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College of Education Belin-Blank Center

Twice-Exceptionality

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The Interaction of Deficits and Strengths

JAVITS PI MEETING
OCTOBER 27, 2021

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Who we are:

The Belin-Blank Center's Academic Home is the UI College of Education

- Professional Development
- Student Programs
- Special Events
- **Assessment and Counseling Clinic**
- **Research**

BELIN-BLANK CENTER
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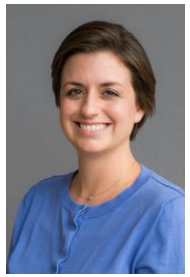

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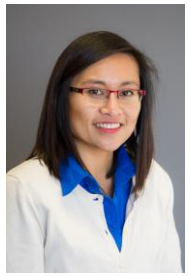

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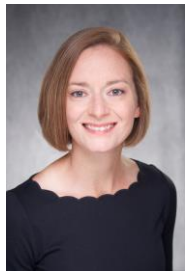

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How we got started with "twice-exceptionality"

"I'd give up all of this 'giftedness' if I could just have my child not have problems."

As professionals, we shared this parent's frustrations because, at the time, we just didn't know that much about the phenomenon, which we refer to as the paradox, of twice-exceptionality.

What if we framed this statement as a question or a series of questions?

How do "giftedness" and "problems" fit within an educational setting?

13/14 Disability Categories; 14% of Total Public-School Enrollment
Special Education Focus: Eligibility for Services

Disability	Federal Percentage Eligible for SPED
Specific Learning Disability (SLD)	33%
Speech and Language Impairment	19%
Other Health Impairment (ADHD)	16%
Autism Spectrum Disorder (ASD)	11%

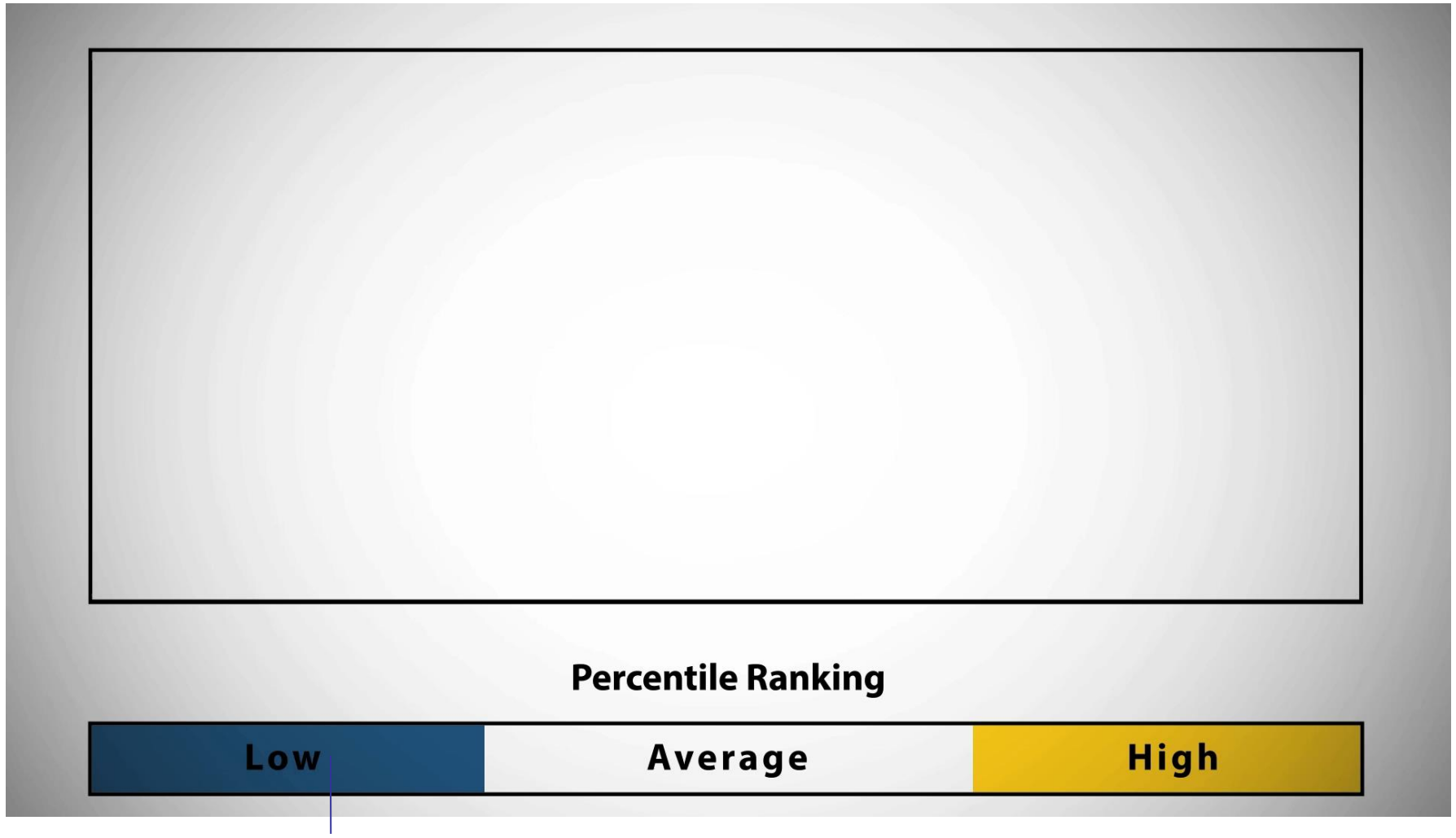
What if we apply a clinical lens to a diagnostic assessments completed for a research sample?

13/14 Disability Categories; 14% of Total Public-School Enrollment
Special Education Focus: Eligibility for Services

Disability	Federal Percentage Eligible for SPED	Javits Data Set (2005-2009) N=75
Specific Learning Disability (SLD)	33%	18.5%
Speech and Language Impairment	19%	
Other Health Impairment (ADHD)	16%	
Autism (ASD)	11%	81.5%

The 2004 re-authorization of the individuals with Disabilities Education Act was the first time that individuals with high cognitive ability, i.e., gifted, were recognized as also possibly having a disability.

WHY IS TWICE-EXCEPTIONALITY A PARADOX?



“Twice-Exceptional learners are students who

- demonstrate the potential for high achievement or creative productivity in one or more domains …
- AND who manifest one or more disabilities as defined by federal or state eligibility criteria…
- These disabilities and high abilities combine to produce a unique population of students who may fail to demonstrate either high academic performance or specific disabilities.
- Their gifts may mask their disabilities and their disabilities may mask their gifts. " (Reis et al., 2014, p.222)”

Reis, S. M., Baum, S. M., & Burke, E. (2014). An operational definition of twice-exceptional learners: Implications and applications. *Gifted Child Quarterly*, *58*(3), 217–230. https://doi.org/10.1177/0016986214534976

Psychoeducational Assessment to Determine Strengths and Difficulties

Psychoeducational Assessment is the bridge between psychology/education and neuroscience/genetics/imaging.

Comprehensive Battery of Tests:

- Cognitive Ability (IQ)
- Achievement
- Psychosocial
- Background information from parents

B-BC Research Agenda Expands Through Collaboration with INI:

Proof of Concept

Original Dataset from Javits Grant (N=75, 2005-2009)

Inclusion Criteria:

IQ 120 or higher + Diagnosis

- Descriptive
- Correlational
- Regression

Primary Findings of this Research Subsample:

- ASD; far greater percentage of referrals
  - Cognitively: High Verbal, Low Processing Speed, Impact on Achievement
  - Psychosocially: Significant Deficits; differences between self-report and parent/teacher reports
- SLD; writing, not reading, is primary disability among 2e – more from the next two presenters

What if we apply a research lens to diagnostic assessments completed for clients served by an assessment and counseling center?

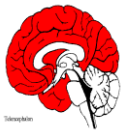
Disability	Federal Percentage Eligible for SPED	Javits Data Set (2005-2009) N=75	Clinic Sample (2009-2019) N= 1,344)
Specific Learning Disability (SLD)	33%	18.5%	20%
Speech and Language Impairment	19%		N.A.
Other Health Impairment (ADHD)	16%		33%
Autism (ASD)	11%	81.5%	13%

Iowa Neuroscience Institute Collaboration:

Archetypal Analyses

Role of Genetics in Understanding the Complexities of Twice-Exceptionality

How Can Neuroimaging Facilitate our understanding?



From 10,000 data points to a 1,000,000 +

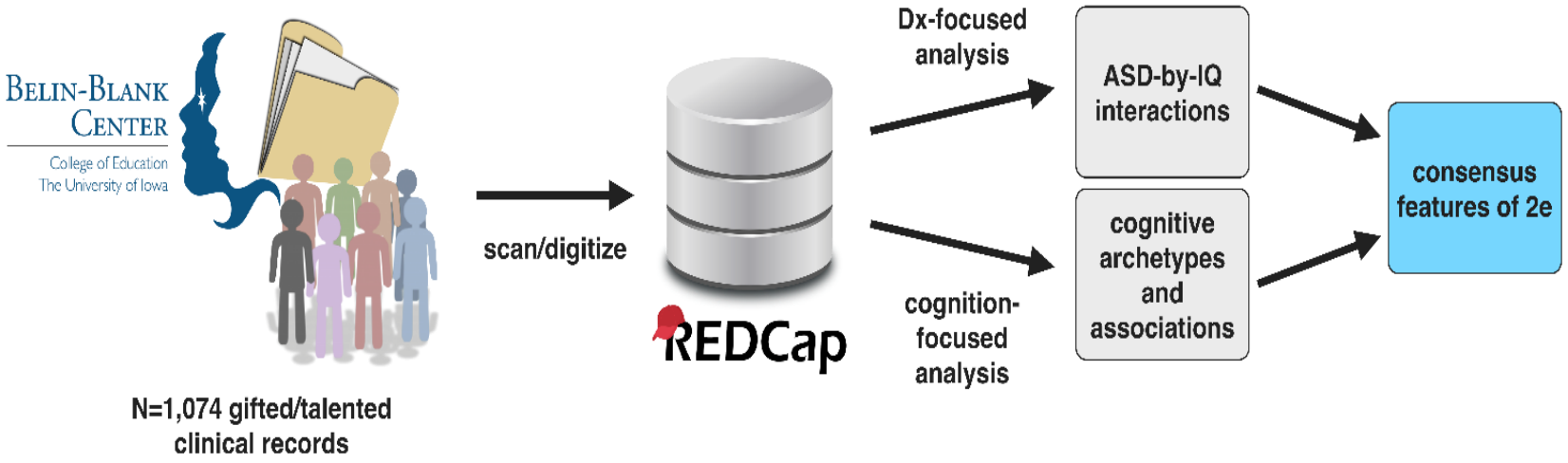


Figure courtesy of Michaelson Lab.

Our Clinic Sample Suggests Five Cognitive Archetypes

- When we take a “agnostic-diagnostic” approach, we still find corroboration/congruence of previously reported findings from the smaller research sample with more stringent inclusion criteria.
- Greater inclusion of data led to:

  Five Archetypes of Cognitive Profiles Relative to ASD and non-ASD Diagnosis

→ 1. FS and all index scores are high

→ 2. Perceptual Reasoning is high

→ 3. FS and all index scores " high average"

→ 4. FS, PS, and WM high; Verbal high average; low ASD

→ 5. FS, Verbal, Perceptual, WM, high; PS low high ASD

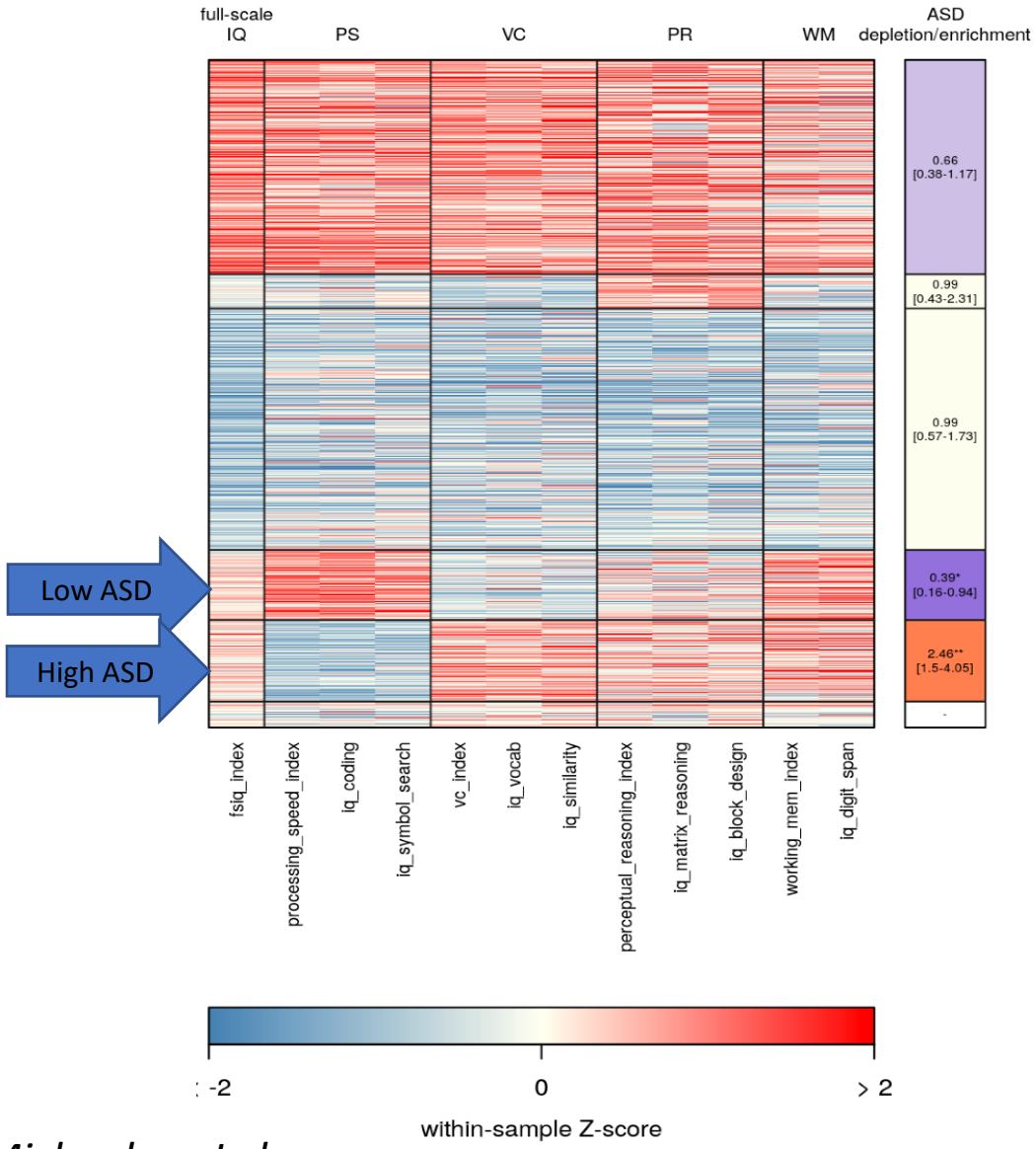
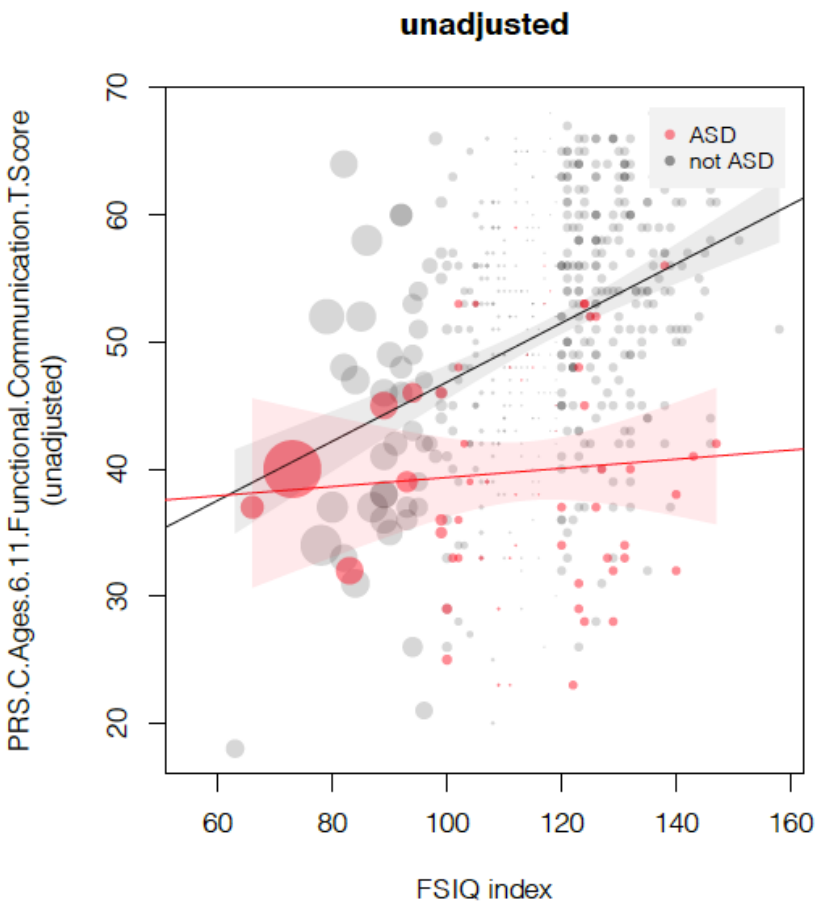


Figure courtesy of Michaelson Lab.

Parent-Reported Communication



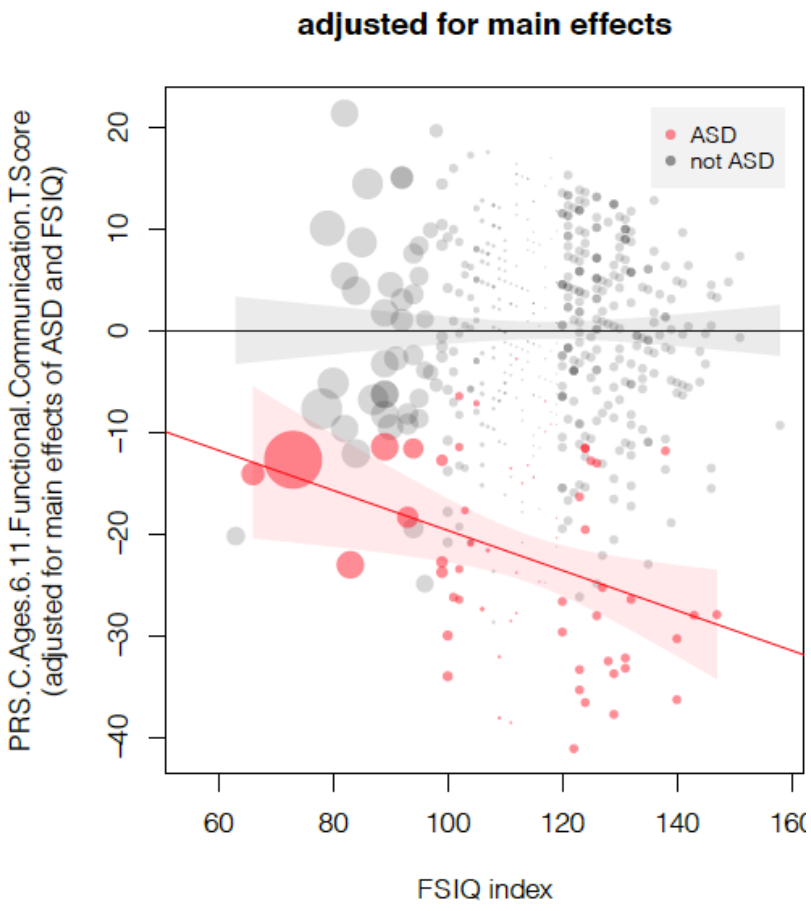


Figure courtesy of Michaelson Lab.

Advantages of an ***Agnostic-Diagnostic*** Approach to Data

- An "*agnostic-diagnostic*" approach to the data, allows for many new questions.
- Inclusion of the full clinic dataset led to:
  - A more "typical" population comparison
  - Five Archetypes of the data with clear associations for ASD diagnosis
  - Overall IQ, as indicated through the Full Scale Index, remains a strength; but there are significant interactions that allow us to model the impact of an ASD diagnosis... and possibly other diagnoses
  - In the short-term this leads to better understanding of the population and the individual … more importantly, this leads to more questions!

Cognitive and Behavioral Characteristics

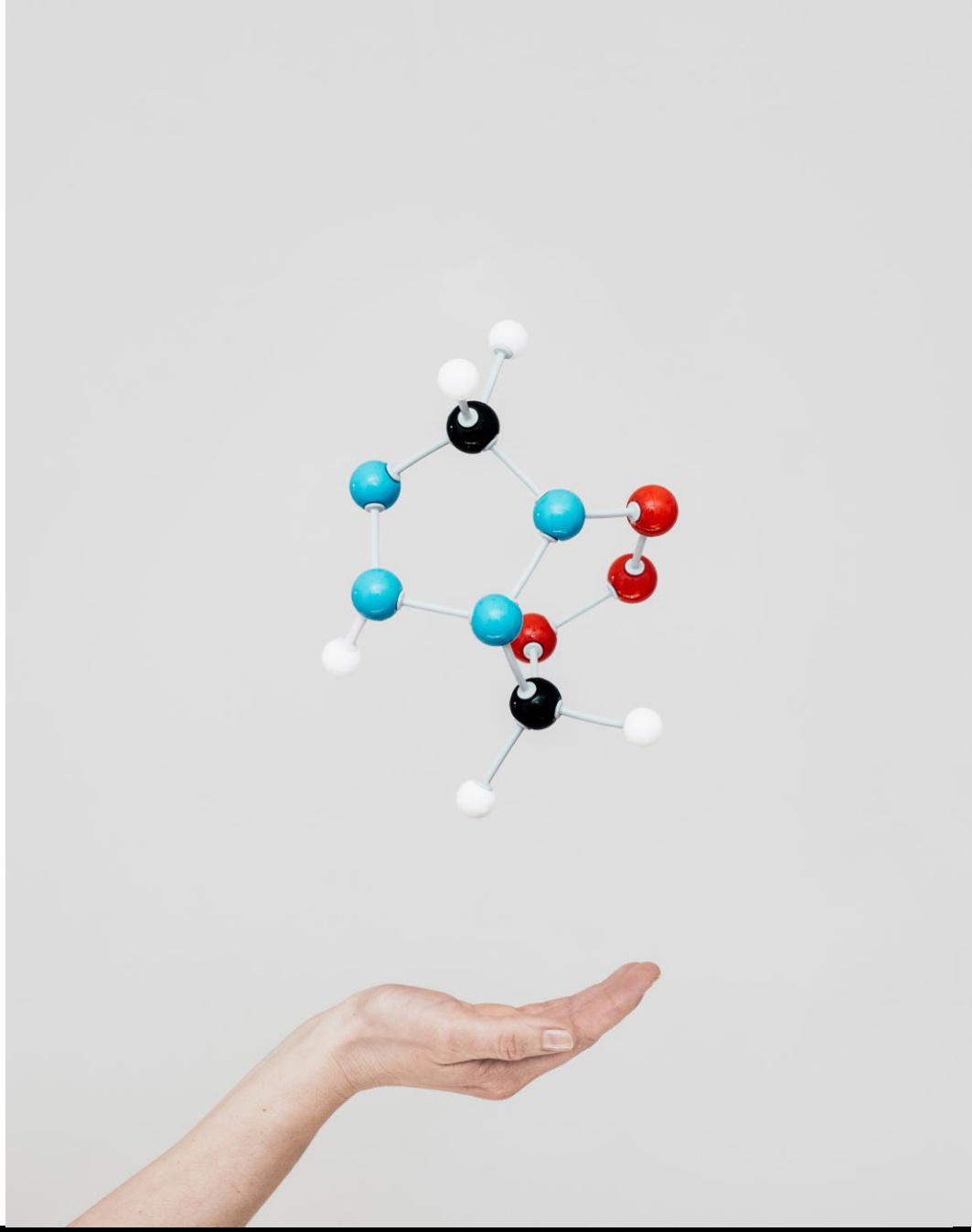
of High Ability Students with SLD in Writing

Dr. Katherine Schabilion, Licensed Psychologist,

Assessment and Counseling Clinic

High Ability Students with Learning Disabilities

- Widely understood to exist, but difficult to identify
  - Differing definitions of high-ability/gifted
  - Differing perspectives on assessing learning disabilities
- Difficult to qualify for services in schools
- Social/emotional consequences of missed diagnosis



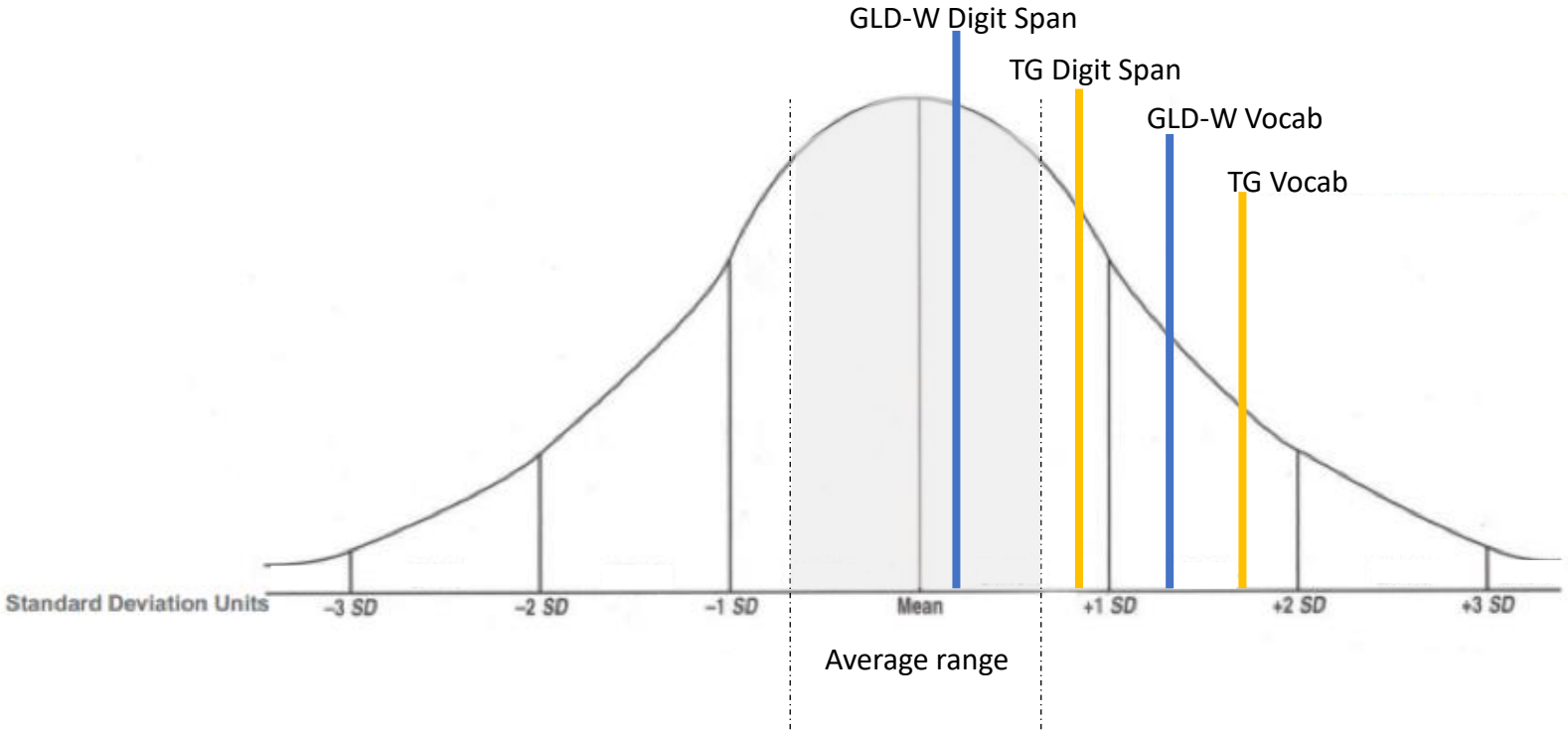
Prior research on high ability + learning disability

- High-ability students with and without SLD
  - Verbal ability = strength
  - Lower-order cognitive skills lower
- Students with SLD (regardless of ability) also show weaknesses on processing speed and working memory
- Parents of GLD-W students frequently reported concerns regarding attention and hyperactivity

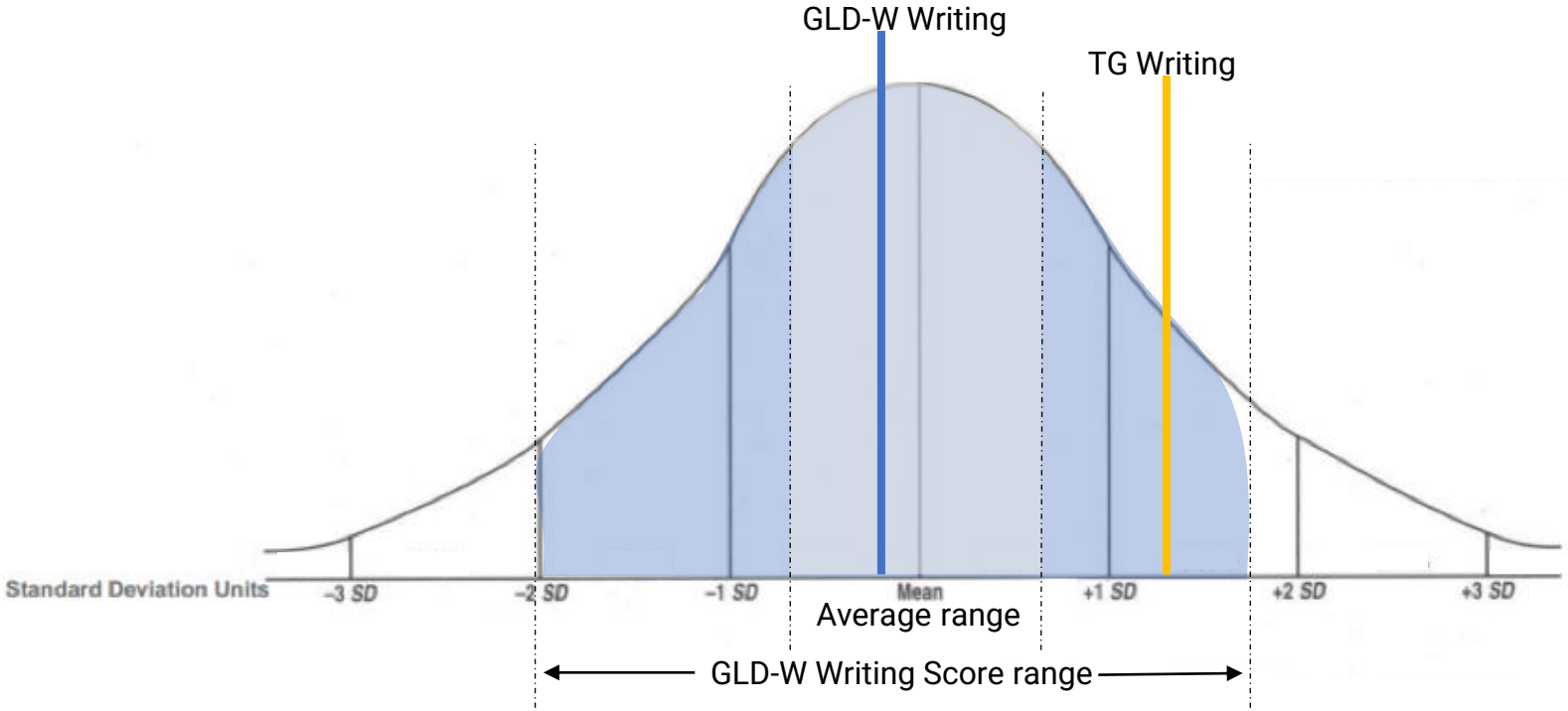
Brief overview of methods

- Research Aim: Investigate specific cognitive and psychosocial factors that are theorized to influence identification of GLD-W
- 255 high-ability students
  - Score at/above 91st percentile on Full Scale IQ, General Ability Index, Verbal Comprehension Index, Perceptual Reasoning Index, Fluid Reasoning Index, and/or Visual Spatial Index
- 84 high-ability + SLD-W students
  - High ability criterion
  - Clinical diagnosis of SLD with impairment in written expression

Cognitive ability profiles



Unlikely to show absolute impairments



Summary and Conclusions

- Comprehensive assessment provides test data AND relevant additional info to contextualize/enhance scores
  - Medical model + Talent development model = Broader understanding
- Students without overt challenges are less likely to be recognized as 2e in deficit-focused medical model
- Out of these initial questions, many more emerged
  - Product of taking a research lens to a clinical sample
  - What else might we learn with additional collaborations and more data?

Thanks to all students and families who have come through the clinic!

Future Directions

Consider	Alternate approaches to data collection and analysis Additional opportunities for integration of multiple disciplines
Examine	Further relationships between developmental milestones and other disabilities in high-ability populations
Explore	The relationship between attention and writing Connections between neuroimaging and psychoeducational assessment findings
Collaborate	With other clinic/research sites to collect additional data – especially for genetics research With other research organizations within UI and beyond

On Behalf of Our Colleagues from The Belin-Blank Center and the University of Iowa College of Education Belin-Blank Center

Thank you!

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