Stealth Dyslexia
In Gifted Children

How Dyslexia Presents—
And Often Evades Detection—
In Some Of Our Brightest Students.

Brock Eide M.D. M.A. and Fernette Eide M.D.
MislabeledChild.com

Why Discuss Gifted Dyslexics?

• Exciting Children!
• Misunderstood
• Unnecessary suffering that can leave lifelong scars
• Incredible talent left on the table
• Lots of them!
• Need to further explore the link of dyslexia and talent.

Gifted Dyslexics: Long Recognized

“In 1896, in the first description of developmental reading disability in the medical literature, it was noted that a certain student could not learn to read in spite of “laborious and persistent training.” However, his headmaster observed that this student “would be the smartest lad in the school if the instruction were entirely oral.”

Thomas G. West, The Abilities Of Those With Reading Disabilities

Hard To Understand: Vicious Circle For Gifted Dyslexics

• When reading—especially reading comprehension—is obviously impaired, the dyslexia is easier to spot but the gifts may be missed. [TC]
• When reading comprehension is strong, the gifts may be identified but the dyslexia will often be missed, and difficulties attributed to inattention, underperformance, etc.
• But reading comprehension is often a poor indicator of a dyslexic processing style in many gifted children, as it was for Michael...

Dyslexia and Talent in Popular Literature

“Roger Scatcherd had also a reputation...He was known as the best stone-mason in the four counties...As a workman, indeed, he had a higher repute even than this; he was not only a good and very quick stone-mason, but he had also a capacity for turning other men into good stone-masons; he had a gift of knowing what a man could and should do; and, by degrees, he taught himself what five, and ten, and twenty—latterly, what a thousand and two thousand men might accomplish among them: this, also, he did with very little aid from pen and paper, with which he was not, and never became, very conversant.”

Anthony Trollope, Doctor Thorne

Biographical Resources On Dyslexia and Talent

• West: Edison, Faraday, Patton, etc.
• Schwablearning website
• Shaywitz, Overcoming Dyslexia
Michael
• 11 y.o. boy from a small Midwestern town.
• Very bright, but had surprising difficulty early in school learning to read.
• Easily mastered letter names and sounds, but struggled with decoding.
• In second grade, something “clicked” and silent reading comprehension skyrocketed.
• In third grade, top reading group in class, and consistently scored in 90%ile in reading comprehension tests.
• So, where’s the problem…?

Michael
Despite strong comprehension of longer passages, Michael showed:
• Poor word-by-word decoding.
• Impaired oral reading.
• Difficulty reading short succinct sentences like story problems in math or instructions on tests.
• Severe difficulties with spelling.
• Profound difficulties with handwriting.
• “Careless mistakes” in math.

Michael
Even writing the alphabet was difficult:
Notice his problems forming cursive f, k, o, q.
On printing, notice awkward forms like a, k, m, n, q, u; the wandering line; and g substitution for j.
When writing whole sentences, the problem got worse...

Michael
Story in the 5th Grade
(Transcribed for keyboard)
“On a planet farfay awaw There was a youno man by the name of uragoner who set of for the edges of his planet in surch of the plantes bengines. His cutter had mot alwalec peen on This planet.”

Instead of reflecting his interesting, intelligent, and often humorous thoughts, Michael’s writing was much poorer in form and content than his speech, which made him embarrassed and self-critical...

Michael
Written copy
Free writing
Notice the problems with margins, spacing, spelling, consistent letter formation, and the use of conventions like capitals and periods.

Michael
A post-it note Michael attached to one of his spelling pre-tests where he missed nearly all of the items.
• By fifth grade, Michael’s ability to cope was exhausted.
• He repeatedly called self stupid and dumb, and began hitting himself on his head, saying he deserved to be punished for being so stupid.
• Gifted dyslexic and private school headmaster J. William Adams: “There’s nothing worse than being told to do something you can’t do, then to be asked, ‘Have you really done your best?’”
The school proposed a number of explanations for Michael’s difficulties:
a) Inattentive and careless,
b) Not trying hard enough, or
c) Unrealistic expectations: too smart to have a disability, but not smart enough to do any better.

Their bottom line: Because Michael wasn’t actually failing, he didn’t have a “learning disability” and didn’t qualify for special help.

“The Beginning of Wisdom Is Calling Things By Their Right Name”:
— Ancient Chinese Proverb

Michael is a perfect example of why the kinds of labels we apply to children matter, and of the truth of the statement with which we open our book.

Michael shows how dyslexia-related challenges aren’t just issues for children formally identified as needing special services, but are often present in children who aren’t identified as having specific learning challenges, yet show:
• Underachievement relative to intelligence
• Inattention or apparent carelessness
• Disorganization
• Anxiety, depression, or withdrawal
• Social or behavioral difficulties

To learn to call problems like Michael’s by their right name, We must understand how dyslexia presents in gifted children.
OUR USUAL DEFINITION OF GIFTEDNESS:

A talent for creating difficulties in ways that suggest promise.

Our Gifted Clinic Population
• National Referral Population: Early College Entrants, Stanford EPGY, some Davidson Fellows.
• In-State Often Computer or Engineering Industry Parents (Microsoft, Boeing in the Seattle WA Area)
• Neurology and Neuropsychology Assessments
• IQ Testing – WPPSI, WISC III, WISC IV, SBLM
• Gifted dyslexics: at least 3 Ceiling scores 16-19 on IQ Subtests
• 15 Children in study.

Our Study

Surprising Verbal Strengths of Gifted Dyslexics
Gifted Dyslexics Defy the “Matthew Effect”

The Verbal Paradox of Gifted Dyslexics
• Most Linguistic Functions Not Impaired
• Language Strengths: Higher Order Language
• Excellent Verbal Fund of Knowledge & Reasoning
• Many Enjoy Writing or Creating Stories – But Oral Storytellers or Help with Dictating Stories

Highest: Vocabulary, Information, Verbal Comprehension
Many are Voracious Silent Readers
Some Voracious Book Listeners
“He is almost addicted to having me read to him...”

The Visual Paradox of Gifted Dyslexics
• Gifted with Spatial Construction, Strong 3D Mental Rotation Abilities
• Strong Visual / Multimodal Imagery
• Yet...Weak Visual 2D Perception / Memory

Mirror Reversal Errors, Errors on Formal Visual Memory Tests

Writing Name in Mayan Glyphs
Paradoxical Performance Weakness of Gifted Dyslexics

**SENSITIVE SIGNS (>85%) OF DYSLEXIA IN OUR SAMPLE OF GIFTED CHILDREN ON OUR NEUROPSYCHOLOGICAL EXAM**

**IMPAIRED WRITTEN ALPHABET:**
Surprising Sensitivity
Omissions, substitutions, malformations, reversals, slow, sequence.

- 10 y.o. boy
  - SBLM 172
- 11 y.o. boy
  - VIQ 137
- 16 y.o. boy
  - SBLM > 150

"Kids stealing cookies, accedants about to hateen. The mother is not aware. Dads out. The mom is clearly some wer els. shye gona ned a mop. I think this can be clarrified as adi..."

16 y.o. gifted male college student, SBLM>150, grades in most recent semester, A, A, B.

**High IQ Changes How Dyslexia Presents**

**Lack Of Automaticity In Written Expression Leads To A Marked Disparity Between Written And Oral Expression**
"We've got kids stealing cookies and water overflowing from the sink. It appears that Dad is not home and the mom is clearly distracted, and it looks like the kid is about to fall off the stool. This family is clearly very dysfunctional. It looks like they own a fairly big house. That driveway stretches on a long way."

Most of these children were not previously identified as having a reading problem because of strong silent comprehension.

"On a planet farfar away There was a young man by the name of uragoner who set of for the edges of his planet in search of the plantes bengines. His cutter had mot alwalec peen on This planet."

On tests of phonology, like sound switching tasks (e.g. pig Latin), sentence copy, passage comprehension, and syntax.

What Accounts for these Differences?

First, many gifted dyslexics have strong working memories that allow them to compensate for deficits in sound / auditory processing; strengths in long term verbal memory improve naming, comprehension, syntax.
Also…

Gifted dyslexics often use Higher Order Thinking Strategies that allow them to overcome perceptual errors as well as ‘fill-in’ comprehension gaps

On tests of visual vigilance, visual memory, passage comprehension

Cognitive Strategies

On tests of reading comprehension gifted children often score surprisingly well despite problems with decoding speed and single word accuracy, by using strong working memory, analytic and inference skills, and outside knowledge to tease out passage meanings (verbal closure).

• They may often show better comprehension on longer versus shorter passages, or than on single words.
• Despite strong functional comprehension, they may fail comprehension tests through misreading the questions and answers, which generally have little redundancy and context, rather than misreading the passages.

Common Profile In The Gifted: Stealth Dyslexia

From Samuel Orton's: Reading, Writing, and Speech Problems in Children (1937)
Based on research done at State Psychopathic Hospital, Iowa City, Iowa

• Adequate or even strong silent reading comprehension—especially of longer, context-rich passages.
• May struggle to read short, poorly contextual passages (e.g., test questions, answers, or instructions).
• Usually residual oral reading deficits (“guess and go”, word or line skips), and problems decoding new words (or pseudowords).

Stealth Dyslexia: Reading

e.g., the Gray Oral Reading Test from one of our subjects is typical:
• Rate: 5%
• Fluency: 9%
• Comprehension: 75%

Stealth Dyslexia: Writing

• Poor spelling, though may recognize correctly spelled words well enough to score adequately on standardized tests of spelling recognition, and may remember well enough for spelling tests.
• Usually messy or slow handwriting (cursive often especially hard)

• Each of the children whose writing samples were previously presented reached at least 6th grade without being diagnosed with reading problems, or being given help for a learning disorder.
• Not surprisingly, appropriate educational placement is often an issue.

Conventional School Often Hard for Gifted Dyslexics

<table>
<thead>
<tr>
<th></th>
<th>Gifted Dyslexics</th>
<th>Gifted Non-Dyslexics</th>
</tr>
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<tbody>
<tr>
<td>Public School</td>
<td>13%</td>
<td>67%</td>
</tr>
<tr>
<td>Priv / Alt School</td>
<td>20%</td>
<td>13%</td>
</tr>
<tr>
<td>Homeschool</td>
<td>53%</td>
<td>20%</td>
</tr>
<tr>
<td>Community College</td>
<td>13%</td>
<td>0%</td>
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Gifted dyslexic children are particularly likely to struggle in conventional educational settings, since both the special nature of their gifts and their challenges often go unrecognized.
With Gifted Students Especially, A Broader And More Dynamic Understanding Of Dyslexia Is Needed

Dyslexia ≠ Just A Reading Disorder

• For gifted children with dyslexia, reading comprehension is often not the biggest challenge.
• The essence of dyslexia is not a functional problem with reading comprehension, but the variations in sensory (auditory and visual) and information processing pathways that underlie a variety of functional problems.

Not Just a Reading Problem: Non-Reading Challenges in Dyslexia

• Handwriting and spelling
• Oral language (retrieval, organization, expression)
• Rote/semantic memory
• Sequencing
• Orientation to time
• Working memory
• Right-left orientation
• Auditory processing (mishearing, background noise)
• Visual processing
• Classroom attention and organization.
• Secondary social and emotional issues (self-esteem, anxiety, depression, etc.)

The Potential Combinations Of Strengths And Challenges Are Unlimited

Each child’s experience developing with dyslexia will be unique, and the teacher must know how to deal with that complexity.

How To Think About Gifted Children With Dyslexia

The Five DyNaMITE Perspectives

1. Development
2. Neurobiology (“wiring”)
3. Motivation/Interest
4. Temperament
5. Experience

Gifted Dyslexic Children: Early Elementary Problems

• Sound-symbol/phonics mastery
• Visual fixation and Eye Movement Control
• Letter formation and spelling
• Visual-spatial orientation (letter and figure)
• Rote, sequential, procedural memory
• Attention (Auditory, Visual, Difficult Tasks)
• Unitary Self-Concept
Common Early Reading Pattern of Gifted Dyslexics

- May struggle to learn alphabet or sounds.
- Struggle to master phonics and decoding.
- Sudden “aha!” moment (typically between late first and third grade, but in some even later) that words can be recognized by sight, with rapid progress thereafter.
- Subsequent neglect of phonics and true decoding strategies with reliance on context and “guess-and-go”.
- Trouble with new words, poorly contextual or confusingly written (or syntactically dense) passages.

A Frequently Misunderstood Aspect of Dyslexic Talent and Development: Spatial Processing

- By the time they reach adolescence, many dyslexics show special spatial abilities (reading maps, plans, recognizing impossible figures, etc.), but early on they are often especially challenged at these tasks.
- Despite strong interests in building and design, they may perform poorly on many spatial tasks, often due to a tendency to indiscriminately rotate objects in space.
- This may show up not only as special difficulties with letter orientation, but in the context of orientation problems with other visual-spatial tasks as well.

Problems With Letter Orientation

"To dae at campd wea had are frst game time. and artr wea I rot in my diree. and are giten rede to tacea nap. dut de for tacea a nap."

These Children Typically Struggle Not Just To Write, But Also To Recognize, The Proper Orientation Of Letters

Extends To Non-Lexical Tasks

Same Girl, Spatial Rotations
Dysgraphia: Handwriting Impairment

- May present as very messy, or very slow handwriting.
- Slow handwriting (most common presentation in girls) often goes unrecognized, and usually presents as difficulty completing work, poor work output, or work resistance.
- May also present as “dumbing down” of written work.
- Often most easily diagnosed in comparison to oral output.
- Writing difficulties often extremely emotionally distressing.

Important: Abnormal Grip A Sign of Deeper Problem: Not Itself the Cause of Handwriting Impairments!
Usually means effort is way up and endurance will be low.

Another Frequent Early Problem: Rote Memory

- Spelling
- Times Table

Using Color, Picture, and Auditory Memory in Dyslexia

- Personal/Story Memory
- Picture, Color, Pattern

- Moms always dish up eats
- Maids always ignore dusting
Math Memory

- Multiplication.com
- Multiplication in Minutes
- Addition the Fun Way

Sequence and Time

- Rate, order, sequence, time
- Problems balancing and prioritizing information, sensory, emotional, and motor signals.
- “Time-Blindness”
- Slow work output. Poor pacing.
- Especially stressed by timed tests.
- Gets better during adolescence.

Late Elementary
To Middle School

- Spelling and Written Expression
- Oral Expression
- Organization/Attention
- Cynicism/Peer Acceptance
- Spatial abilities often become manifest

Common Change in Spelling
Problems in Gifted Dyslexics

- 10 y.o. female, Johns Hopkins Center for Talented Youth Talent Search Winner, scored above 80th percentile for 6th graders in 4th grade on SCAT

Common Change in Spelling
Problems in Gifted Dyslexics

"I am a Typhoon and I am on my way to Japan and gathering speed. I will be the Typhoon that destroys the mongls and their ships on their second invasion of Japan.... My strongest power is wind which can make tremendous waves that can capsize even the strongest mongl ship."

11 y.o. boy, VIQ > 130

Language Output Challenges

- Working memory overload (especially for writing).
- Word retrieval challenges.
- Difficulty with expressive syntax.
- Predominantly visual or non-verbal thinking style.
Non-Verbal Thinkers

"The words of the language, as they are written or spoken, do not seem to play any role in my mechanisms of thought. The physical entities which seem to serve as elements in thought are certain signs and more or less clear images which can be voluntarily combined."

Albert Einstein

Strong non-verbal imagers often grow up to be very creative and innovative thinkers and writers, but they must learn strategies for mediating the productive interaction of these two brain regions.

Development

These Children Often Show Challenges With Inter-Hemispheric Cooperation

Signs of poor hemispheric interaction:
- Mixed cerebral dominance (e.g., hand and eye)
- Ambidexterity or late development of handedness.
- Mixed cerebral representation of functions.
- Left-right confusion.
- Difficulty with tasks involving alternating sides of body.
- Spatial-rotational ability/challenge.
- "Late-blooming" profile.
- Expression can be improved by working in steps or stages.

Family History: Looking Ahead By Looking Back

Parents of Gifted Dyslexics (Fathers and Mothers)

<table>
<thead>
<tr>
<th>Spatial, Mathematical, Personal Communication</th>
<th>43%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineering, Computers, Science, Economics</td>
<td></td>
</tr>
<tr>
<td>Management, Business, Sales</td>
<td>25%</td>
</tr>
<tr>
<td>Other</td>
<td>4%</td>
</tr>
<tr>
<td>Pilot, Coach, Artist, Counselor, Veterinarian, Optometrist</td>
<td></td>
</tr>
</tbody>
</table>

Family History: Engineering

- N: 10 yrs old. Dyslexia, dysgraphia, very high IQ, language output slow, shy. Fascination with building. Created complex drainage system for boggy property. Question raised of Asperger Syndrome. Grandfather...?
- D: 10 yrs old. Dyslexia, dysgraphia, very high IQ, language output slow, shy. Fascination with building. Turned backyard into water park. Father...?

Residual Challenges When Decoding and Spelling Difficulties Not Adequately Addressed

- 19 y.o. college sophomore, extremely talented writer, flamboyantly poor speller. Made writing tutor by professor. Racked with anxiety by her inability to spell.
- New words, pronunciation, spelling, reading to learn.
- MCATs, Medical Boards, and silly mistakes.
- "Imposter syndrome."
- Goal is to keep options open

For Most Children With Dyslexia, the Theme Song Should Be: “Ti-i-i-me Is On My Side”

- Misusing the notion of a “critical period” creates a sense of desperation that is ultimately counterproductive. Most children are not going to irrevocably “miss the boat” and be left on the dock. Ships keep coming, but undue worry can lead children to abandon the idea of ever getting on board.
- Early attention to challenges is important, but avoid undue anxiety to “catch up to peers.” Dyslexia represents a different developmental pathway rather than a true defect in brain function.
- Alternative, not remediative, education.
- Undue pressure and unrealistic expectations can create adjustment reactions (anxiety, opposition, aggression, self-doubt) that persist even after the learning challenges have been mastered.
Perspective 3: Motivation and Interest

- A child’s motives, interests, and values can have enormous influence on his or her learning and behavior.
- Strong interests should be used whenever possible to enhance motivation, especially when children are struggling.

Motivation Requires Success

- Research has clearly shown that when children fail to achieve a critical ratio of success in a particular activity, motivation plummets and they simply stop trying. Huge problem for handwriting, math, reading...
- Too often, struggling children are asked for unmakeable leaps rather than small steps.

Success Maintains Motivation

- Challenges must be incremental rather than exponential, especially for struggling children.
- Mental focus and persistence increase dramatically—even for children who’ve been diagnosed with ADHD—when they’re given meetable challenges.
- Children with dyslexia must achieve a higher level of attention to perform the same tasks as other children (think of the difference in attention required to drive the same stretch of twisty mountain road on a clear day versus a rainy night—and the difference in stress and fatigue that result).
- In most children, the desire to achieve mastery is natural; apathy is learned.

Perspective 4: Temperament

Temperament is a child’s “emotional disposition”; her style, manner, or “flavor” of responding behaviorally and emotionally to the world.

What Adds Up to Trouble

The problem is not simply the traits themselves, but the way the traits interact with the environment:

Predisposition + Provocation = Response
Warning!

- Prolonged failure to deal with mismatches between the child’s temperament and the environment (including academic demands and the expectations of parents, teachers, or the child him- or herself) can result in the development of behavioral adjustment reactions.

Temperament

Perspective 5: Experience—The “Art of Autobiography”

- Experience, as we’ll use the term, is not simply an objective record of past events, but the child’s interpretation of and responses to those events.
- In other words, the record is not biographical, but autobiographical.
- A child’s interpretive style plays an enormous role in determining how he or she responds to experience.

Two Types of Interpretation

Research by Martin Seligman and others has documented two different styles of interpreting experience, especially of failure:
- The pessimistic style attributes failure to factors that are permanent, pervasive, personal, and that they are powerless to affect in the future. Often see failure as inevitable, deserved, or a punishment.
- The optimistic style attributes failure to factors that are temporary, specific to the particular event rather than permanent or universal. The optimistic style attributes failure to factors that were present this time, but which with care can be avoided in the future.
- Optimism is trainable, and invaluable for prolonged effort.

Best Interventions

- Phonics (segmentation, discrimination): the challenge, getting children who read with good comprehension to “go back to basics.”
- Reading fluency
- Spelling/Rote Memory
- Accommodations: Keyboard, Write Outloud, Oral alternatives
- Focus on Strengths: Understand what adult dyslexics are like; understand the adult job market (Inc., Fast Company)
- Mentorship programs

The Right Accommodations

Get Kids Into Learning, Not Out Of It!

- Accommodations are ways to improve function and increase achievement, not to avoid it!
- Accommodations can be enabling and therapeutic!

Dysgraphia

Don’t treat handwriting as the narrow route along which all a child’s work must pass

- Never let handwriting problems prevent progress in other areas!
- Accommodations like written notes, alternative forms of output (e.g. keyboarding, scribing, oral presentations) can keep children with dysgraphia learning to their full capacity.
- Practice handwriting as its own separate discipline.
- Don’t push extended written expression too soon.
"I am a Typhoon and I am on my way to Japan and gathering speed. I might be the Typhoon that destroys the mongols and their ships on their second invasion of Japan.... My strongest power is wind which can make tremendous waves that can capsize the strongest mongol ship."

Accommodations

When to Suspect Dyslexia in a Gifted Child

- Dysgraphia with poor spelling in a child with gifted-level oral language abilities will usually be dyslexic.
- If oral reading level or choice of reading materials doesn’t match verbal ability or cognitive/interest level, there’s usually a problem.
- Verbally gifted children nearly always want to read in the absence of underlying problems.
- Gifted children with unexpected problems with reading, writing, or spelling always require a comprehensive evaluation that looks at auditory, visual, sensory-motor, language, and memory functions, because appropriate intervention requires accurate assessment.

Accommodations

Author of “Mongl Invashon” after 2 years of “Write Outloud”

With Constant Feedback, Student Internalized Spelling Patterns

Accommodations

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Accommodations

The Mislabeled Child

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“The Mislabeled Child represents a significant step toward a rethinking of our understanding of struggling children. It will enable us to customize education and parenting for children whose minds work differently from most!”

---Mel D. Levine, M.D., Author A Mind at a Time

“The best book we have read for a very long time. Highly recommended.”

DyslexiaTeacher.com