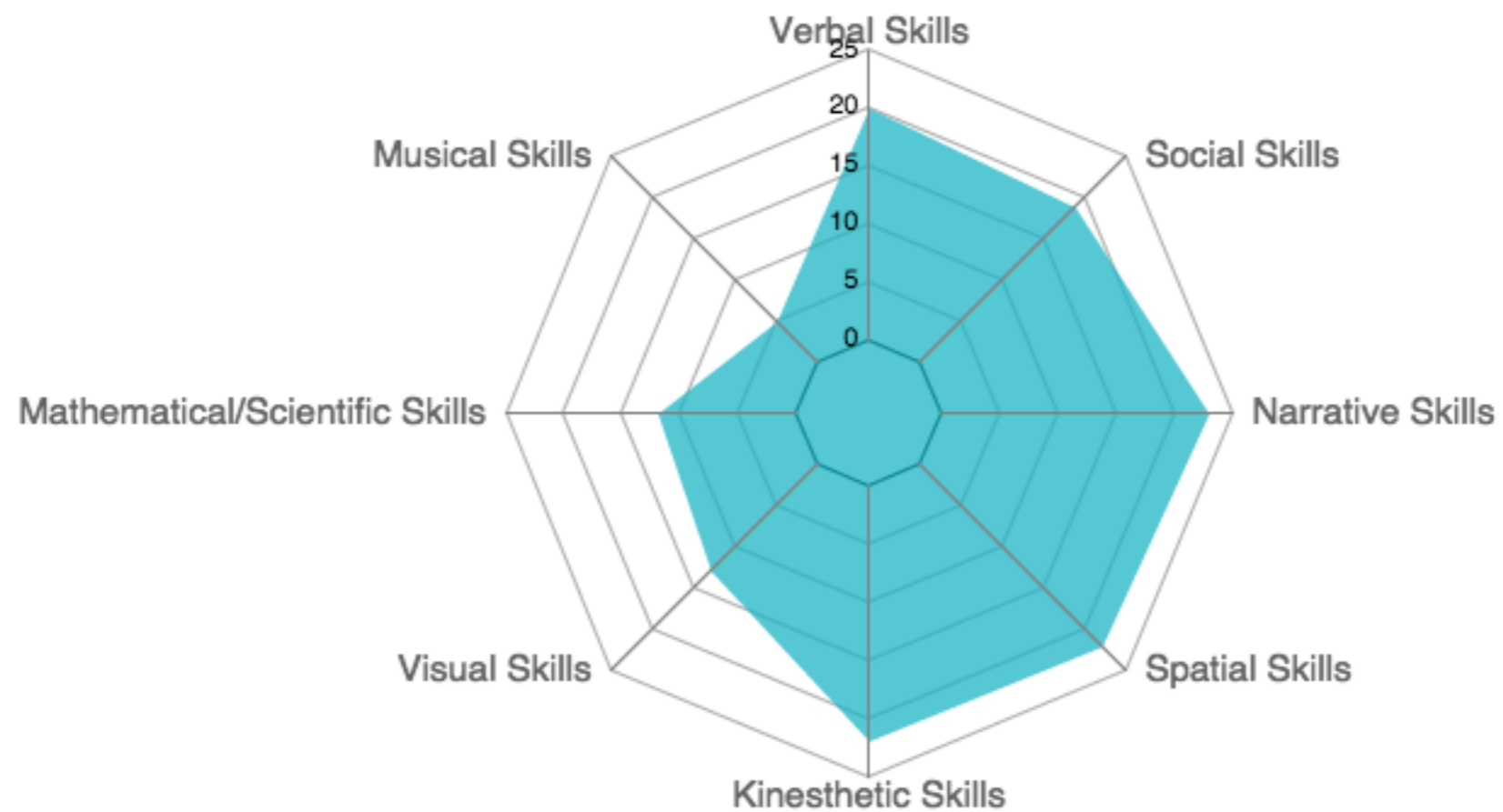
All too often we see **difference** as a problem. Perhaps if we opened our mind to the uniqueness right in front of us, we may find access to greater creativity & sharper insight.

“I would now like to turn to ...the advantages of the predisposition to dyslexia...To the apparently paradoxical notion that the very same anomalies...of the brain that have led to the disability of dyslexia in certain literate societies also determine superiority in the same brains. We can, thus speak of a pathology of superiority without fear of being contradictory.”

•**Norman Geschwind, MD**

# Strengths Assessment Star

February 23, 2015



# RESOURCES


FACTS

TOOLS

ASSESSMENTS

WORKPLACE ACCOMMODATIONS

Choose a category:

Reading 

## Tools



**How to turn on text to speech for PCs**



**How to turn on text to speech for iPads and iPhones**



**Saving time with superfast speech**



**Amazon Kindle Fire Immersion Reading**

Allows readers to synchronize a Kindle text with the Audible audio version of that work. While you are reading, the ebook is highlighted as the audio track moves along, making it easier for the reader to follow along.

- \* **Kurzweil Systems - Reading, Writing & MP3**

- \* [www.kurzweilededu.com](http://www.kurzweilededu.com)

- **Dragon Speech** recognition by Nuance

- [www.nuance.com/dragon](http://www.nuance.com/dragon)

- [\*\*WYNN Wizard - Reading\*\*](#) & text-to-MP3

- \* **Natural Reader - Reading & text-to-MP3**

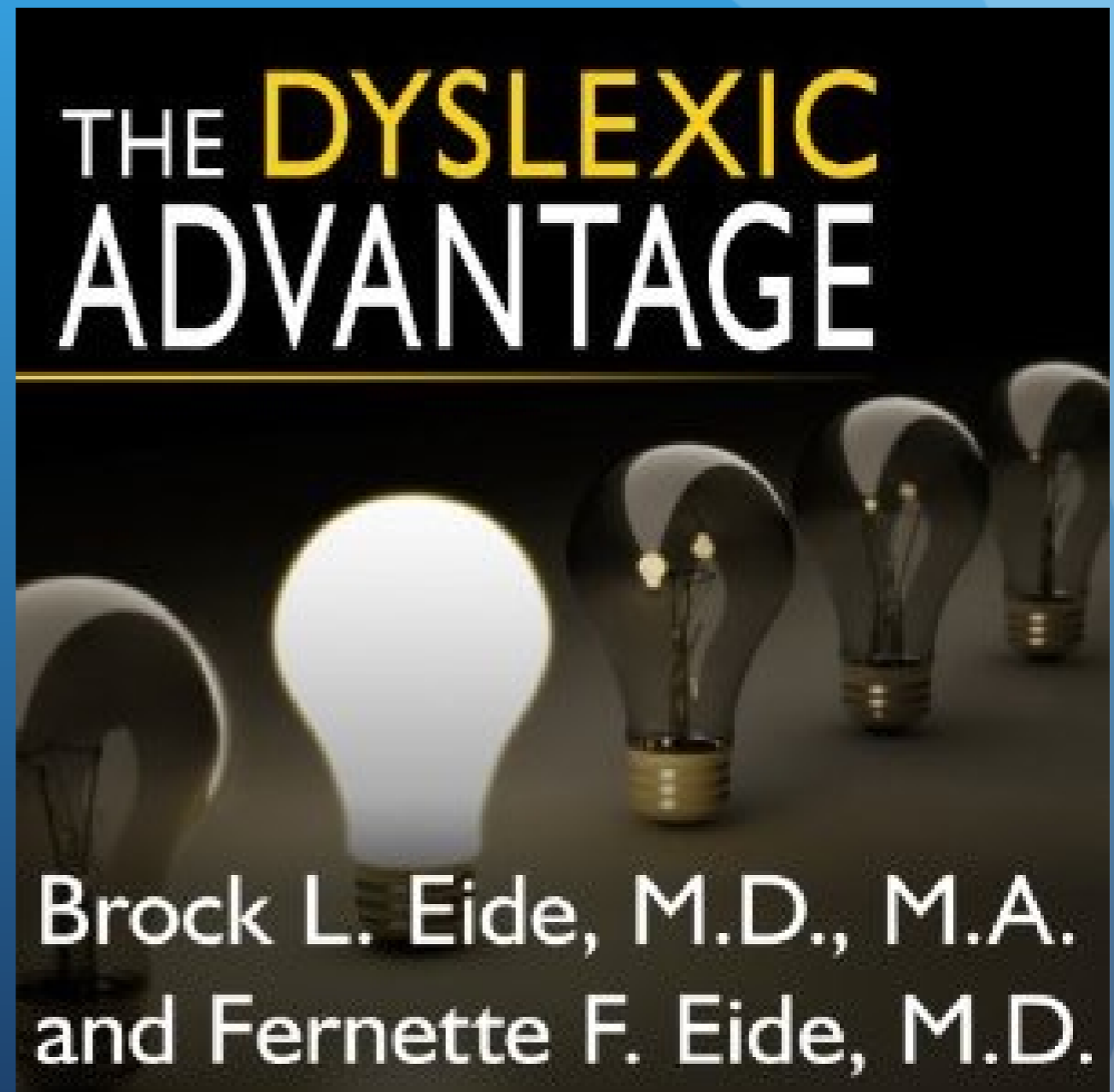
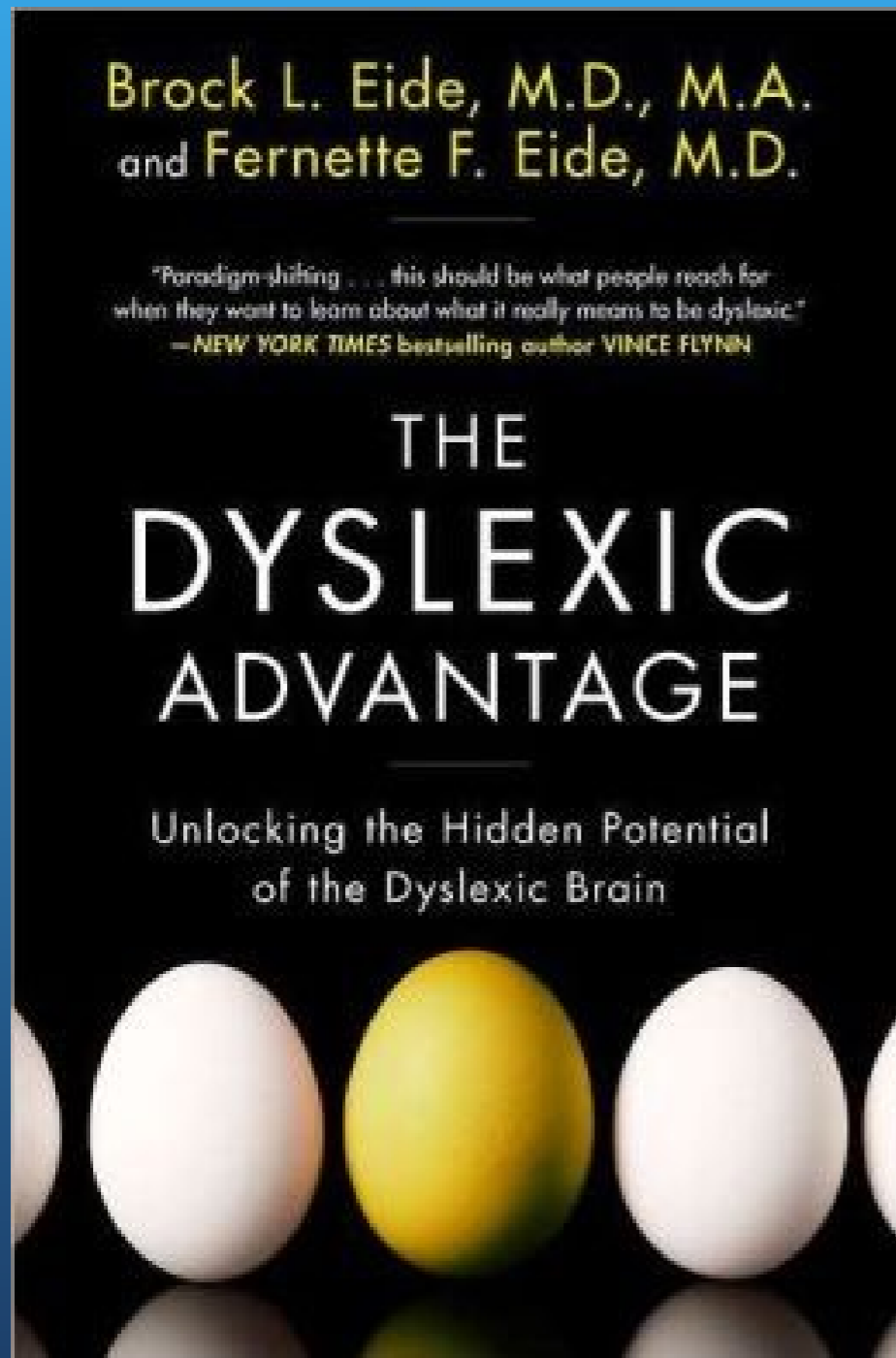
- [www.naturalreaders.com](http://www.naturalreaders.com)

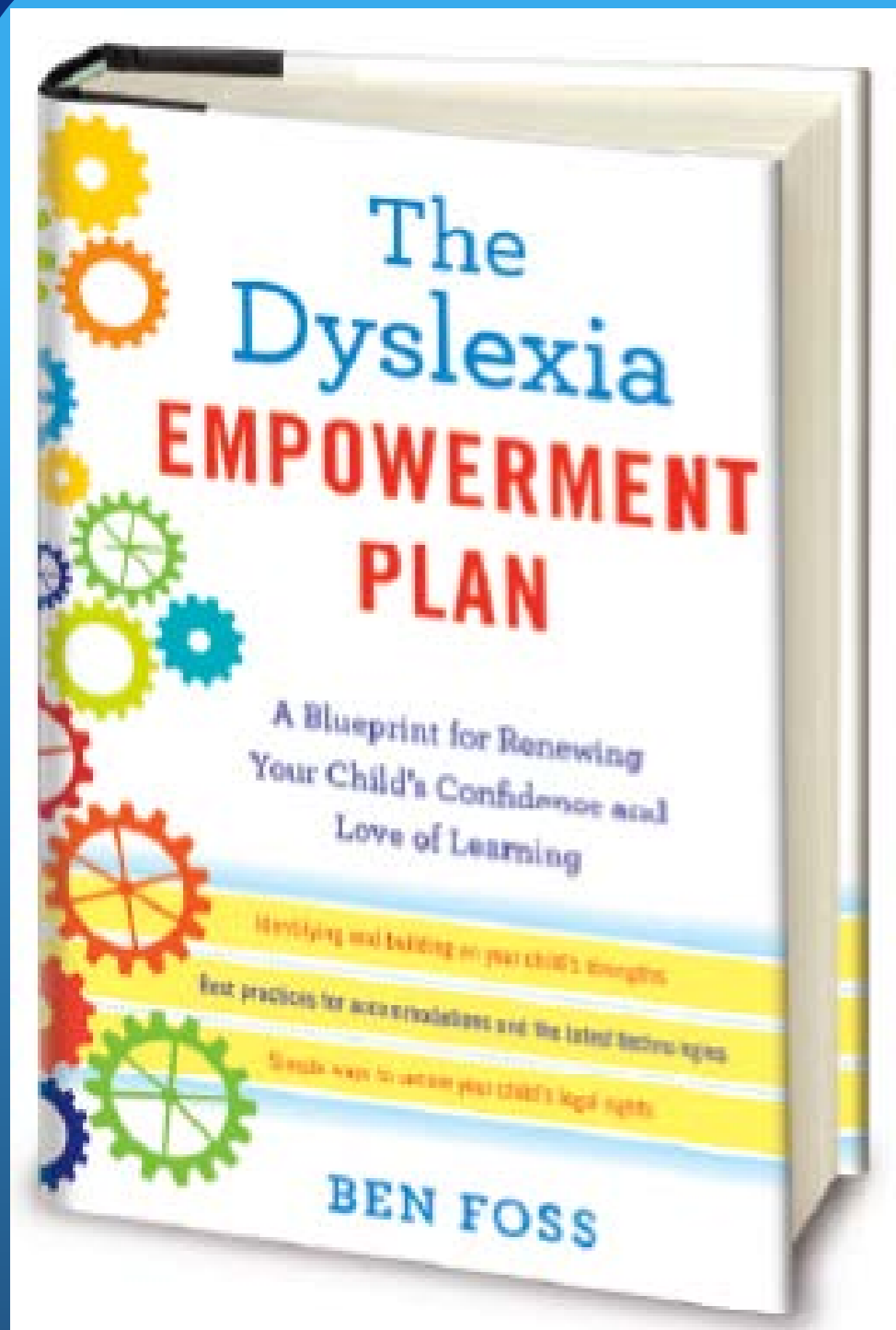
- **iSpeak it - Text-to-MP3**

- [www.zapptek.com/ispeak-it](http://www.zapptek.com/ispeak-it)

- [www.freedomscientific.com](http://www.freedomscientific.com)

# The Dyslexic Advantage: Unlocking the Hidden Potential of the Dyslexic Brain





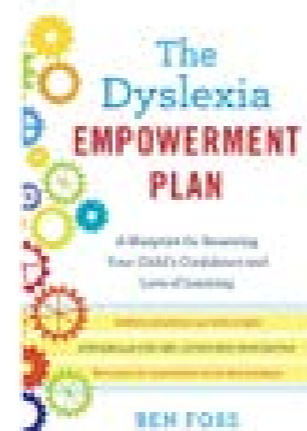
## ★ The Dyslexia Empowerment Plan: A Blueprint for Renewing Your Child's Confidence and Love of Learning

Ben Foss. Ballantine, \$27 (336p) ISBN 978-0-345-54123-9

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In a passionate and well-articulated guide that puts to rest the idea that dyslexic people are unintelligent, disabilities advocate Foss (himself dyslexic and the creator of Intel Reader, a text-to-speech device) describes dyslexia as a characteristic and a disability that should be accommodated in the same way as blindness or mobility issues. Foss reframes the use of film, audiobooks, and material read aloud as "ear-reading," in contrast to the "eye-reading" that is the educational standard. Though, as Foss notes, eye-reading is a useful skill that can be improved by teaching methods like Orton-Gillingham, by middle elementary school, dyslexic students should be accommodated





[www.headstrongnation.org](http://www.headstrongnation.org)