Comprehensive Evaluation of Autism Spectrum Disorders: Behaviors, Cognition, Social Skills, and Impairment

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Disclosures

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Resources

FOR MORE INFORMATION
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My Background

- Ideas that shaped my future as a young professional
  - Music: How do we learn
  - School Psychologist:
    - LOVE the job because we change peoples LIVES!
    - And "Why do IQ tests look like my achievement test?"
  - PhD Student:
    - We must have a scientific approach to practice
- You will hear me play …

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Topics for Today

Diagnosis

- Behavioral symptoms define the disorder based on DSM-5

Description of the Individual

- Assessment of the Behaviors related to ASD
- Determining if there is a Cognitive Processing Component
  - Cognitive profiles for those with ASD, ADHD, and SLD
- Evaluate Social Communication and Social Interactions
- Ruling out Intellectual Disability
  - A *fair and equitable* way to assess ability for students who may have Autism
- Quantifying "Significant Impairment"

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DSM-5™ Diagnostic Criteria

Autism Spectrum Disorder 299.00 (F84.0)

A. Persistent deficits in social communication and social interaction across multiple contexts, as manifested by the following, currently or by history (examples are illustrative, not exhaustive; see text):

1. Deficits in social-emotional reciprocity, ranging, for example, from abnormal social approach and failure of normal back-and-forth conversation; to reduced sharing of interests, emotions, or affect; to failure to initiate or respond to social interactions.
2. Deficits in nonverbal communicative behaviors used for social interaction, ranging, for example, from poorly integrated verbal and nonverbal communication; to abnormalities in eye contact and body language or deficits in understanding and use of gestures; to a total lack of facial expressions and nonverbal communication.
3. Deficits in developing, maintaining, and understanding relationships, ranging, for example, from difficulties adjusting behavior to suit various social contexts; to difficulties in sharing imaginative play or in making friends; to absence of interest in peers.

Specify current severity:

Severity is based on social communication impairments and restricted, repetitive patterns of behavior (see Table 1).

Table 1 Severity levels for autism spectrum disorder

Severity level	Social communication	Restricted, repetitive behaviors
Level 3 "Requiring very substantial support"	Severe deficits in verbal and nonverbal social communication skills cause severe impairments in functioning, very limited initiation of social interactions, and minimal response to social overtures from others. For example, a person with few words of intelligible speech who rarely initiates interaction and, when he or she does, makes unusual approaches to meet needs only and responds to only very direct social approaches.	Inflexibility of behavior, extreme difficulty coping with change, or other restricted/ repetitive behaviors markedly interfere with functioning in all spheres. Great distress/ difficulty changing focus or action.
Level 2 "Requiring substantial support"	Marked deficits in verbal and nonverbal social communication skills; social impairments apparent even with supports in place; limited initiation of social interactions; and reduced or abnormal responses to social overtures from others. For example, a person who speaks simple sentences, whose interaction is limited to narrow special interests, and who has markedly odd nonverbal communication.	Inflexibility of behavior, difficulty coping with change, or other restricted/ repetitive behaviors appear frequently enough to be obvious to the casual observer and interfere with functioning in a variety of contexts. Distress and/ or difficulty changing focus or action.
Level 1 "Requiring support"	Without supports in place, deficits in social communication cause noticeable impairments. Difficulty initiating social interactions, and clear examples of atypical or unsuccessful responses to social overtures of others. May appear to have decreased interest in social interactions. For example, a person who is able to speak in full sentences and engages in communication but whose to-and-fro conversation with others fails, and whose attempts to make friends are odd and typically unsuccessful.	Inflexibility of behavior causes significant interference with functioning in one or more contexts. Difficulty switching between activities. Problems of organization and planning hamper independence.

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DSM-5™ Diagnostic Criteria

B. Restricted, repetitive patterns of behavior, interests, or activities, as manifested by at least two of the following, currently or by history (examples are illustrative, not exhaustive; see text):

1. Stereotyped or repetitive motor movements, use of objects, or speech (e.g., simple motor stereotypes, lining up toys or flipping objects, echolalia, idiosyncratic phrases).
2. Insistence on sameness, inflexible adherence to routines, or ritualized patterns of verbal or nonverbal behavior (e.g., extreme distress at small changes, difficulties with transitions, rigid thinking patterns, greeting rituals, need to take same route or eat same food every day).
3. Highly restricted, fixated interests that are abnormal in intensity or focus (e.g., strong attachment to or preoccupation with unusual objects, excessively circumscribed or perseverative interests).
4. Hyper- or hyporeactivity to sensory input or unusual interest in sensory aspects of the environment (e.g., apparent indifference to pain/temperature, adverse response to specific sounds or textures, excessive smelling or touching of objects, visual fascination with lights or movement).

C. Symptoms must be present in the early developmental period (but may not become fully manifest until social demands exceed limited capacities, or may be masked by learned strategies in later life).

D. Symptoms cause clinically significant impairment in social, occupational, or other important areas of current functioning.

E. These disturbances are not better explained by intellectual disability (intellectual developmental disorder) or global developmental delay. Intellectual disability and autism spectrum disorder frequently co-occur; to make comorbid diagnoses of autism spectrum disorder and intellectual disability, social communication should be below that expected for general developmental level.

Note: Individuals with a well-established DSM-IV diagnosis of autistic disorder, Asperger's disorder, or pervasive developmental disorder not otherwise specified should be given the diagnosis of autism spectrum disorder. Individuals who have marked deficits in social communication, but whose symptoms do not otherwise meet criteria for autism spectrum disorder, should be evaluated for social (pragmatic) communication disorder.

Specify if:

With or without accompanying intellectual impairment

With or without accompanying language impairment

Associated with a known medical or genetic condition or environmental factor
(Coding note: Use additional code to identify the associated medical or genetic condition.)

Associated with another neurodevelopmental, mental, or behavioral disorder
(Coding note: Use additional code[s] to identify the associated neurodevelopmental, mental, or behavioral disorder[s].)

With catatonia (refer to the criteria for catatonia associated with another mental disorder for definition)
(Coding note: Use additional code 293.89 [F06.1] catatonia associated with autism spectrum disorder to indicate the presence of the comorbid catatonia.)

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IF Diagnosis is Based on DSM-5 Why do More?

To understand the unique expression of ASD and to determine the best intervention targets and options

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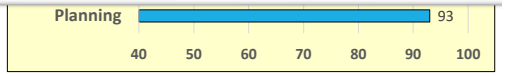
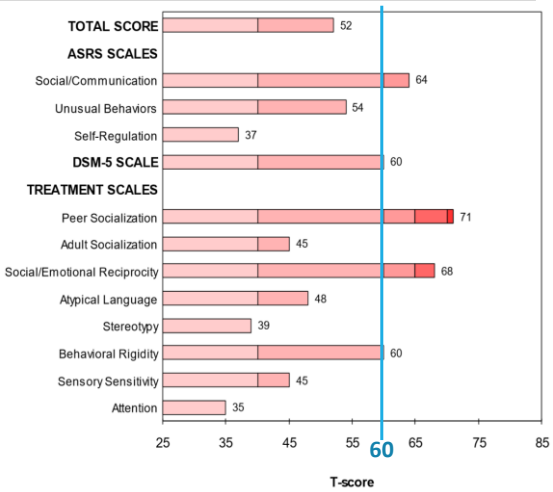
Sebastian (Aged 14 yrs)



Autism Spectrum Rating Scales Parent Ratings



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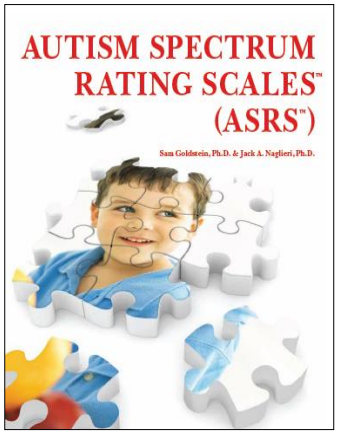
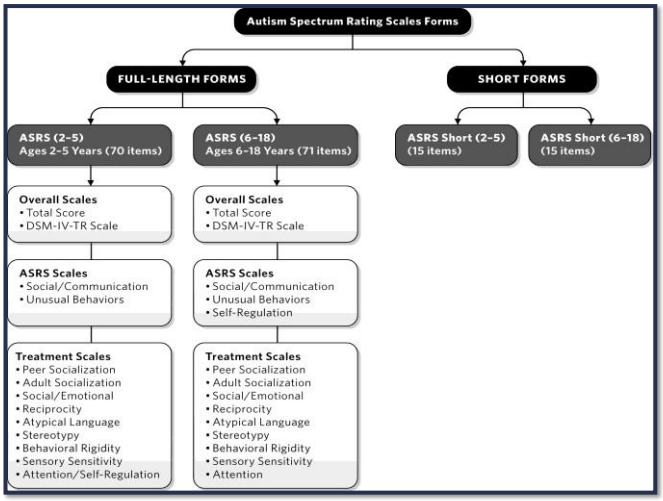
Autism Spectrum Rating Scales



Goldstein & Naglieri (2009)



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Factor Analytic Results

- 2-5 Year Olds a two-factor solution for parent and teacher raters
  - **Factor 1:** items related to socialization and communication (e.g., keep a conversation going, understand how someone else felt) - **Social/Communication**
  - **Factor 2:** items related to behavioral rigidity (e.g., insist on doing things the same way each time), stereotypical behaviors (e.g., flap his/her hands when excited), and overreactions to sensory stimulation (e.g., overreact to common smells)- **Unusual Behaviors**

6-18 Year Olds a three-factor solution for parent and teacher raters

- **Factor 1:** items related to both socialization and communication -**Social/Communication**
- **Factor 2:** items related to behavioral rigidity, stereotypical behaviors and overreactions to sensory -**Unusual Behaviors**
- **Factor 3**: items related to attention problems (e.g., become distracted), impulsivity (e.g., have problems waiting his/her turn), and compliance (e.g., get into trouble with adults, argue and fight with other children) -**Self-Regulation**.

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Psychology in the Schools, Vol. 49(10), 2012
View this article online at wileyonlinelibrary.com/journal/pits

DOI: 10.1002/pits.21650

A NATIONAL STUDY OF AUTISTIC SYMPTOMS IN THE GENERAL POPULATION OF SCHOOL-AGE CHILDREN AND THOSE DIAGNOSED WITH AUTISM SPECTRUM DISORDERS

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University of Utah
JACK A. NAGLIERI
University of Virginia and The Devereux Center for Resilient Children
SARA RZEPA AND KEVIN M. WILLIAMS
Multi-Health Systems

We examined the interrelationships among symptoms related to autism spectrum disorders (ASD) using a large representative sample and clinical groups of children aged 6 to 11 and youth aged 12 to 18 years rated by parents (N = 1,881) or teachers (N = 2,171). The samples included individuals from the United States and Canada from the standardization and validity studies for the Autism Spectrum Rating Scales. A three-factor solution comprising Social/Communication, Unusual Behaviors, and Self-Regulation provided the best fit to the data and was replicated across parent and teacher ratings. High coefficients of congruence across sexes, raters, ethnic groups, and age groups and for clinical groups were obtained. Implications for understanding the symptoms related to ASD and their use in practice are provided. © 2012 Wiley Periodicals, Inc.

For More on Factor Analysis of ASRS

- No differences across sexes, raters, ethnic groups and age for typical and clinical samples

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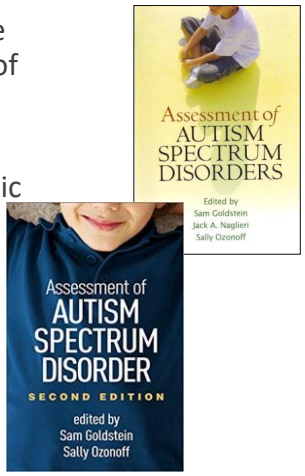
Importance of a National Norm

- The way we calibrate a psychological test or rating scale score has a direct impact on the reliability and validity of the instrument
- The composition of the comparison and characteristics of the group is especially important whenever diagnostic decisions are being made.
- Why compare children's scores to a nationally representative sample?

Psychometric issues for Autism rating scales is provided in the chapter by Naglieri & Chambers in *Assessment of Autism Spectrum Disorders* (Goldstein, Naglieri, & Ozonoff, 2009)



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Importance of a National Norm

- What is the problem with not having a national norm?
  - You don't know how typical children perform
    - Typical means a wide variety of individuals who vary on important demographic variables
- What is the problem with not having a standard score like a T-score (mean of 50 and *SD* of 10)?
  - You don't know how similar a child's behavior is in relation to what is typical
    - Data from Naglieri, J. A. (2012). Psychological Assessment by School Psychologists: Opportunities and Challenges of A Changing Landscape. In K. Geisinger & B. A. Bracken (Eds.) *APA Handbook of Testing and Assessment in Psychology*. Washington, D.C.: American Psychological Association.

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Diagnostic Reference Groups

- I studied the differences between results when using a nationally representative sample versus a sample of children identified as having Autism as a reference group
- Raw score to standard score (T-scores) conversion table was constructed based on two different reference groups
  - **Nationally representative sample** N = 1,828 (See Goldstein & Naglieri (2009) for more details about the normative sample
  - **Individuals with ASD** (N = 243) diagnosed with Autism (*n* = 137), Asperger Syndrome (*n* = 80), or Pervasive Developmental Disorder-Not Otherwise Specified (*n* = 26) made by a qualified professional (e.g., psychiatrist, psychologist) according to the DSM-IV-TR (APA, 2000) or ICD-10 (WHO, 2007)) using appropriate methods (e.g., record review, rating scales, observation, and interview).

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T Scores: Higher = more symptoms of ASD

Raw Score	ASD Comparison	National Comparison
170	59	
165	58	
160	57	
155	56	
150	54	
145	53	
140	52	
135	51	
130	50	
125	49	
120	48	
115	47	
110	46	
105	45	
100	44	
95	43	
90	42	
85	41	
80	40	
75	38	

A Raw Score of 130 is a T of 50 based on ASD sample

A Raw Score of 80 is a T of 40 based on the ASD sample

A Raw Score of 90 is a T score of 60 (1 SD above the national reference group)

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Treatment Effectiveness

Hidden dangers of using raw scores to evaluate an intervention

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Evidence-Based Practices and Autism

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ABSTRACT Interventions for autism are increasing being held to standards such as 'evidence-based practice' in psychology and 'scientifically-based research' in education. When these concepts emerged in the context of adult psychotherapy and regular education, they caused considerable controversy. Application of the concepts to autism treatments and special education has raised additional concerns. An analysis of the benefits and limitations of current approaches to empiricism in autism interventions is presented, and suggestions for future research are made.

KEYWORDS Evidence-, Pr, Scientifi, I, Rese

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Over the past decade, the concept described by combinations of the terms 'research-' 'empirically-' or 'scientifically-' with 'based', 'supported' or 'validated' applied to 'treatments', 'practices', 'instruction' or 'interventions' has become widespread in psychology, education, medicine, and other human service professions (Dunst et al., 2002). A review of the relationship of this concept to the field of autism intervention is the focus of this article. (Autism is used in this article to refer to all autism spectrum disorders.) From our perspective, the

Science not beliefs

More research is needed

Conclusions and Recommendations

To sum up our view of the current status of empiricism and autism interventions:

There are benefits to basing decisions about interventions on empirical evidence and professional experience rather than on beliefs and testimonials.

There is a wide and frequently-changing array of terms and definitions for such an empirical approach.

The autism intervention research literature is relatively sparse compared, for example, to the research literature on interventions for depression in adults, oppositional behavior in children, reading and math curricula for typical students, etc. This paucity of research is particularly notable in the area of treatment and education for adolescents and adults: research on interventions for young children dominates the field, in spite of the fact that autism affects individuals of all ages.

Broad, flexible definitions for determining whether an intervention is 'evidence-based' (e.g., APA's) do not have specific criteria against which to measure assertions of empirical support. However, the inclusion, in the APA definition, of clinical expertise and the concept of individualizing treatment based on various client factors makes this a valuable guide for establishing the evidence base of a wide range of interventions.

Definitions of evidence-based practice that include specific criteria developed for mental health treatment or regular education (e.g., EVT/EST, SBR) are problematic when applied to the autism intervention research

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Research on Treatment

- Excellent summary of research on treatments for Autism

Journal of Clinical Child & Adolescent Psychology, 37(1), 8–38, 2008
Copyright © Taylor & Francis Group, LLC
ISSN: 1537-4416 print/1537-4424 online
DOI: 10.1080/15374410701817808

Routledge
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Evidence-Based Comprehensive Treatments for Early Autism

Sally J. Rogers and Laurie A. Vismara
M.I.N.D. Institute, University of California Davis

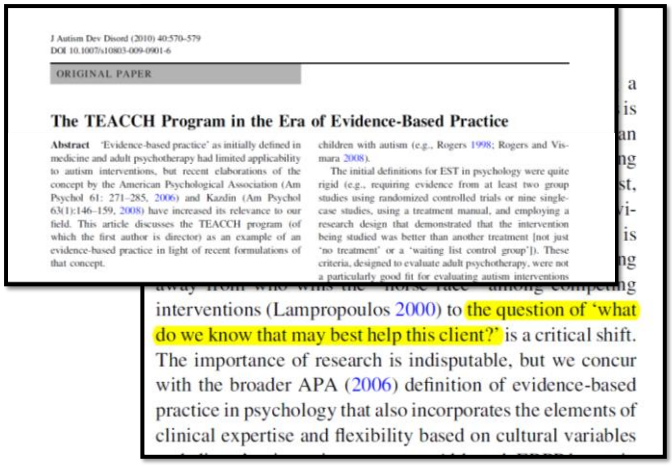
Early intervention for children with autism is currently a politically and scientifically complex topic. Randomized controlled trials have demonstrated positive effects in both short-term and longer term studies. The evidence suggests that early intervention programs are indeed beneficial for children with autism, often improving developmental functioning and decreasing maladaptive behaviors and symptom severity at the level of group analysis. Whether such changes lead to significant improvements in terms of greater independence and vocational and social functioning in adulthood is also unknown. Given the few randomized controlled treatment trials that have been carried out, the few models that have been tested, and the large differences in interventions that are being published, it is clear that the field is still very early in the process of determining (a) what kinds of interventions are most efficacious in early autism, (b) what variables moderate and mediate treatment gains and improved outcomes following intervention, and (c) the degree of both short-term and long-term improvements that

between expressive language abilities in the preschool years and better outcomes later (Lord & Schopler, 1989; Sigman & Ruskin, 1999). Without a replication, this intervention cannot yet be considered well-established or probably efficacious. The treatment does meet the *possibly efficacious* criterion, however, because, in accordance with Chambless and Hollon (1998), there is evidence supporting the treatment's efficacy relative to a comparison control condition in one "good" study. Given that this study included randomization with well-matched comparison groups, appropriate diagnostic methods, blind assessors, and clear statistical results, this study is viewed as a Type 1 using Nathan and Gorman (2002) criteria.

- TEACCH treatment meets the criterion "possibly efficacious"

Research on Treatment

- Establishing evidence of treatment is complex
- Consider statistical **and** clinical benefits (e.g., **impairment in life skills**)



J Autism Dev Disord (2010) 40:570–579
DOI 10.1007/s10803-009-0901-6

ORIGINAL PAPER

The TEACCH Program in the Era of Evidence-Based Practice

Abstract 'Evidence-based practice' as initially defined in medicine and adult psychotherapy had limited applicability to autism interventions, but recent elaborations of the concept by the American Psychological Association (Am Psychol 61: 271–285, 2006) and Kazdin (Am Psychol 63(1):146–159, 2008) have increased its relevance to our field. This article discusses the TEACCH program (of which the first author is director) as an example of an evidence-based practice in light of recent formulations of that concept.

children with autism (e.g., Rogers 1998; Rogers and Vismara 2008).

The initial definitions for EST in psychology were quite rigid (e.g., requiring evidence from at least two group studies using randomized controlled trials or nine single-case studies, using a treatment manual, and employing a research design that demonstrated that the intervention being studied was better than another treatment [not just 'no treatment' or a 'waiting list control group']). These criteria, designed to evaluate adult psychotherapy, were not a particularly good fit for evaluating autism interventions

interventions (Lampropoulos 2000) to the question of 'what do we know that may best help this client?' is a critical shift. The importance of research is indisputable, but we concur with the broader APA (2006) definition of evidence-based practice in psychology that also incorporates the elements of clinical expertise and flexibility based on cultural variables

Designing an outcome study to monitor the progress of students with autism spectrum disorders. Arick, Joel R.; Young, Helen E.; Falco, Ruth A.; Loos, Lauren M.; Krug, David A.; Gense, Marilyn H.; Johnson, Steven B. Focus on Autism and Other Developmental Disabilities, Vol 18(2), Sum 2003, 75-87.

Designing an Outcome Study to Monitor the Progress of Students with Autism Spectrum Disorders

Joel R. Arick, Helen E. Young, Ruth A. Falco, Lauren M. Loos, David A. Krug, Marilyn H. Gense, and Steven B. Johnson

The Autism Spectrum Disorders Outcome Study is tracking the educational progress of 67 students, between the ages of 2 and 6 years, whose primary diagnosis for services is an autism spectrum disorder. This article describes the study, how student outcomes have been measured, and how student progress has been reported to service providers and parents. Outcome data has been collected from performance observations, parent and teacher surveys, and standardized assessments. The strength of this data-collection approach is that it uses a variety of sources and multiple methods to monitor student progress. Initial results, based on the first 16 months of the study, have shown that the majority of the children have made significant progress in the areas of social interaction, expressive speech, and use of language concepts. In addition, they have displayed significant decreases in behaviors associated with autism spectrum disorders. This study began in 1998 and will continue at least through August of 2003.

TABLE 2
Descriptive Statistics of ASIEP-2 Subtests

Area assessed	*n*	Range of possible scores	Scores at baseline *M*	Scores at baseline *SD*	Scores at 12 to 16 months into study *M*	Scores at 12 to 16 months into study *SD*	effect size
Autism Behavior Checklist							
Body/object use	60	0–38	12.03	7.08	9.90*	7.87	.28
Language	60	0–31	14.07	6.10	12.23*	5.97	.30
Total score	60	0–158	70.47	19.82	61.60*	25.86	.39
Educational Assessment							
Receptive language	60	0–12	4.98	3.08	6.87**	3.50	-.57
Expressive language	60	0–12	2.83	2.78	4.63**	4.30	-.50
Body concept	60	0–12	4.38	3.80	7.27**	4.37	-.71
Speech imitation	60	0–12	5.22	3.40	7.37**	4.10	-.57
Total score	60	0–60	28.82	12.63	37.90**	15.44	-.64
Social Interaction Assessment							
Appropriate social interactions	57	0–48	5.63	5.27	9.18**	8.15	-.52
Self-stimulation/nonresponsive to adult	57	0–48	22.86	11.88	17.37**	12.60	.45
Total score	57	0–96	65.21	15.35	56.19**	18.60	.53
Vocal Behavior							
Noncommunicative utterances	60	0–50	35.97	14.03	23.17**	18.20	.78
Unintelligible utterances	60	0–50	37.41	14.08	24.68**	20.43	.73
Words used during sample	59	na	25.39	36.0	52.37**	52.32	-.60
Expressive language age score	56	na	23.21	8.50	33.51**	16.70	-.78

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Intervention – Kasari, et al

When Changes Over Time are Misleading

Journal of Consulting and Clinical Psychology 2008, Vol. 76, No. 1, 125–137

Copyright 2008 by the American Psychological Association 0022-006X/08/$12.00 DOI: 10.1037/0022-006X.76.1.125

Language Outcome in Autism: Randomized Comparison of Joint Attention and Play Interventions

Connie Kasari, Tanya Paparella, and Stephanny Freeman
University of California, Los Angeles

Laudan B. Jahromi
Arizona State University

This study reports results of a randomized controlled trial aimed at joint attention (JA) and symbolic play (SP) in preschool children with autism, with prediction to language outcome 12 months later. Participants were 58 children (46 boys) with autism between 3 and 4 years of age. Children were randomized to a JA intervention, an SP intervention, or control group. Interventions were conducted 30 min daily for 5–6 weeks. Assessments of JA skills, SP skills, mother–child interactions, and language development were collected at 4 time points; pre- and postintervention and 6 and 12 months postintervention by independent testers. Results indicate that expressive language gains were greater for both treatment groups compared with the control group, and results could not be explained by differences in other interventions in which children participated. For children beginning treatment with the lowest language levels, the JA intervention improved language outcome significantly more than did the SP or control interventions. These findings suggest clinically significant benefits of actively treating JA and SP skills in young children with autism.

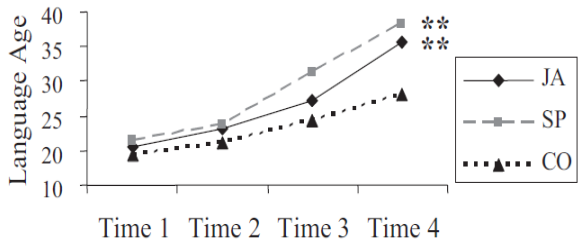

Figure 2. Growth in expressive language, measured in months. JA = joint attention; SP = symbolic play; CO = control group. **JA & SP > CO, $F(2, 164) = 6.84$, $p < .01$.

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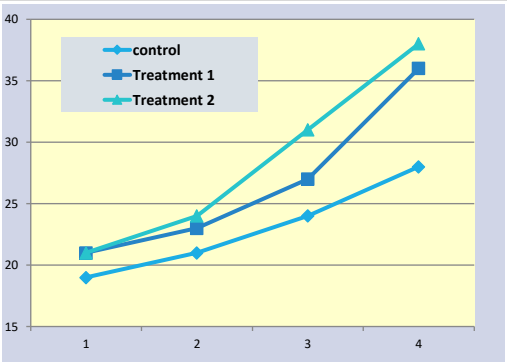
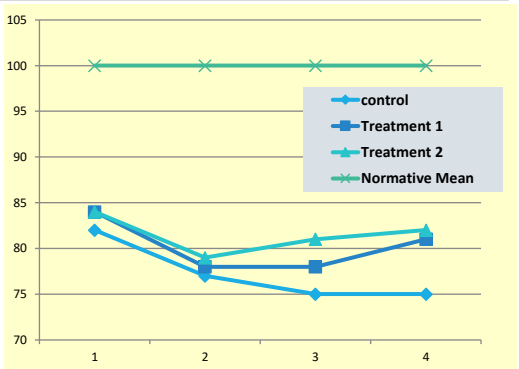
Kasari – Raw vs Standard Scores



Both treatment groups appear to have higher Expressive Language scores at Time 4. The interpretation of these data could lead to the **conclusion that the treatments worked**.



When the Expressive Language raw scores are converted to standard scores (Mn = 100, SD = 15) the results suggest that although the raw scores increased over the 12 month interval the standard scores associated with these raw scores actual **showed NO improvement**.

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Kasari, et al - Reinterpreted

- Even though the two treatment (as well as the control) groups' raw scores increased over time, the difference between those scores and the normative group remained large.
- Raw score improvement alone is insufficient to show treatment effectiveness.
- Standard score improvement provides an additional reference point that ***must*** be taken into consideration in order to determine if a treatment is sufficiently effective.

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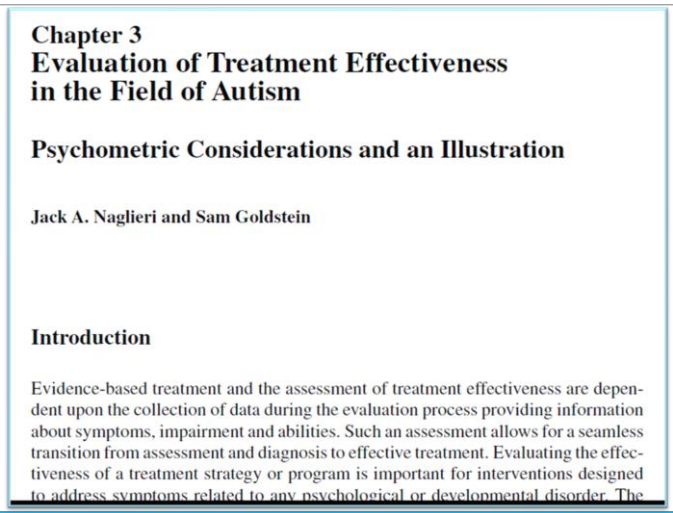
Treatment Evaluation with ASRS



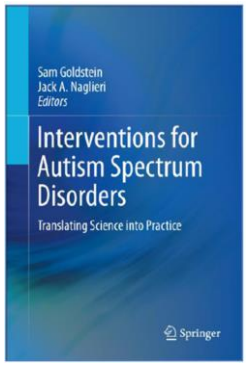
Chapter 3
Evaluation of Treatment Effectiveness in the Field of Autism

Psychometric Considerations and an Illustration

Jack A. Naglieri and Sam Goldstein

Introduction

Evidence-based treatment and the assessment of treatment effectiveness are dependent upon the collection of data during the evaluation process providing information about symptoms, impairment and abilities. Such an assessment allows for a seamless transition from assessment and diagnosis to effective treatment. Evaluating the effectiveness of a treatment strategy or program is important for interventions designed to address symptoms related to any psychological or developmental disorder. The



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Treatment Evaluation with ASRS

- Step 1: Identify specific area or areas of need based on ASRS T-scores of 60 or more
- Which indicates many characteristics similar to individuals diagnosed with an ASD.
  - Examine ASRS Total Score
- The Total Score is, however, insufficient for treatment planning because it is too general.
- Step 2: Look at the separate treatment scales

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Parent vs Teacher ASRS Standard Scores

- Total Score of 73 by Parent & Teacher
- Social Communication scores are high for both raters
- Self-Regulation scores are also high for both raters

Table 3.3 Case of Donny: parent and teacher ASRS *T*-scores, differences between raters, and values needed for significance

	Parent	Teacher	Difference	Difference needed[a]	
Total score	*73*	*73*	0	5	NS
Social communication	*77*	*78*	1	6	NS
Unusual behavior	*60*	53	−7	6	Sig
Self-regulation	*70*	*74*	4	7	NS
DSM-IV scale	*69*	*68*	−1	6	NS
Treatment scales					
Peer socialization	*70*	*73*	3	9	NS
Adult socialization	58	*63*	5	12	NS
Social/emotional reciprocity	*77*	*76*	−1	8	NS
Atypical language	52	44	−8	11	NS
Stereotypy	49	54	5	13	NS
Behavioral rigidity	72	48	−24	8	Sig
Sensory sensitivity	*44*	48	4	12	NS
Attention	*71*	*73*	2	7	NS

T-scores greater than 59 appear in italic text

[a]*Note* Differences needed for significance when comparing Parent and Teacher ratings are found in Table 4.5 of the ASRS Manual

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Treatment Evaluation with ASRS

- Raters agree except for Unusual Behavior and Behavioral Rigidity scales.

	Parent	Teacher	Difference	Difference needed[a]	
Total score	*73*	*73*	0	5	NS
Social communication	*77*	*78*	1	6	NS
Unusual behavior	*60*	53	−7	6	Sig
Self-regulation	*70*	*74*	4	7	NS
DSM-IV scale	*69*	*68*	−1	6	NS
Treatment scales					
Peer socialization	*70*	*73*	3	9	NS
Adult socialization	58	*63*	5	12	NS
Social/emotional reciprocity	*77*	*76*	−1	8	NS
Atypical language	52	44	−8	11	NS
Stereotypy	49	54	5	13	NS
Behavioral rigidity	*72*	48	−24	8	Sig
Sensory sensitivity	*44*	48	4	12	NS
Attention	*71*	*73*	2	7	NS

T-scores greater than 59 appear in italic text

[a]*Note* Differences needed for significance when comparing Parent and Teacher ratings are found in Table 4.5 of the ASRS Manual

that behaviors in the home and the classroom are different

This significant difference warrants further exploration.

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Treatment Evaluation with ASRS

- Consistently high scores on Peer Socialization, Social/Emotional Reciprocity and Attention

	Parent	Teacher	Difference	Difference needed[a]	
Total score	*73*	*73*	0	5	NS
Social communication	*77*	*78*	1	6	NS
Unusual behavior	*60*	53	−7	6	Sig
Self-regulation	*70*	*74*	4	7	NS
DSM-IV scale	*69*	*68*	−1	6	NS
Treatment scales					
Peer socialization	*70*	*73*	3	9	NS
Adult socialization	58	*63*	5	12	NS
Social/emotional reciprocity	*77*	*76*	−1	8	NS
Atypical language	52	44	−8	11	NS
Stereotypy	49	54	5	13	NS
Behavioral rigidity	*72*	48	−24	8	Sig
Sensory sensitivity	*44*	48	4	12	NS
Attention	*71*	*73*	2	7	NS

T-scores greater than 59 appear in italic text

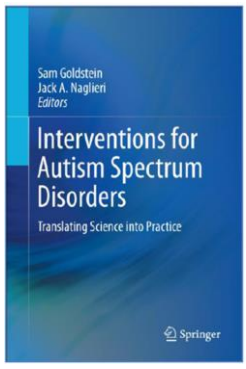
[a]*Note* Differences needed for significance when comparing Parent and Teacher ratings are found in Table 4.5 of the ASRS Manual

Treatment Planning with ASRS

- Item level analysis within Peer Socialization helps clarify the exact nature of the behaviors that led to the high score

Fig. 3.7 Item level analysis from ASRS interpretive report (shaded items indicate scores that are more than 1 *SD* from the normative mean)

Peer Socialization	
Item	**Score**
3. seek the company of other children? (R)	1
14. have trouble talking with other children?	3
19. have social problems with children of the same age?	2
31. play with others? (R)	1
45. understand age-appropriate humor or jokes? (R)	1
50. talk too much about things that other children don't care about?	4
64. choose to play alone?	3
69. show good peer interactions? (R)	2
70. respond when spoken to by other children? (R)	1
Peer Socialization Raw Score =	**17**



Treatment Planning with ASRS

- The Quick Solution Guide provides the correspondence of behaviors associated with ASD and specific interventions provided in the book.

Quick Solution Finder

Peer Socialization

Increase ability to seek out other children	51
Initiate conversation with other children	51
Increase ability to play appropriately with other children	51
Increase ability to understand humor	227
Improve ability to carry on normal conversation with peers	174
Respond appropriately when other children initiate	159

Peer Socialization	
Item	**Score**
14. have trouble talking with other children?	3
50. talk too much about things that other children don't care about?	4
64. choose to play alone?	3
69. show good peer interactions? (R)	2

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Treatment Evaluation with ASRS

Table 3.4 Parent *T*-scores for ASRS scales obtained over three time periods

	Time 1	Time 2	Time 3	Progress monitoring (Time 2 – 1)		Progress monitoring (Time 3 – 1)	
Total score	*73*	*70*	*63*	–3	NS	10	Sig
Social communication	*77*	*77*	*66*	0	NS	11	Sig
Unusual behavior	*60*	58	58	–2	NS	2	NS
Self-regulation	*70*	*67*	*62*	–3	NS	8	NS
DSM-IV scale	*69*	*68*	*63*	–1	NS	6	NS
Treatment scales							
Peer socialization	*70*	*69*	*68*	–1	NS	2	NS
Adult socialization	58	58	58	0	NS	0	NS
Social/emotional reciprocity	*77*	*77*	*63*	0	NS	14	Sig
Atypical language	52	52	52	0	NS	0	NS
Stereotypy	49	49	49	0	NS	0	NS
Behavioral rigidity	*72*	*67*	*67*	–5	NS	5	NS
Sensory sensitivity	44	44	44	0	NS	0	NS
Attention	*71*	*68*	58	–3	NS	13	Sig

T-scores greater than 59 appear in italic text

Note Differences needed for significance when comparing scores over time for Parent and Teacher ratings are found in Table 4.11 of the ASRS Manual ($p = 0.10$ with Bonferroni correction)

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Importance of a National Norm

- Conclusions
  - The diagnostic conclusions we reach are greatly influenced by the tools we use
  - The composition of the reference group can make a substantial difference in the conclusions reached
  - Norms that represent a typical population are needed for all assessment tools
  - We have an obligation to use the highest quality tests

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Pause…

For your thoughts and/or questions

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Autism Spectrum Rating Scales 2nd Edition (ASRS 2)

Adult Pilot Data analysis results

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Age Range	18 mos - 5 years	6-18 Years	19-70 Years
Forms	Parent Form & Teacher Form	Parent Form & Teacher Form	Self-Report & Observer-Report
Scales	Atypical Language	Atypical Language	Atypical Language
	Adult Socialization	Adult Socialization	--
	Attention/Self Regulation	Attention	Attention
	Behavioral Rigidity	Behavioral Rigidity	Behavioral Rigidity
	Hyper-reactivity	Hyper-reactivity	Hyper-reactivity
	Hypo-reactivity*	Hypo-reactivity*	Hypo-reactivity*
	Peer Socialization	Peer Socialization	Socialization
	Social Emotional Reciprocity	Social Emotional Reciprocity	Social Emotional Reciprocity
	Self-Injurious Behavior*	Self-Injurious Behavior*	Self-Injurious Behavior*
	Stereotypy	Stereotypy	Stereotypy
	--	Anxiety*	Anxiety*
	--	Camouflaging/Masking*	Camouflaging/Masking*
	Validity*	Validity*	Validity*

Tentative ASRS-2 Scale Structure by Age Group

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Data collection

- Pilot Data collection for the ASRS 2 took place in 2016-2018
- Data was collected from General population and clinical samples
- Data was collected from:
  - Individuals 19 years and older (For the Self-Report form)
  - The individual's spouse, parent or family member (For the Observe-Report Form)
- Data collection resulted in:

Form	General Population	ASD	Other Clinical
Self-Report	466	30	47
Observer-Report	452	22	26

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Pilot Data: Scale Reliability

- Summary of the Reliability of each scale as measured by Cronbach's alpha
- Overall, the alpha values indicate high level of reliability for each scale

Scales	Self-Report		Observer-Report	
	General Population	Clinical	General Population	Clinical
Atypical Language	.88	.89	.87	.94
Attention	.86	.86	.90	.90
Behavioral Rigidity	.90	.94	.93	.91
Sensory Sensitivity	.85	.90	.84	.87
Socialization	.85	.92	.86	.90
Social/Emotional Reciprocity	.90	.93	.91	.94
Self-Injurious Behavior	.86	.79	.90	.82
Stereotypy	.87	.91	.88	.90
DSM-5 ASD	.92	.96	.93	.96

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Clinical Group Differences (Cohen's d)

Large d-values are observed across nearly all comparisons, indicating the ability of the scale to identify individuals with ASD

Scales	Self-Report		Observer-Report	
	ASD vs. General Population	ASD vs. Other Clinical	ASD vs. General Population	ASD vs. Other Clinical
Atypical Language	1.21	1.36	2.46	1.38
Attention	1.66	0.49	2.93	1.24
Behavioral Rigidity	1.61	1.19	2.47	1.57
Sensory Sensitivity	1.74	1.60	2.39	1.91
Socialization	1.30	0.94	2.51	1.61
Social/Emotional Reciprocity	0.86	1.23	1.80	1.53
Self-Injurious Behavior	0.88	0.62	1.76	0.70
Stereotypy	1.34	1.31	2.62	1.62
DSM-5 ASD	1.49	1.70	2.67	2.36

d = 0.2-0.4 Small
d = 0.5-0.7 Medium
d >=0.8 Large

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Topics for Today

Diagnosis

- Behavioral symptoms define the disorder based on DSM-5

Description of the Individual

- Assessment of the Behaviors related to ASD
- Determining if there is a Cognitive Processing Component
  - Cognitive profiles for those with ASD, ADHD, and SLD
- Evaluate Social Communication and Social Interactions
- Ruling out Intellectual Disability
  - A *fair and equitable* way to assess ability for students who may have Autism
- Quantifying "Significant Impairment"

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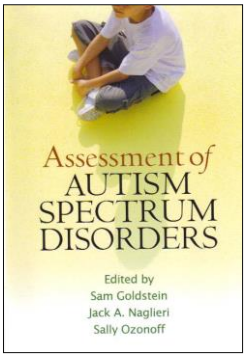
ASRS & Attention Difficulty

- Individuals with ASD have been described as having "***difficulties in disengaging and shifting attention***" (p. 214) (see Klinger, O'Kelley, & Mussey's chapter 8 in *Assessment of Autism Spectrum Disorders* (Goldstein, Naglieri, & Ozonoff, 2009)
- We tested this hypothesis using the Cognitive Assessment System (Naglieri & Das, 1997)



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ASRS & Attention Difficulty

- the ASRS (6–18 Years) and Cognitive Assessment System (CAS; Naglieri & Das, 1997) was administered to children diagnosed with an ASD who were rated by a parent (N = 45) or a teacher (N = 47)
- The CAS provides measures of
  - Planning, Attention, Simultaneous, and Successive cognitive processes

Table 8.16. Demographic Characteristics of the CAS Validity Sample

Demographic	Group	Parent		Teacher	
		N	%	*N*	%
Gender	Male	33	73.3	34	72.3
	Female	12	26.7	13	27.7
Race/Ethnicity	Asian	4	8.9	4	8.5
	African American	6	13.3	7	14.9
	Hispanic	11	24.4	11	23.4
	White	23	51.1	24	51.1
	Multiracial/Other	1	2.2	1	2.1
Parental Education Level	Less than high school	3	6.7	–	–
	High school or equivalent	7	15.6	–	–
	Some college	16	35.6	–	–
	College or higher	19	42.2	–	–
	Total	45	100.0	47	100.0
	Age *M* (*SD*)	11.0 (2.4)		11.0 (2.4)	

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ASRS & Attention Difficulty

- Results

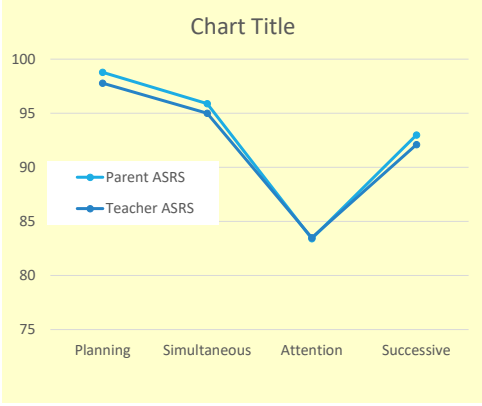

Table 8.17. ASRS and CAS Scores for Youth Diagnosed with an ASD

Rater		ASRS (6–18 Years)	Cognitive Assessment System (CAS)				
		Total Score	Full Scale	Planning	Simultaneous	Attention	Successive
Parent	*M*	65.8	89.8	98.8	95.9	83.4	93.0
	SD	9.8	25.0	27.6	17.5	17.7	20.5
	N	45	45.0	45.0	45.0	45.0	45.0
Teacher	*M*	66.5	88.8	97.8	95.0	83.5	92.1
	SD	8.6	25.0	27.5	17.8	18.1	20.3
	N	47	47	47	47	47	47

Note. ASRS *T*-scores have a normative mean of 50 and standard deviation of 10. The CAS standard scores have a normative mean of 100 and standard deviation of 15.

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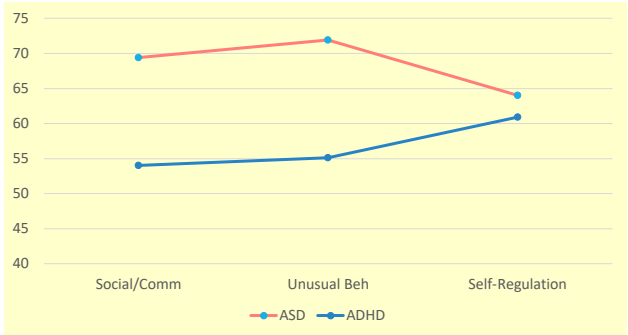
ADHD, General Population, ASD & Other Clinical

- From ASRS Manual

Table 8.7. Differences between ASD and other Groups: ASRS (6–18 Years) Parent Ratings

Scale			GP	ASD	ADHD	Other Clinical	*d*-ratio: ASD vs. GP	*d*-ratio: ASD vs. ADHD	*d*-ratio: ASD vs. Other Clinical	Planned Comparisons
ASRS Total Score		*M*	48.2	69.8	57.9	49.5	1.79	1.05	1.80	ASD > GP ASD > ADHD ASD > Other Clinical
		SE	0.9	0.8	1.1	1.6				
		N	193	186	106	45				
ASRS Scales	Social/ Communication	*M*	49.1	71.1	54.0	48.7	1.75	1.44	1.88	ASD > GP ASD > ADHD ASD > Other Clinical
		SE	0.9	0.9	1.1	1.7				
		N	193	186	106	45				
	Unusual Behaviors	*M*	48.5	68.1	55.1	48.2	1.60	1.13	1.72	ASD > GP ASD > ADHD ASD > Other Clinical
		SE	0.9	0.9	1.1	1.6				
		N	193	186	106	45				
	Self-Regulation	*M*	47.2	61.4	60.9	51.4	1.18	0.04	0.88	ASD > GP ASD = ADHD ASD > Other Clinical
		SE	0.9	0.9	1.1	1.6				
		N	193	186	106	45				



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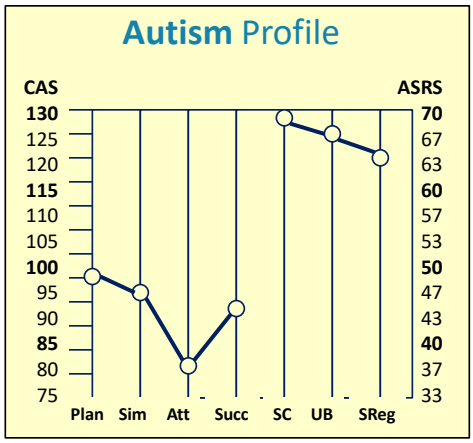
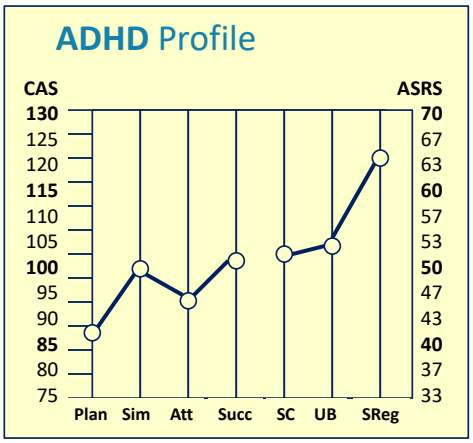
Different PASS Profiles for those with ASD vs ADHD





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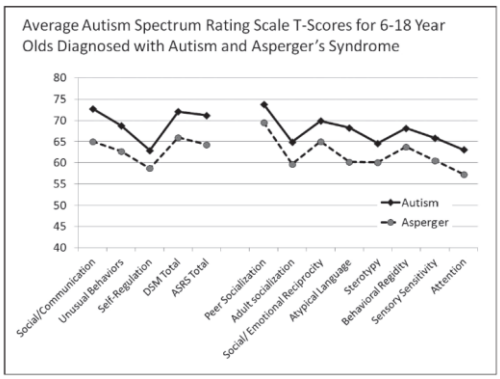

Autism and Asperger's: Two Distinct Disorders or One Disorder of Varying Symptom Severity

ASRS & CAS: Autism & Asperger's

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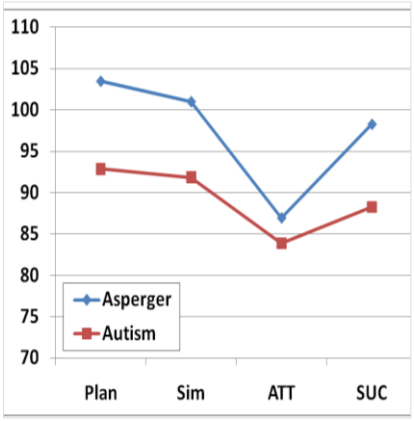
Autism vs Asperger 6-18



Descriptive Statistics and Comparisons Between Individuals with Autism (*n* = 20) and Asperger Syndrome (*n* = 23).

		Mn	*SD*	*F*	Sig	*d* -ratio
PLAN	Asperger	103.5	31.6	1.71	.20	0.40
	Autism	92.9	19.2			
SIM	Asperger	101.0	15.3	3.33	.08	0.54
	Autism	91.9	17.5			
ATT	Asperger	86.9	17.7	0.30	.59	0.17
	Autism	83.9	18.8			
SUC	Asperger	98.3	15.7	2.46	.12	0.47
	Autism	88.3	25.6			

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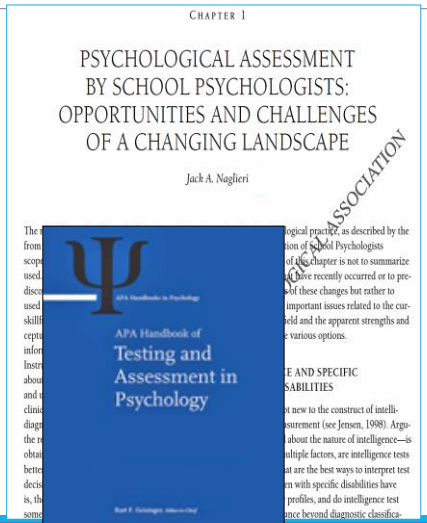
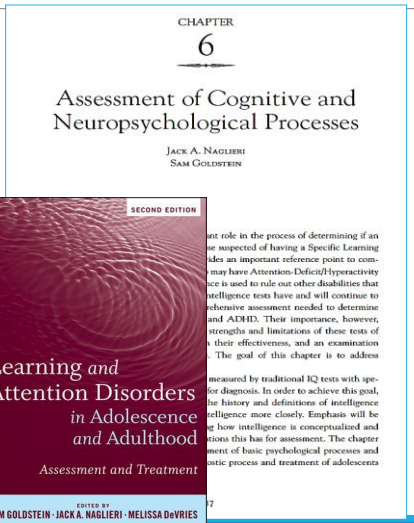
Test Profile Studies – Validity matters


CHAPTER 1

PSYCHOLOGICAL ASSESSMENT BY SCHOOL PSYCHOLOGISTS: OPPORTUNITIES AND CHALLENGES OF A CHANGING LANDSCAPE

Jack A. Naglieri


CHAPTER 6

Assessment of Cognitive and Neuropsychological Processes

JACK A. NAGLIERI
SAM GOLDSTEIN

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Naglieri & Goldstein (2011)

GROUP PROFILES BY ABILITY TEST

Because ability tests play such an important role in the diagnostic process, it is crucial to understand the sensitivity each test may have to any unique characteristics of those with an SLD or attention deficit. Clinicians need to know if an adolescent or adult has a specific deficit in ability that is related to a specific academic learning problem. There has been considerable research on, for example, Wechsler subtest profile analysis, and most researchers conclude that no profile has diagnostic utility for individuals with SLD or ADHD (Kavale & Forness, 1995). The failure of subtest profiles has led some to argue (e.g., Naglieri, 1999) that scale, rather than subtest, variability should

1. We need to know if intelligence tests yield distinctive profiles

2. Subtest profile analysis is UNSUPPORTED so use scale profiles instead

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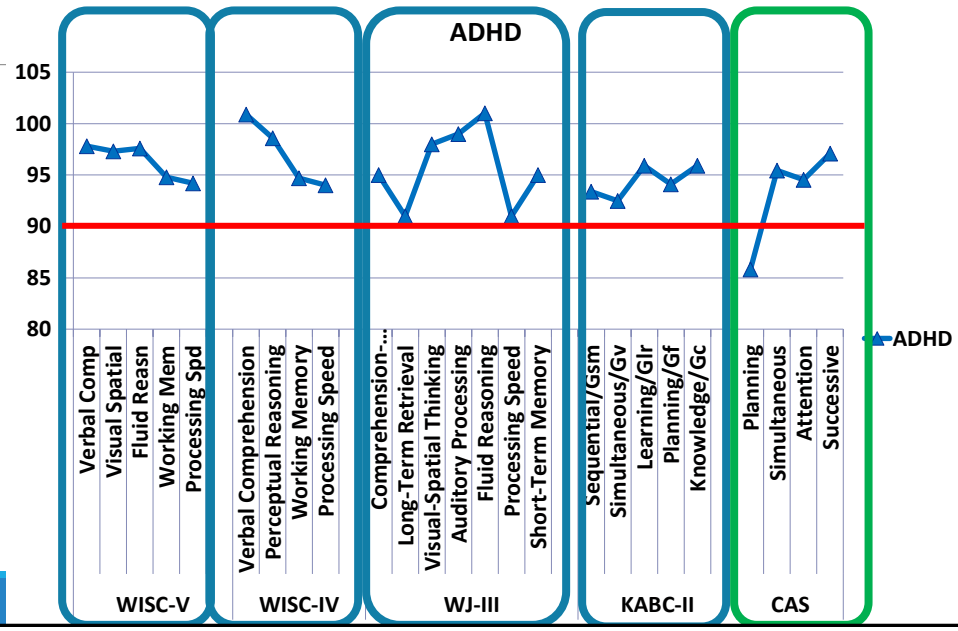
Profiles for students with ADHD



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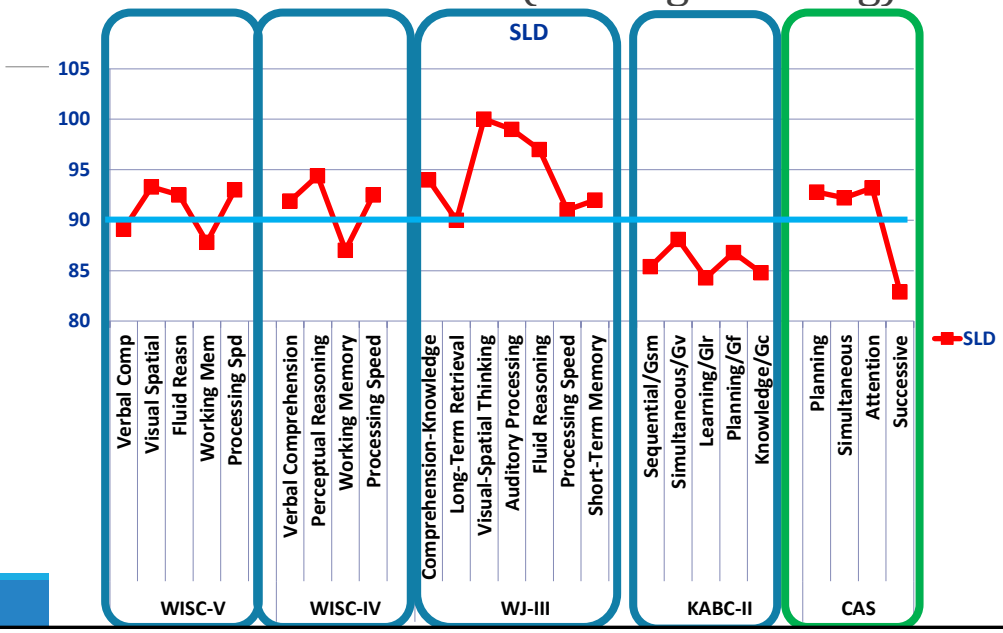
Profiles for SLD (reading decoding)



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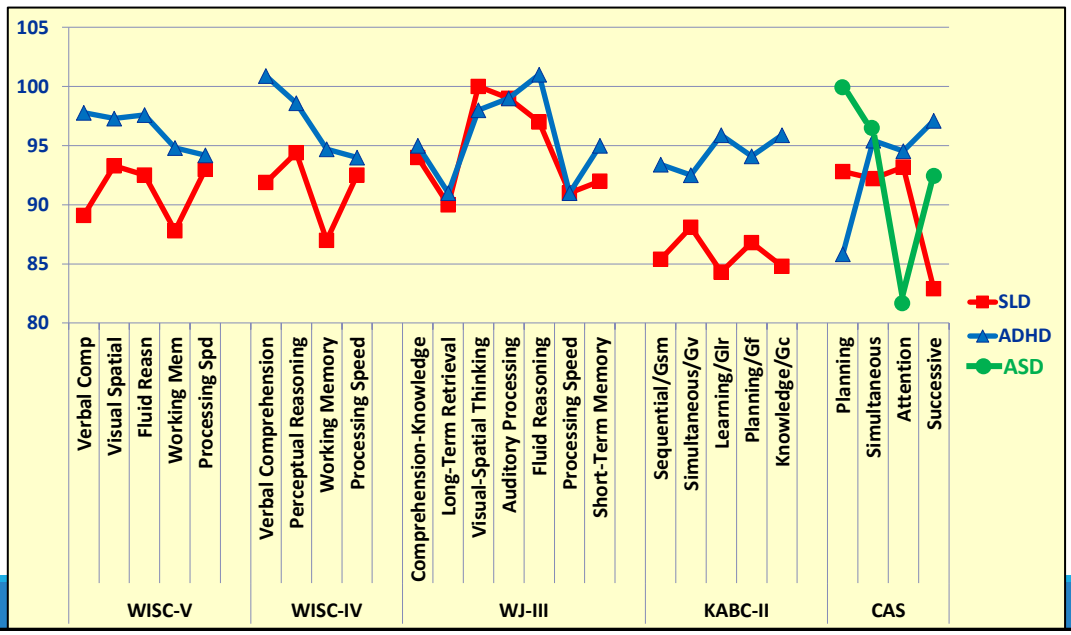
Profiles for SLD, ADHD, & ASD



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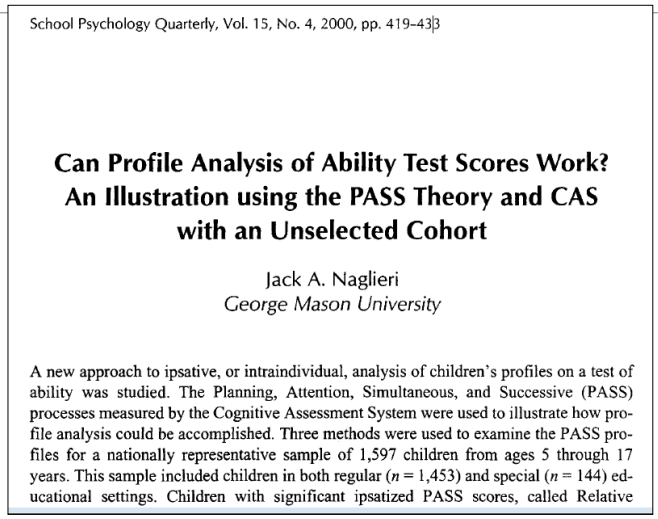
PASS Profiles and Educational Placement

Students receiving special education were more than four times as likely to have at least one PASS weakness and a comparable academic weakness than those in regular education



School Psychology Quarterly, Vol. 15, No. 4, 2000, pp. 419-43[illegible]

Can Profile Analysis of Ability Test Scores Work? An Illustration using the PASS Theory and CAS with an Unselected Cohort

Jack A. Naglieri
George Mason University

A new approach to ipsative, or intraindividual, analysis of children's profiles on a test of ability was studied. The Planning, Attention, Simultaneous, and Successive (PASS) processes measured by the Cognitive Assessment System were used to illustrate how profile analysis could be accomplished. Three methods were used to examine the PASS profiles for a nationally representative sample of 1,597 children from ages 5 through 17 years. This sample included children in both regular (n = 1,453) and special (n = 144) educational settings. Children with significant ipsatized PASS scores, called Relative

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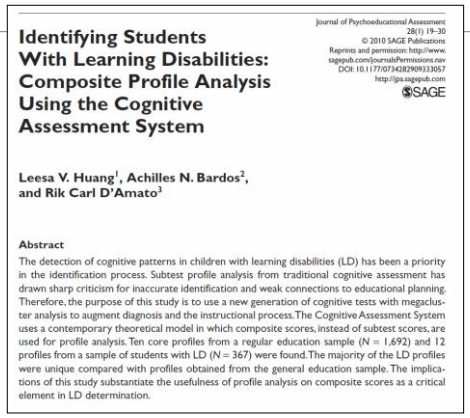
SLD Profiles on CAS



Journal of Psychoeducational Assessment
28(1) 19–30
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DOI: 10.1177/0734282909333057
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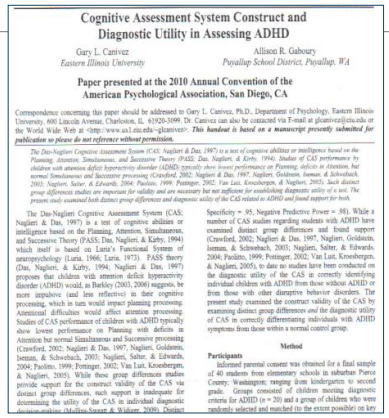
Identifying Students With Learning Disabilities: Composite Profile Analysis Using the Cognitive Assessment System

Leesa V. Huang[1], Achilles N. Bardos[2], and Rik Carl D'Amato[3]

Abstract

The detection of cognitive patterns in children with learning disabilities (LD) has been a priority in the identification process. Subtest profile analysis from traditional cognitive assessment has drawn sharp criticism for inaccurate identification and weak connections to educational planning. Therefore, the purpose of this study is to use a new generation of cognitive tests with megacluster analysis to augment diagnosis and the instructional process. The Cognitive Assessment System uses a contemporary theoretical model in which composite scores, instead of subtest scores, are used for profile analysis. Ten core profiles from a regular education sample (N = 1,692) and 12 profiles from a sample of students with LD (N = 367) were found. The majority of the LD profiles were unique compared with profiles obtained from the general education sample. The implications of this study substantiate the usefulness of profile analysis on composite scores as a critical element in LD determination.

12 profiles were found, most were unique from the general sample



Cognitive Assessment System Construct and Diagnostic Utility in Assessing ADHD

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Paper presented at the 2010 Annual Convention of the American Psychological Association, San Diego, CA

Correspondence concerning this paper should be addressed to Gary L. Canivez, Ph.D., Department of Psychology, Eastern Illinois University, 600 Lincoln Avenue, Charleston, IL 61920-3099. Dr. Canivez can also be contacted via E-mail at glcanivez@eiu.edu or the World Wide Web at <http://www.ux1.eiu.edu/~glcanivez>. ***This handout is based on a manuscript presently submitted for publication so please do not reference without permission.***

The Das-Naglieri Cognitive Assessment System (CAS: Naglieri & Das, 1997) is a test of cognitive abilities or intelligence based on the Planning, Attention, Simultaneous, and Successive Theory (PASS: Das, Naglieri, & Kirby, 1994). Studies of CAS performance by children with attention deficit hyperactivity disorder (ADHD) typically show lowest performance on Planning, deficits in Attention, but normal Simultaneous and Successive processing (Crawford, 2002; Naglieri & Das, 1997; Naglieri, Goldstein, Iseman, & Schwebach, 2003; Naglieri, Salter, & Edwards, 2004; Paolito, 1999; Pottinger, 2002; Van Luit, Kroesbergen, & Naglieri, 2005). Such distinct group differences studies are important for validity and are necessary but not sufficient for establishing diagnostic utility of a test. The present study examined both distinct group differences and diagnostic utility of the CAS related to ADHD and found support for both.

The Das-Naglieri Cognitive Assessment System (CAS: Naglieri & Das, 1997) is a test of cognitive abilities or intelligence based on the Planning, Attention, Simultaneous, and Successive Theory (PASS: Das, Naglieri, & Kirby, 1994) which itself is based on Luria's Functional System of neuropsychology (Luria, 1966; Luria, 1973). PASS theory (Das, Naglieri, & Kirby, 1994; Naglieri & Das, 1997) proposes that children with attention deficit hyperactivity disorder (ADHD) would, as Barkley (2003, 2006) suggests, be more impulsive (and less reflective) in their cognitive processing, which in turn would impact planning processing. Attentional difficulties would affect attention processing. Studies of CAS performance of children with ADHD typically show lowest performance on Planning with deficits in Attention but normal Simultaneous and Successive processing (Crawford, 2002; Naglieri & Das, 1997; Naglieri, Goldstein, Iseman, & Schwebach, 2003; Naglieri, Salter, & Edwards, 2004; Paolito, 1999; Pottinger, 2002; Van Luit, Kroesbergen, & Naglieri, 2005). While those group differences studies provide support for the construct validity of the CAS via distinct group differences, such support is inadequate for determining the utility of the CAS in individual diagnostic decision-making (Mayfield Stewart & Widaman, 2009). Distinct Specificity = 95; Negative Predictive Power = 98). While a number of CAS studies regarding students with ADHD have examined distinct group differences and found support (Crawford, 2002; Naglieri & Das, 1997; Naglieri, Goldstein, Iseman, & Schwebach, 2003; Naglieri, Salter, & Edwards, 2004; Paolito, 1999; Pottinger, 2002; Van Luit, Kroesbergen, & Naglieri, 2005), to date no studies have been conducted on the diagnostic utility of the CAS in correctly identifying individual children with ADHD from those without ADHD or from those with other disruptive behavior disorders. The present study examined the construct validity of the CAS by examining distinct group differences *and* the diagnostic utility of CAS in correctly differentiating individuals with ADHD symptoms from those within a normal control group.

Method

Participants

Informed parental consent was obtained for a final sample of 40 students from elementary schools in suburban Pierce County, Washington; ranging from kindergarten to second grade. Groups consisted of children meeting diagnostic criteria for ADHD (n = 20) and a group of children who were randomly selected and matched (to the extent possible) on key

the CAS correctly identified students who demonstrated behaviors consistent with ADHD diagnosis

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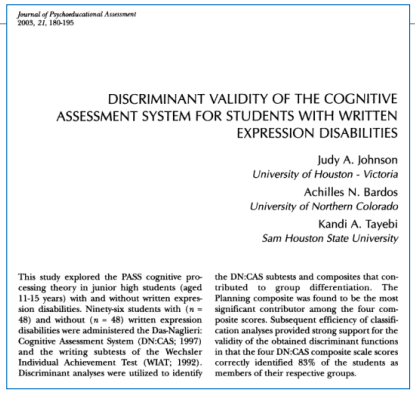
SLD Profiles on CAS



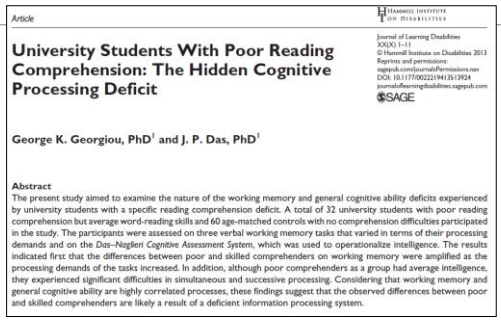
Journal of Psychoeducational Assessment
2005, *21*, 180-195

DISCRIMINANT VALIDITY OF THE COGNITIVE ASSESSMENT SYSTEM FOR STUDENTS WITH WRITTEN EXPRESSION DISABILITIES

Judy A. Johnson
University of Houston - Victoria
Achilles N. Bardos
University of Northern Colorado
Kandi A. Tayebi
Sam Houston State University

This study explored the PASS cognitive processing theory in junior high students (aged 11-15 years) with and without written expression disabilities. Ninety-six students with (n = 48) and without (n = 48) written expression disabilities were administered the Das-Naglieri: Cognitive Assessment System (DN:CAS; 1997) and the writing subtests of the Wechsler Individual Achievement Test (WIAT; 1992). Discriminant analyses were utilized to identify the DN:CAS subtests and composites that contributed to group differentiation. The Planning composite was found to be the most significant contributor among the four composite scores. Subsequent efficiency of classification analyses provided strong support for the validity of the obtained discriminant functions in that the four DN:CAS composite scale scores correctly identified 83% of the students as members of their respective groups.

CAS…yields information that [differentiates] students [with] learning disability in writing"



Article

University Students With Poor Reading Comprehension: The Hidden Cognitive Processing Deficit

Journal of Learning Disabilities
XX(X) 1–11
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DOI: 10.1177/0022219413513924
journaloflearningdisabilities.sagepub.com
SAGE

George K. Georgiou, PhD[1] and J. P. Das, PhD[1]

Abstract
The present study aimed to examine the nature of the working memory and general cognitive ability deficits experienced by university students with a specific reading comprehension deficit. A total of 32 university students with poor reading comprehension but average word-reading skills and 60 age-matched controls with no comprehension difficulties participated in the study. The participants were assessed on three verbal working memory tasks that varied in terms of their processing demands and on the *Das–Naglieri Cognitive Assessment System*, which was used to operationalize intelligence. The results indicated first that the differences between poor and skilled comprehenders on working memory were amplified as the processing demands of the tasks increased. In addition, although poor comprehenders as a group had average intelligence, they experienced significant difficulties in simultaneous and successive processing. Considering that working memory and general cognitive ability are highly correlated processes, these findings suggest that the observed differences between poor and skilled comprehenders are likely a result of a deficient information processing system.

Despite average intelligence college students with poor reading comprehension were low on Simultaneous and Successive processing scores from the CAS

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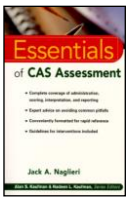
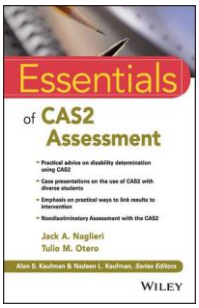
Discrepancy Consistency Method (DCM)

- The Discrepancy Consistency Method (DCM) was first introduced in 1999 (most recently in 2017)





Pattern of Strengths and Weaknesses Using the Discrepancy/Consistency Method for SLD Determination

Three methods for detecting a pattern of strengths and weaknesses (PSW) that can be used as part of the process of identifying a student with a specific learning disability (SLD) have been suggested by Naglieri in 1999, Hale and Fiorello in 2004, and by Flanagan, Ortiz, and Alfonso in 2007. These authors share the same goal: to present a procedure to detect a PSW in scores that can be used to identify an SLD (sometimes referred to as a third option; Zirkel & Thomas, 2010). Despite differences in the composition of the scores used and the definitions of what constitutes a basic psychological process, these methods all rely on finding a combination of differences as well as similarities in scores across academic and cognitive tests. Our approach to operationalizing a PSW is called the Discrepancy/Consistency Method (DCM) for the identification of SLD. Determining SLD is essentially based on the combination of PASS and achievement test scores. The method involves a systematic examination of variability of PASS and academic achievement test scores, which has

DON'T FORGET 3.5

The essence of the Discrepancy/Consistency Method is two discrepancies and one consistency.

Discrepancy 1:
Significant variability among the PASS scores indicating a weakness in one or more of the basic psychological processes

Discrepancy 2:
Significant difference between high PASS scores and low achievement test scores

Consistency:
No significant difference between low PASS scores and low achievement

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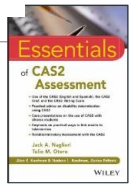
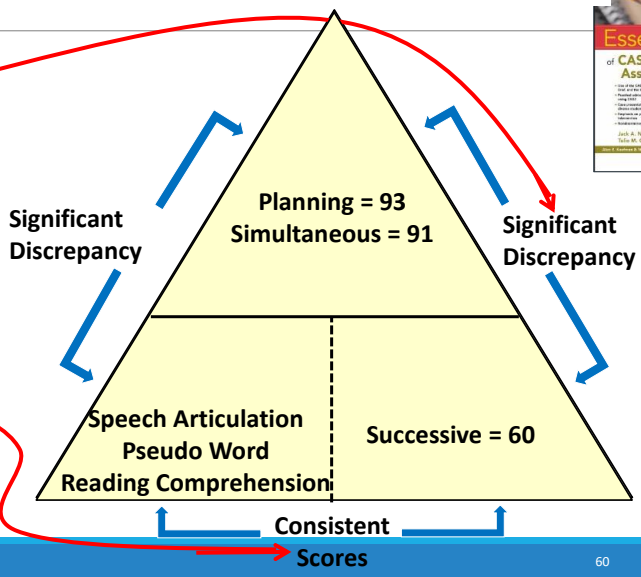
Discrepancy Consistency Method for Sebastian

- **Discrepancy #1** between high and low processing scores
- **Discrepancy #2** between high processing and low achievement
- **Consistency** between low processing and low achievement





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Pause…

For your thoughts and/or questions

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Topics for Today

Diagnosis

- Behavioral symptoms define the disorder based on DSM-5

Description of the Individual

- Assessment of the Behaviors related to ASD
- Determining if there is a Cognitive Processing Component
  - Cognitive profiles for those with ASD, ADHD, and SLD
- Evaluate Social Communication and Social Interactions
- Ruling out Intellectual Disability
  - A *fair and equitable* way to assess ability for students who may have Autism
- Quantifying "Significant Impairment"

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Back to DSM-5

- Diagnosis is based on DCM-5
- A measure of social-emotional skills could add value in treatment planning by
  - shedding light on how the disorder is influencing social interactions
  - identifying strengths at the scale and/or item level that can be leveraged in treatment to provide encouragement to parents and student.

Autism Spectrum Disorder 299.00 (F84.0)

A. Persistent deficits in social communication and social interaction across multiple contexts, as manifested by the following, currently or by history (examples are illustrative, not exhaustive; see text):

1. Deficits in social-emotional reciprocity, ranging, for example, from abnormal social approach and failure of normal back-and-forth conversation; to reduced sharing of interests, emotions, or affect; to failure to initiate or respond to social interactions.
2. Deficits in nonverbal communicative behaviors used for social interaction, ranging, for example, from poorly integrated verbal and nonverbal communication; to abnormalities in eye contact and body language or deficits in understanding and use of gestures; to a total lack of facial expressions and nonverbal communication.
3. Deficits in developing, maintaining, and understanding relationships, ranging, for example, from difficulties adjusting behavior to suit various social contexts; to difficulties in sharing imaginative play or in making friends; to absence of interest in peers.

Specify current severity:

Severity is based on social communication impairments and restricted, repetitive patterns of behavior (see Table 1).

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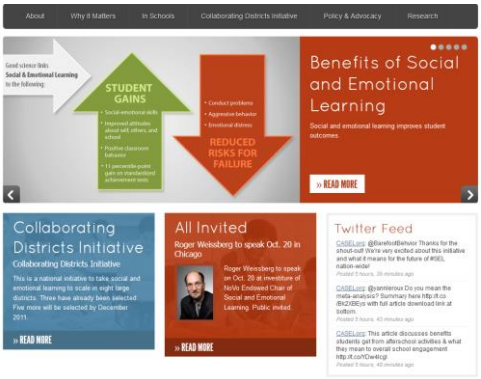

How to Define SEL? www.casel.org

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Social Emotional Skills

Five key social-emotional skills from CASEL

What is Social and Emotional Learning?

The Collaborative for Academic, Social, and Emotional Learning (CASEL) describes SEL as the process of developing the following five sets of core competencies in the context of safe, caring, well-managed, academically rigorous, and engaging learning environments:

1. **Self-awareness**—being able to accurately assess one's feelings, interests, values, and strengths; maintaining a well-grounded sense of self-confidence
2. **Self-management**—being able to regulate one's emotions to handle stress, control impulses, and persevere in overcoming obstacles; setting and monitoring progress toward personal and academic goals; expressing emotions effectively
3. **Social awareness**—being able to take the perspective of and empathize with others; recognizing and appreciating individual and group similarities and differences; recognizing and using family, school, and community resources
4. **Relationship skills**—being able to establish and maintain healthy and rewarding relationships based on cooperation; resisting inappropriate social pressure; preventing, managing, and resolving interpersonal conflict; seeking help when needed
5. **Responsible decision-making**—being able to make decisions based on consideration of reason, ethical standards, safety concerns, social norms, respect for self and others, and likely consequences of various actions; applying decision-making skills to academic and social situations; contributing to the well-being of one's school and community.[1]

Autism Spectrum Disorder 299.00 (F84.0)

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3. Deficits in developing, maintaining, and understanding relationships, ranging, for example, from difficulties adjusting behavior to suit various social contexts; to difficulties in sharing imaginative play or in making friends; to absence of interest in peers.

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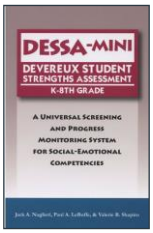
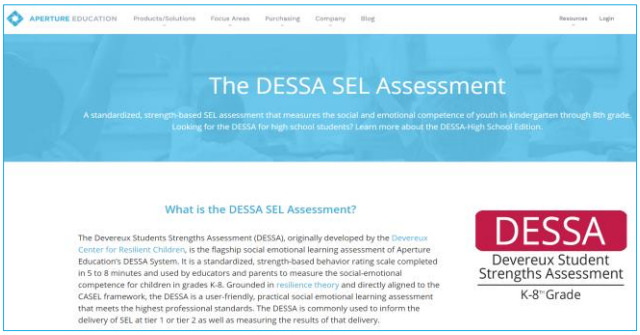
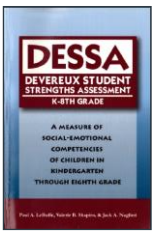
The DESSA Comprehensive System (https://apertureed.com/dessa-overview/)

- Universal screening with an 8-item, strength-based behavior rating scale, the *DESSA-mini* f(Naglieri, LeBuffe & Shapiro) or universal screening and ongoing progress monitoring
- 72-item *DESSA* (LeBuffe, Shapiro & Naglieri) to find specific areas of need







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The DESSA

- Based on resilience theory & SEL principles described by CASEL
  - Identify social-emotional strengths and needs of elementary and middle school children (for K-8th grade)
  - 72 items and 8 scales
  - Completed by parents, teachers, and/or after-school / community program staff
  - Takes 15 minutes to complete
  - On-line administration, scoring and reporting available
- Normed on 2,475 children, grades K-8 from all 50 states and is closely representative of US Population

TABLE 2.1

DESSA Standardization Sample Characteristics by Grade and Gender

	Males		Females		Total	
	n	%	*n*	%	*n*	%
Kindergarten	256	52.0	236	48.0	492	19.8
1st Grade	186	50.0	186	50.0	372	15.1
2nd Grade	161	50.0	161	50.0	322	13.1
3rd Grade	160	50.0	160	50.0	320	12.9
4th Grade	134	47.5	148	52.5	282	11.4
5th Grade	138	49.1	143	50.9	281	11.3
6th Grade	88	48.9	92	51.1	180	7.2
7th Grade	57	46.7	65	53.3	122	4.9
8th Grade	46	44.2	58	55.8	104	4.2
Total Sample	1,226	49.5	1,249	50.5	2,475	
U.S. %		51.2		48.8		

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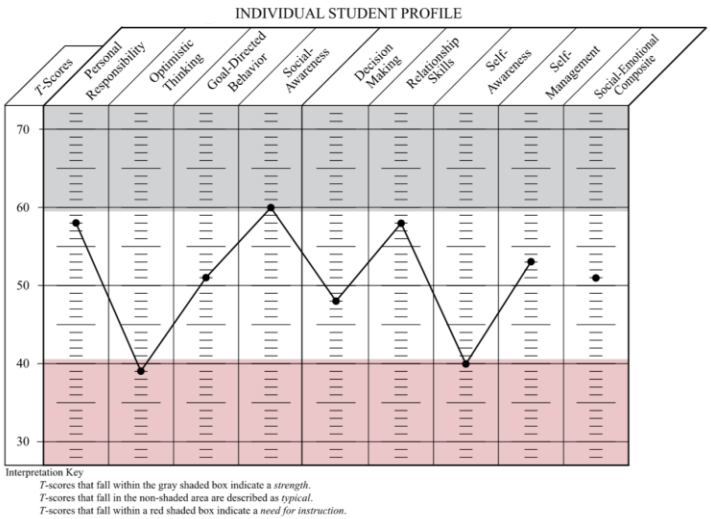
CASEL and DESSA Scales

- DESSA is closely aligned with CASEL except we expanded Responsible Decision-Making into three scales
- The scales are conceptual not factorially derived

Dessa Scales

- Dessa scales are T-scores where high scores are good.
- All scales are strength based
- Scales are used to better understand the person who was rated by Parent or Teacher



DESSA

Devereux Student Strengths Assessment (DESSA)

Group Profile Report

Record Form:	DESSA	**Program:**	DCRC
Date:	10/18/2015 to 6/27/2016	**Group:**	Fourth Grade
Site:	Wilson Elementary		
Rater Names:	Jennifer Robitaille		
Rating Periods:	A: Rating Period 1		

Scale Descriptions

PR	Personal Responsibility	**OT**	Optimistic Thinking	**GB**	Goal-Directed Behavior
SO	Social Awareness	**DM**	Decision Making	**RS**	Relationship Skills
SA	Self-Awareness	**SM**	Self-Management	**SEC**	Social-Emotional Composite

Name	Rating Date	Rating Period	Rater Name	Rater Contact	PR	OT	GB	SO	DM	RS	SA	SM	SEC
B, Mikayla	10/19/2015	A	Jennifer Robitaille	Teacher	44	69	30	45	43	44	30	45	43
C, Simon	10/19/2015	A	Jennifer Robitaille	Teacher	47	40	47	29	48	45	52	43	43
D, Isabella	10/19/2015	A	Jennifer Robitaille	Teacher	50	51	51	45	48	52	52	69	53
G, Tyler	10/19/2015	A	Jennifer Robitaille	Teacher	63	30	69	64	65	62	67	66	61
K, Charles	10/19/2015	A	Jennifer Robitaille	Teacher	45	49	61	41	31	37	35	32	40
K, Michael	10/19/2015	A	Jennifer Robitaille	Teacher	63	49	29	45	48	53	65	66	53
L, William	10/19/2015	A	Jennifer Robitaille	Teacher	48	32	28	31	31	46	34	30	33
M, Braedon	10/19/2015	A	Jennifer Robitaille	Teacher	54	51	51	51	57	54	59	49	54
M, Christina	10/19/2015	A	Jennifer Robitaille	Teacher	51	49	67	69	65	72	67	68	63
N, Eliza	10/19/2015	A	Jennifer Robitaille	Teacher	47	45	29	66	46	45	65	44	49
P, Sara	10/19/2015	A	Jennifer Robitaille	Teacher	50	51	51	54	48	52	44	69	53
X, Jessica	10/19/2015	A	Jennifer Robitaille	Teacher	54	39	49	56	48	58	40	53	50
Y, Cori	10/19/2015	A	Jennifer Robitaille	Teacher	50	53	45	41	57	30	48	52	47

DESSA Intervention Strategies

- Provided as part of Apperson EvoSEL assessment platform
- 5 different levels of strategies for each of the eight DESSA scales
  - Teacher Reflection & Action
  - Universal
  - Group
  - Individual Student
  - Home
- 3 different age groupings: primary, intermediate elementary, and middle school

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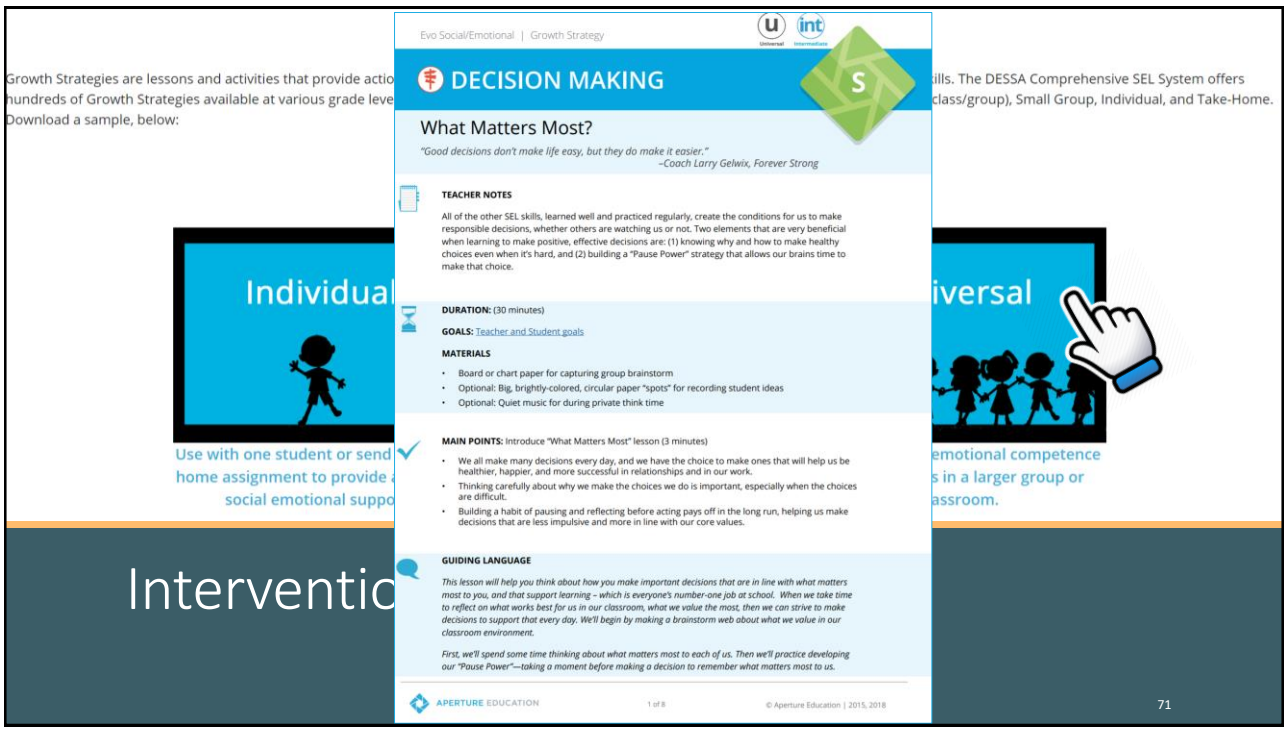

Growth Strategies are lessons and activities that provide actio… …ills. The DESSA Comprehensive SEL System offers hundreds of Growth Strategies available at various grade leve… …class/group), Small Group, Individual, and Take-Home. Download a sample, below:

Individual

Use with one student or send … home assignment to provide … social emotional suppo…

…iversal

…emotional competence …s in a larger group or …assroom.

Interventic…

Evo Social/Emotional | Growth Strategy

u Universal int Intermediate

DECISION MAKING

S

What Matters Most?

"Good decisions don't make life easy, but they do make it easier."
–Coach Larry Gelwix, Forever Strong

TEACHER NOTES

All of the other SEL skills, learned well and practiced regularly, create the conditions for us to make responsible decisions, whether others are watching us or not. Two elements that are very beneficial when learning to make positive, effective decisions are: (1) knowing why and how to make healthy choices even when it's hard, and (2) building a "Pause Power" strategy that allows our brains time to make that choice.

DURATION: (30 minutes)

GOALS: Teacher and Student goals

MATERIALS

- Board or chart paper for capturing group brainstorm
- Optional: Big, brightly-colored, circular paper "spots" for recording student ideas
- Optional: Quiet music for during private think time

MAIN POINTS: Introduce "What Matters Most" lesson (3 minutes)

- We all make many decisions every day, and we have the choice to make ones that will help us be healthier, happier, and more successful in relationships and in our work.
- Thinking carefully about why we make the choices we do is important, especially when the choices are difficult.
- Building a habit of pausing and reflecting before acting pays off in the long run, helping us make decisions that are less impulsive and more in line with our core values.

GUIDING LANGUAGE

This lesson will help you think about how you make important decisions that are in line with what matters most to you, and that support learning – which is everyone's number-one job at school. When we take time to reflect on what works best for us in our classroom, what we value the most, then we can strive to make decisions to support that every day. We'll begin by making a brainstorm web about what we value in our classroom environment.

First, we'll spend some time thinking about what matters most to each of us. Then we'll practice developing our "Pause Power"—taking a moment before making a decision to remember what matters most to us.

APERTURE EDUCATION 1 of 8 © Aperture Education | 2015, 2018

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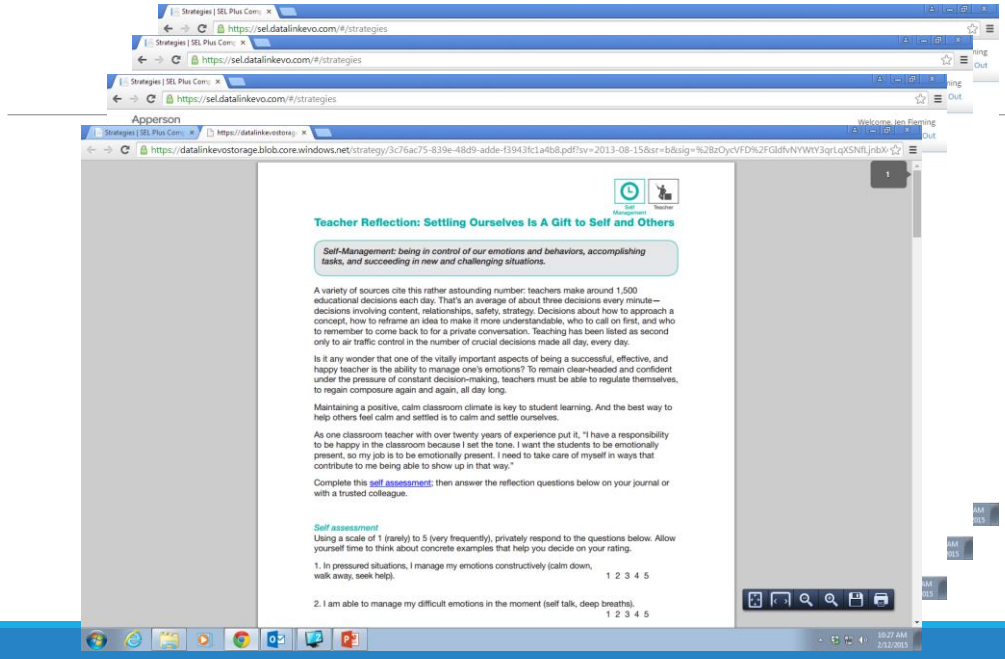

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Does SEL Matter?

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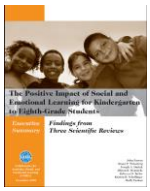
Skills for Social and Academic Success



Research Links SEL to Higher Success

- 23% gain in SE skills
- 9% gain in attitudes about self/others/school
- 9% gain in pro-social behavior
- 11% gain on academic performance via standardized tests (math and reading)

And Reduced Risks for Failure

- 9% difference in problem behaviors
- 10% difference in emotional distress

Source: Durlak, J.A., Weissberg, R.P., Dymnicki, A.B., Taylor, R.D., and Schellinger, K. (2011). The Impact of Enhancing Students' Social and Emotional Learning: A Meta-Analysis of School-Based Universal Interventions. *Child Development, 82,* 405-432.

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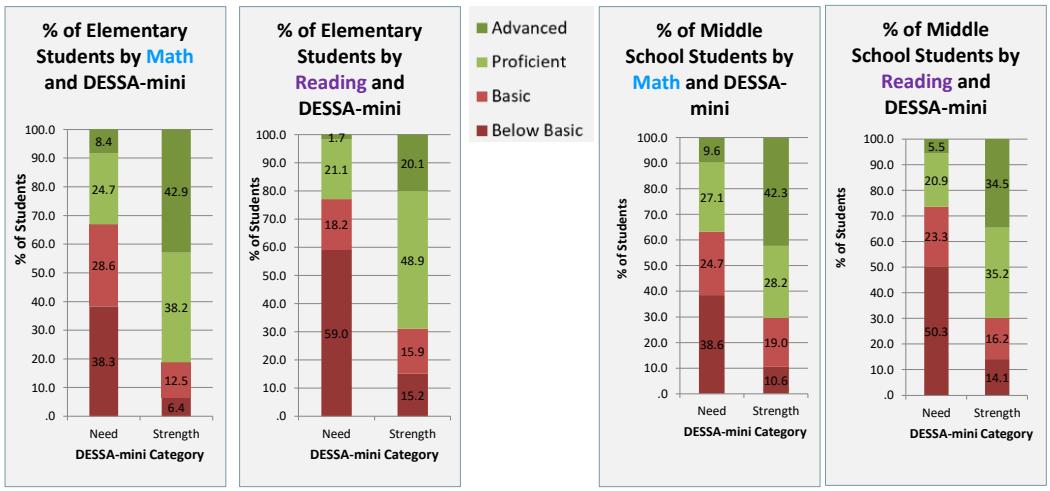
Relationship Between Academic skills and Social-Emotional Competence for **Elementary & Middle School Students**



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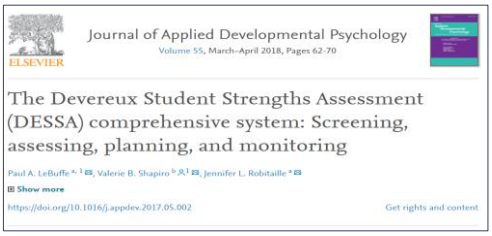
Prediction of Challenging Behaviors

- Allentown Social Emotional Learning Initiative
  - approximately 12,000 students K-8th grade (ages 6-16)
- All students screened in October with the DESSA-Mini
  - 9,248 students; 65% Hispanic, 17% Black, 14% white, 4% other.
- Random 5 students per classroom assessed in October with DESSA
- Analysis Sample (n=1875)

Students who were identified as having a Need for SEL Instruction on the 8-item DESSA-Mini in October were 4.5 times more likely to have a record of serious infraction by the end of the academic year as compared to those with typical scores.


Journal of Applied Developmental Psychology
Volume 55, March–April 2018, Pages 62-70

The Devereux Student Strengths Assessment (DESSA) comprehensive system: Screening, assessing, planning, and monitoring

Paul A. LeBuffe, Valerie B. Shapiro, Jennifer L. Robitaille

Show more

https://doi.org/10.1016/j.appdev.2017.05.002

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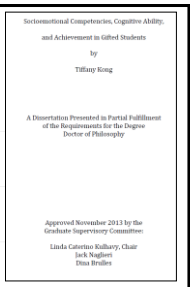
Kong (2013): IQ, SEL & Achievement

- Tiffany Kong studied CogAT, DESSA, and achievement scores for 276 elementary students grades K-8
- All gifted based on scores on verbal, quantitative, or nonverbal test scores at least 97th percentile


Socioemotional Competencies, Cognitive Ability, and Achievement in Gifted Students

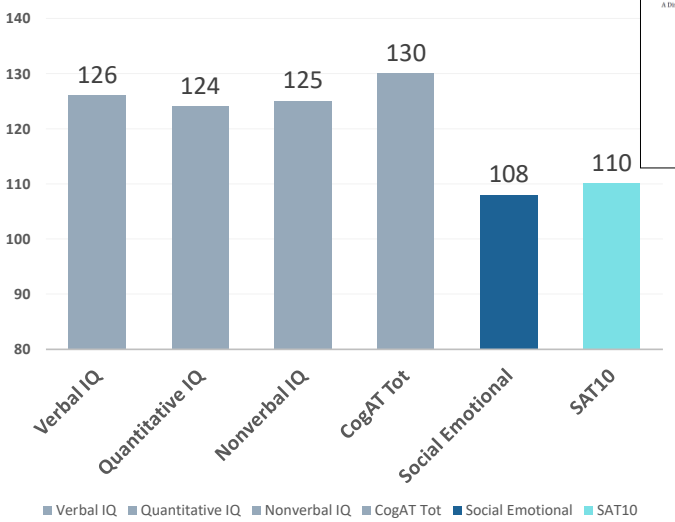
by

Tiffany Kong

A Dissertation Presented in Partial Fulfillment of the Requirements for the Degree Doctor of Philosophy

Approved November 2013 by the Graduate Supervisory Committee:

Linda Catterino Kalbarry, Chair
Jack Naglieri
Dina Brulles



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Kong (2013) SEL Predicts Beyond IQ (p. 44)

DESSA predicted reading, language and math scores over IQ (CogAt) scores

Relations between Cognitive Ability, Socioemotional Competency, and Achievement Variables

Hierarchical regression analyses were conducted to determine which scales and subtests predicted the most variance in the dependent achievement variables. Composite CogAT scores were not found to significantly predict composite achievement, $R^2\Delta = .03$, $F(1, 121) = 3.27$, $p > .05$, reading, language, or math scores over-and-above the DESSA Total scores (Table 11). On the other hand, the DESSA Total scores significantly predicted composite achievement, $R^2\Delta = .05$, $F(1, 121) = 6.99$, $p < .05$; language scores, $R^2\Delta = .03$, $F(1, 121) = 4.26$, $p < .05$; and math scores, $R^2\Delta = .05$, $F(1, 121) = 6.09$, $p < .05$, over-and-above the composite CogAT scores.

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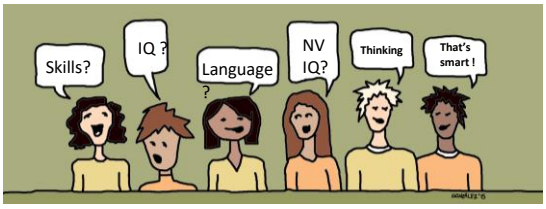
Core Group Activity

- **O**rganizer – Have the group discuss this question: "How do you feel about what was just presented?"
- **C**oach – guide the discussion so that the group arrives at an answer to the question
- **R**eporter – record and report to the group
- **E**nergizer – keep the discussion going !



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Topics for Today

Diagnosis

- Behavioral symptoms define the disorder based on DSM-5

Description of the Individual

- Assessment of the Behaviors related to ASD
- Determining if there is a Cognitive Processing Component
  - Cognitive profiles for those with ASD, ADHD, and SLD
- Evaluate Social Communication and Social Interactions
- Ruling out Intellectual Disability
  - A *fair and equitable* way to assess ability for students who may have Autism
- Quantifying "Significant Impairment"

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DSM-5™ Diagnostic Criteria

- When ruling out or identifying intellectual disability it is critical to consider the selection of the intelligence test
- Some IQ tests are more appropriate than others…

E. These disturbances are not better explained by intellectual disability (intellectual developmental disorder) or global developmental delay. Intellectual disability and autism spectrum disorder frequently co-occur; to make comorbid diagnoses of autism spectrum disorder and intellectual disability, social communication should be below that expected for general developmental level.

Note: Individuals with a well-established DSM-IV diagnosis of autistic disorder, Asperger's disorder, or pervasive developmental disorder not otherwise specified should be given the diagnosis of autism spectrum disorder. Individuals who have marked deficits in social communication, but whose symptoms do not otherwise meet criteria for autism spectrum disorder, should be evaluated for social (pragmatic) communication disorder.

Specify if:

With or without accompanying intellectual impairment

With or without accompanying language impairment

Associated with a known medical or genetic condition or environmental factor
(Coding note: Use additional code to identify the associated medical or genetic condition.)

Associated with another neurodevelopmental, mental, or behavioral disorder
(Coding note: Use additional code[s] to identify the associated neurodevelopmental, mental, or behavioral disorder[s].)

With catatonia (refer to the criteria for catatonia associated with another mental disorder for definition)
(Coding note: Use additional code 293.89 [F06.1] catatonia associated with autism spectrum disorder to indicate the presence of the comorbid catatonia.)

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How to Achieve Fair Assessment of Intelligence for all Students

Leave traditional IQ behind !

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Traditional IQ and Achievement Tests

- In the mid 1970's when working as a school psychologist I noticed that parts of the WISC we were administering was VERY similar to parts of the achievement tests
- HOW DOES THAT MAKE SENSE?
  - It does NOT
- WHY DO WE HAVE THIS PROBLEM?
  - Our history of IQ

- 1975 Charles Champagne Elementary, Bethpage, NY

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The First IQ TEST: Alpha (Verbal)

tobacco	1. Bull Durham is the name of
fruit	2. The Mackintosh Red is a kind of
typewriter	3. The Oliver is a
Mogul	4. A passenger locomotive type is the
engineers	5. Stone & Webster are well know
Superbas	6. The Brooklyn Nationals are called
fabric	7. Pongee is a
corn	8. Country Gentleman is a kind of
Mckinley	9. The President during the Spanish War was
cigarette	10. Fatima is a make of

From: Psychological Examining the United States Army (Yerkes, 1921, p. 213)

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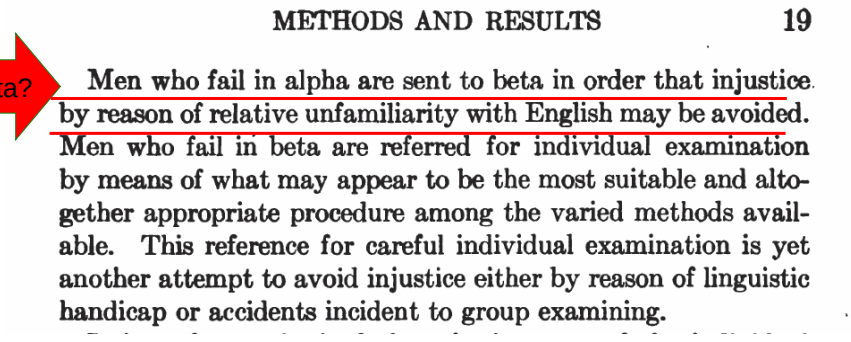
1920 Army Testing (Yoakum & Yerkes)

Note there is no mention of measuring verbal and nonverbal intelligences – **it was a social justice issue.**

Why Beta?



METHODS AND RESULTS 19

Men who fail in alpha are sent to beta in order that injustice by reason of relative unfamiliarity with English may be avoided. Men who fail in beta are referred for individual examination by means of what may appear to be the most suitable and altogether appropriate procedure among the varied methods available. This reference for careful individual examination is yet another attempt to avoid injustice either by reason of linguistic handicap or accidents incident to group examining.

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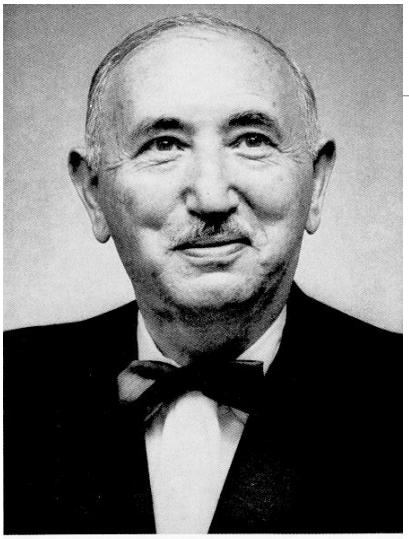

David Wechsler, Ph.D.

Wechsler (1939)

- His definition of intelligence does not mention verbal or nonverbal *abilities*:
  - **"The aggregate or global capacity of the individual to act purposefully, to think rationally, and to deal effectively with his environment (1939)"**

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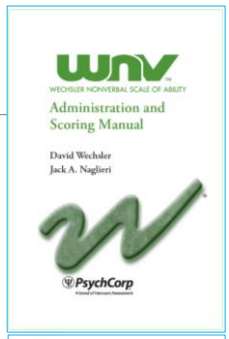
Wechsler & Spearman's *g*

of nonverbal assessment many paces forward. In addition, the emphasis in the *WNV Manual* that the Full Scale measures *general ability nonverbally*—and *not* nonverbal ability—is an important distinction that further ties the WNV to Dr. Wechsler. Although his intelligence tests in the 1930s and 1940s departed from the one-score *Stanford-Binet* by offering separate Verbal and Performance IQs as well as a profile of scaled scores, Dr. Wechsler remained a firm believer in Spearman's *g* theory throughout his lifetime. He believed that his Verbal and Performance Scales represented different ways to access *g*, but he never believed in nonverbal intelligence as being separate from *g*. Rather, he saw the Performance Scale as the most sensible way to measure the general intelligence of people with hearing impairments, language disorders, or limited proficiency in English. And that is precisely what the WNV is intended to do.

Alan S. Kaufman, PhD
Clinical Professor of Psychology
Yale Child Study Center
Yale University School of Medicine



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Thinking vs Knowing

- IQ tests that are confounded by knowledge
  - WISC-V
    - Verbal Comprehension: Vocabulary, Similarities, Information & Comprehension
    - Fluid Reasoning: Figure Weights, Picture Concepts, Arithmetic
  - WJ-IV and Batería-IV
    - Comprehension Knowledge: Vocabulary & General Information
    - Fluid Reasoning: Number Series & Concept Formation
    - Auditory Processing: Phonological Processing
  - K-ABC-II
    - Knowledge / GC: Riddles, Expressive Vocabulary, Verbal Knowledge

THIS is a BIG problem for individuals with Intellectual Disability !

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Thinking and Knowing Continuum

Cognitive Assessment System–2 Wechsler Nonverbal Scale of Ability	Kaufman Assessment Battery for Children-2	Wechsler Intelligence Scale for Children-5	Woodcock-Johnson Cognitive-4	Feifer Assessment of Reading & Math	Stanford Achievement Test Kaufman Test Educational Achievement-3

- The obvious connection between educational opportunity and vocabulary and arithmetic subtests was noted by Matarazzo (1972) when he wrote: "a man's vocabulary is necessarily influence by his education and cultural opportunities (p. 218)" and when referring to the Arithmetic subtest, "its merits are lessened by the fact that it is influenced by education (p. 203)".
  The impact of education on intelligence tests was clearly understood yet our interpretations of these scores have not adequately recognized the threat to validity.

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Myth of Verbal IQ - Conclusions

- The lack of a clear distinction between ability and achievement tests has corrupted the very concept of "verbal ability"
- A person who has not had an opportunity to learn because of poverty, language difference, SLD or intellectual disability will be at disadvantage when assessed with so-called Verbal and Quantitative reasoning "ability" tests
- SOLUTION ? **Re**invent intelligence

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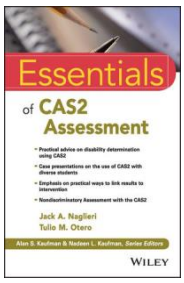
We Do NOT Need Verbal Tests

Do we really need IQ test content that requires knowledge of words and arithmetic?



Correlations Between Ability and Achievement Test Scores			Average Correlation: All Scales	Average Correlation: Scales without achievement
WISC-V	Verbal Comprehension	.74		
WIAT-III	Visual Spatial	.46		
N = 201	Fluid Reasoning	.40		
	Working Memory	.63	.53	.47
	Processing Speed	.34		
WJ-IV COG	Comprehension Knowledge	.50		
WJ-IV ACH	Fluid Reasoning	.71		
N = 825	Auditory Processing	.52		
	Short Term Working Memory	.55		
	Cognitive Processing Speed	.55		
	Long-Term Retrieval	.43	.54	.50
	Visual Processing	.45		
KABC	Sequential/Gsm	.43		
WJ-III ACH	Simultaneous/Gv	.41		
N = 167	Learning/Glr	.50		.48
	Planning/Gf	.59		
	Knowledge/GC	.70	.53	
CAS	Planning	.57		
WJ-III ACH	Simultaneous	.67		
N=1,600	Attention	.50		.59
	Successive	.60		

Note: WJ-IV Scales Comp-Know= Vocabulary and General Information; Fluid Reasoning = Number Series and Concept Formation; Auditory Processing = Phonological processing.

Note: All correlations are reported in the ability tests' manuals. Values were averaged within each ability test using Fisher z transformations.

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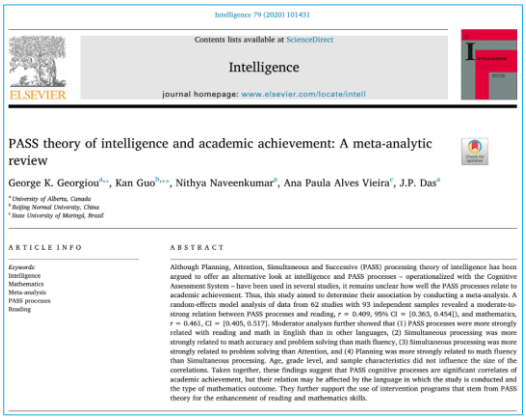
PASS & Achievement



Intelligence 79 (2020) 101431

Contents lists available at ScienceDirect

Intelligence

journal homepage: www.elsevier.com/locate/intell

PASS theory of intelligence and academic achievement: A meta-analytic review

George K. Georgiou[a,*], Kan Guo[b,**], Nithya Naveenkumar[a], Ana Paula Alves Vieira[c], J.P. Das[a]

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ARTICLE INFO

Keywords:
Intelligence
Mathematics
Meta-analysis
PASS processes
Reading

ABSTRACT

Although Planning, Attention, Simultaneous and Successive (PASS) processing theory of intelligence has been argued to offer an alternative look at intelligence and PASS processes – operationalized with the Cognitive Assessment System – have been used in several studies, it remains unclear how well the PASS processes relate to academic achievement. Thus, this study aimed to determine their association by conducting a meta-analysis. A random-effects model analysis of data from 62 studies with 93 independent samples revealed a moderate-to-strong relation between PASS processes and reading, $r = 0.409$, 95% CI = [0.363, 0.454], and mathematics, $r = 0.461$, CI = [0.405, 0.517]. Moderator analyses further showed that (1) PASS processes were more strongly related with reading and math in English than in other languages, (2) Simultaneous processing was more strongly related to math accuracy and problem solving than math fluency, (3) Simultaneous processing was more strongly related to problem solving than Attention, and (4) Planning was more strongly related to math fluency than Simultaneous processing. Age, grade level, and sample characteristics did not influence the size of the correlations. Taken together, these findings suggest that PASS cognitive processes are significant correlates of academic achievement, but their relation may be affected by the language in which the study is conducted and the type of mathematics outcome. They further support the use of intervention programs that stem from PASS theory for the enhancement of reading and mathematics skills.

'These correlations are significantly stronger than the reported in previous meta-analysis for other measures of intelligence whose content is often confounded by school learning.'

'if we conceptualize intelligence as [PASS] processes that are linked to the functional organization of the brain it leads to significantly higher relations with academic achievement'

'PASS processes have direct implications for instruction and intervention programming'

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A Shift from Traditional To Second Generation Intelligence Tests

Wechsler, et al

↓

Kaufman **A**ssessment **B**attery for **C**hildren

↓

Cognitive **A**ssessment **S**ystem

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Wechsler vs CAS for Students with ID

- ***White*** children earned the same mean scores on WISC-III and CAS
- ***Black*** children earned lower VIQ than PIQ scores due to language / achievement tasks → low Full Scale
- ***Black*** children earned ***higher*** scores on CAS than whites
- ***Fewer*** Black children would be identified as having intellectual disability based on Full Scale scores using CAS than WISC-III
- *THIS IS A SOCIAL JUSTICE ISSUE*.

American Journal on Mental Retardation, 2001, Vol. 106, No. 4, 359–367

Intellectual Classification of Black and White Children in Special Education Programs Using the WISC-III and the Cognitive Assessment System

Jack A. Naglieri
George Mason University

Johannes Rojahn
The Ohio State University

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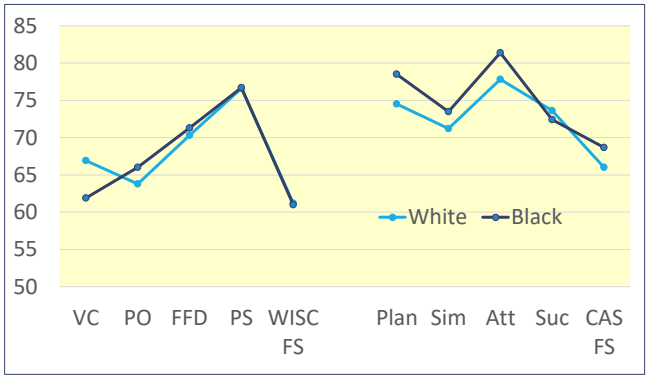
More Details on the Study

- "The Black students earned significantly lower WISC-III verbal scores than performance scores, t(45) 5 3.2, p , .01, …
- there was no significant difference between those scores among Whites.
- This suggests that the Verbal IQ scale (and Verbal Comprehension Index) of the WISC-III, which contains achievement-like tests such as Vocabulary, Arithmetic, and Information, posed particular difficulty for these Black children. (p. 363)"



"The WISC-III classified 36% more Black children as having mental retardation than did the CAS" (p. 364)

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CASE STUDY: ALEJANDRO (C.A. 7-0 GRADE 1)

REASON FOR REFERRAL: Does he have Intellectual Disability?

- Academic:
  - Could not identify letters/sounds
  - October. Could only count to 39
  - All ACCESS scores of 1
- Behavior:
  - Difficulty following directions
  - Attention concerns
  - Refusal/defiance

Note: this is not a picture of Alejandro

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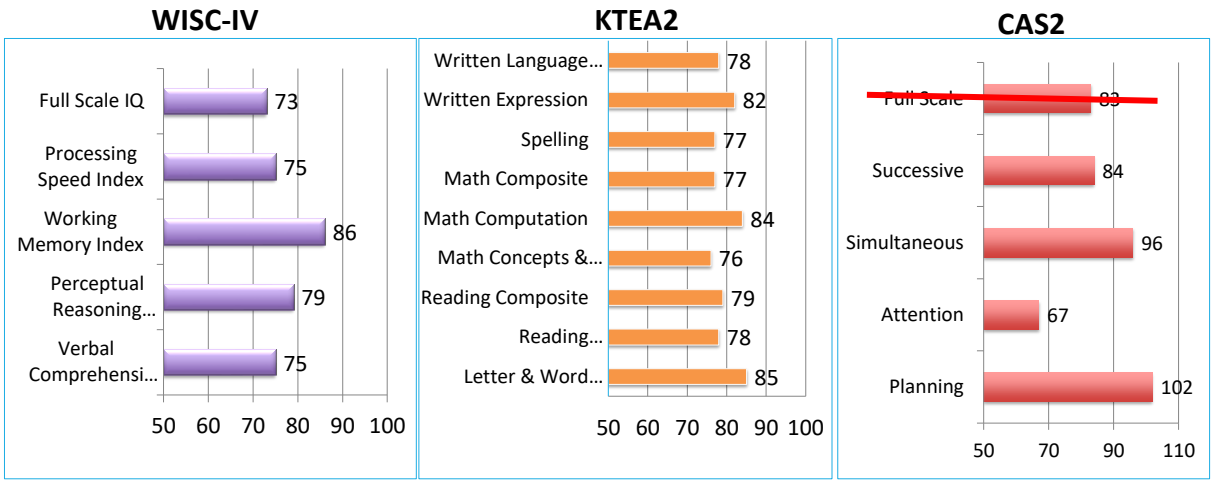
Does Alejandro appear to have ID?



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Alejandro and PASS (by Dr. Otero)

- Alejandro is not a slow learner.
- He has good scores in basic psychological processes:
  - Simultaneous = 96 and Planning = 102
- He has a "disorder in one or more of the basic psychological processes"
  - Attention = 67 and Successive = 84
- And he has academic failure which equals an SLD determination.

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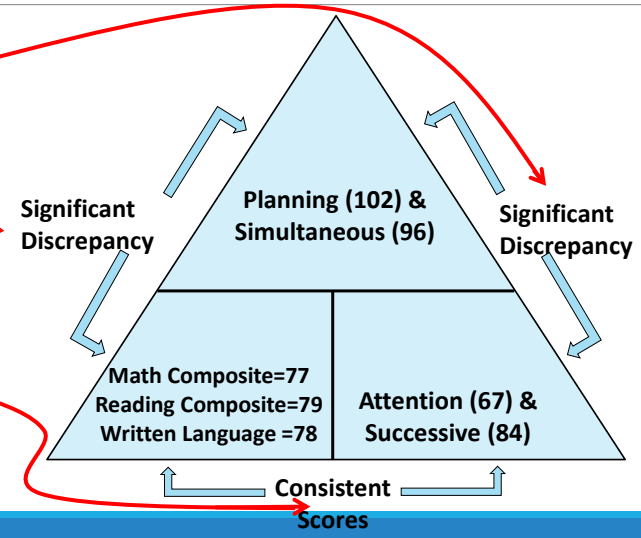
Discrepancy Consistency Method for SLD

- Discrepancy between high and low processing scores
- Discrepancy between high processing and low achievement
- Consistency between low processing and low achievement



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Pause…

For your thoughts and/or questions

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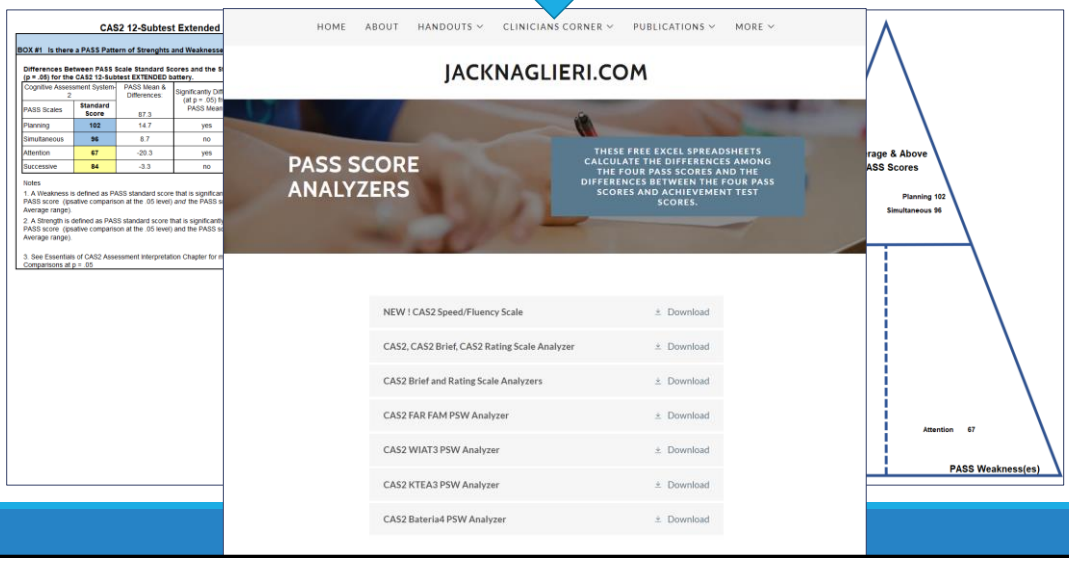
Free CAS2 & Achievement Analyzers



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Measuring Brain Function is the Key

A Closer Look at How PASS Theory is Measured

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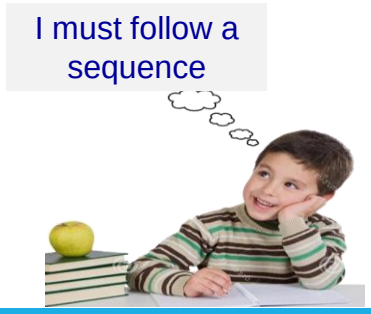
Intelligence Tests Should Measure Thinking not Knowing

- What does the student have to ***know*** to complete a task?
  - ***This is dependent on educational opportunity (e.g., Vocabulary, Arithmetic, phonological skills, etc.)***

How does the student have to ***think*** to complete a task?

This is dependent on the brain's neurocognitive processes



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Intelligence as Neurocognitive Functions

- In Das and Naglieri's first meeting (February 11, 1984) they proposed that intelligence was better REinvented as neurocognitive processes and began development of the **C**ognitive **A**ssessment **S**ystem (Naglieri & Das, 1997)
- They conceptualized intelligence as Planning, Attention, Simultaneous, and Successive (PASS) neurocognitive processes.

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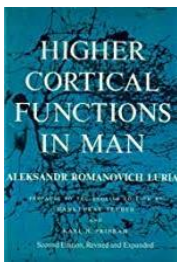
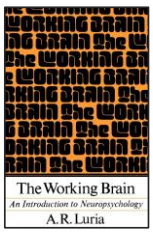
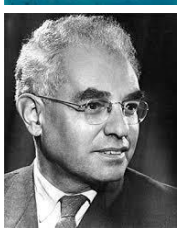
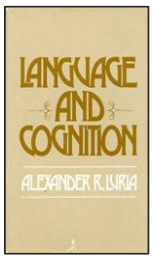
PASS Neurocognitive Theory









- **P**lanning = THINKING ABOUT HOW YOU DO WHAT YOU DECIDE TO DO
- **A**ttention = BEING ALERT AND RESISTING DISTRACTIONS
- **S**imultaneous = GETTING THE BIG PICTURE
- **S**uccessive = FOLLOWING A SEQUENCE

PASS = 'basic psychological processes'

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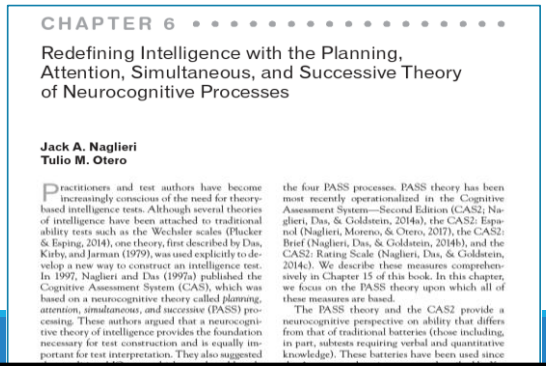
Neuropsychological Correlates of PASS

Naglieri, J. A., & Otero, T. M. (2018). Redefining Intelligence as the PASS Theory of Neurocognitive Processes. In Flanagan, D. P., & Harrison, P. L. (Eds.), *Contemporary intellectual assessment: Theories, tests, and issues* (4th ed.). New York, NY: Guilford Press.



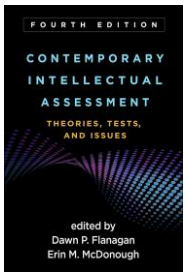
CHAPTER 6

Redefining Intelligence with the Planning, Attention, Simultaneous, and Successive Theory of Neurocognitive Processes

Jack A. Naglieri
Tulio M. Otero

Practitioners and test authors have become increasingly conscious of the need for theory-based intelligence tests. Although several theories of intelligence have been attached to traditional ability tests such as the Wechsler scales (Plucker & Esping, 2014), one theory, first described by Das, Kirby, and Jarman (1979), was used explicitly to develop a new way to construct an intelligence test. In 1997, Naglieri and Das (1997a) published the Cognitive Assessment System (CAS), which was based on a neurocognitive theory called *planning, attention, simultaneous, and successive* (PASS) processing. These authors argued that a neurocognitive theory of intelligence provides the foundation necessary for test construction and is equally important for test interpretation. They also suggested the four PASS processes. PASS theory has been most recently operationalized in the Cognitive Assessment System—Second Edition (CAS2; Naglieri, Das, & Goldstein, 2014a), the CAS2: Espanol (Naglieri, Moreno, & Otero, 2017), the CAS2: Brief (Naglieri, Das, & Goldstein, 2014b), and the CAS2: Rating Scale (Naglieri, Das, & Goldstein, 2014c). We describe these measures comprehensively in Chapter 15 of this book. In this chapter, we focus on the PASS theory upon which all of these measures are based.

The PASS theory and the CAS2 provide a neurocognitive perspective on ability that differs from that of traditional batteries (those including, in part, subtests requiring verbal and quantitative knowledge). These batteries have been used since



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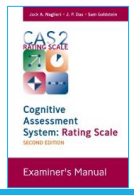
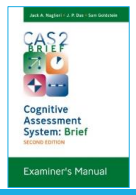
PASS Comprehensive System

(Naglieri, Das, & Goldstein, 2014)

CAS2 Core & Extended English & Spanish for comprehensive Assessment
CAS2 Brief for re-evaluations, instructional planning, screening for gifted
CAS2 Rating Scale for teacher ratings

CAS2 Rating Scale (4 subtests)	**CAS2 Brief** (4 subtests)	**CAS2 Core** (8 subtests)	**CAS2 Extended** (12 subtests)
Total Score Planning Simultaneous Attention Successive	Total Score Planning Simultaneous Attention Successive	Full Scale Planning Simultaneous Attention Successive	Full Scale Planning Simultaneous Attention Successive Supplemental Scales Executive Function Working Memory Verbal / Nonverbal Visual / Auditory Speed / Fluency





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Important Advantages of PASS Theory as measured by the CAS2

INTERVENTION OPTIONS

SMALL DIFFERENCES FOR RACE AND ETHNIC GROUPS

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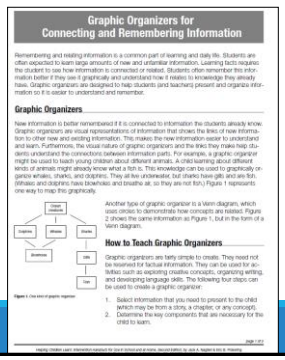
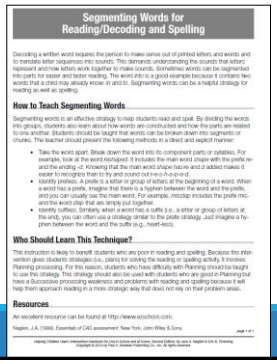
Interventions related to PASS

- *Helping Children Learn Intervention Handouts for Use in School and at Home*, *Second Edition (*Naglieri, & Pickering 2011)
- Graphic Organizer or Word Families use strength in Simultaneous
- Segmenting to make Successive tasks more manageable


Graphic Organizers for Connecting and Remembering Information

Graphic Organizers

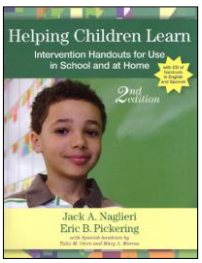
How to Teach Graphic Organizers


Segmenting Words for Reading/Decoding and Spelling

How to Teach Segmenting Words

Who Should Learn This Technique?

Resources



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Summary of PASS Intervention Research in Essentials of CAS2

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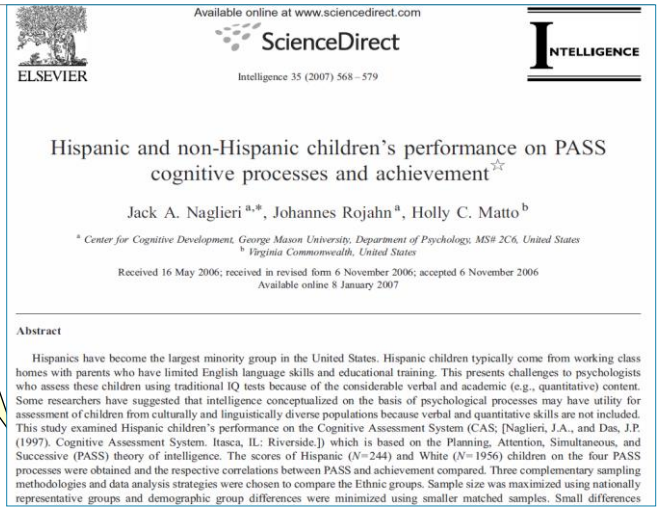
Naglieri, Rojahn, Matto (2007)

Hispanic White difference on CAS Full Scale of 4.8 standard score points (matched)



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PASS scores – English and Spanish

Bilingual Hispanic Children's Performance on the English and Spanish Versions of the Cognitive Assessment System

School Psychology Quarterly
2007, Vol. 22, No. 3, 432–448

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This study compared the performance of referred bilingual Hispanic children on the Planning, Attention, Simultaneous, Successive (PASS) theory as measured by English and Spanish versions of the Cognitive Assessment System (CAS; Naglieri & Das, 1997a). The results suggest that students scored similarly on both English and Spanish versions of the CAS. Within each version of the CAS, the bilingual children earned their lowest scores in Successive processing regardless of the language used during test administration. Small mean differences were noted between the means of the English and Spanish versions for the Simultaneous and Successive processing scales; however, mean Full Scale scores were similar. Specific subtests within the Simultaneous and Successive scales were found to contribute to the differences between the English and Spanish versions of the CAS. Comparisons of the children's profiles of cognitive weakness on both versions of the CAS showed that these children performed consistently despite the language difference.

Keywords: bilingual assessment, intelligence, PASS Theory, Cognitive Assessment System, non-biased assessment

Means, *SDs*, *d*-ratios, Obtained and Correction Correlations Between the English a

Spanish Version of the CAS (*N* = 55).

	CAS English		CAS Spanish		*d*-ratio	Correlations	
	Mean	*SD*	Mean	*SD*	*d*	Obtained	Corrected
Planning	92.6	13.1	92.6	13.4	.00	.96	.97
Simultaneous	89.0	12.8	93.0	13.7	-.30	.90	.93
Attention	94.8	13.9	95.1	13.9	-.02	.98	.98
Successive	78.0	13.1	83.1	12.6	-.40	.82	.89
Full Scale	84.6	13.6	87.6	13.8	-.22	.96	.97

- Very similar scores in both versions
- >90% agreement between PASS weakness & strengths using English and Spanish CAS

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Otero, Gonzales, Naglieri (2013)

- Very similar scores in both versions
- >90% agreement between PASS weakness & strengths using English and Spanish CAS

APPLIED NEUROPSYCHOLOGY: CHILD, 0: 1–9, 2012

ISSN: 2162-2965 print/2162-2973 online
DOI: 10.1080/21622965.2012.670547

Psychology Press

The Neurocognitive Assessment of Hispanic English-Language Learners With Reading Failure

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This study examined the performance of referred Hispanic English-language learners ($N = 40$) on the English and Spanish versions of the *Cognitive Assessment System* (CAS; Naglieri & Das, 1997). The CAS measures basic neuropsychological processes based on the Planning, Attention, Simultaneous, and Successive (PASS) theory (Naglieri & Das, 1997; Naglieri & Otero, 2011c). Full Scale (FS) scores as well as PASS processing scale scores were compared, and no significant differences were found in FS scores or in any of the PASS processes. The CAS FS scores on the English ($M = 86.4$, $SD = 8.73$) and Spanish ($M = 87.1$, $SD = 7.94$) versions correlated .94 (uncorrected) and .99 (corrected for range restriction). Students earned their lowest scores in Successive processing regardless of the language in which the test was administered. PASS cognitive profiles were similar on English and Spanish versions of the PASS scales. These findings suggest that students scored similarly on both versions of the CAS and that the CAS may be a useful measure of these four abilities for Hispanic children with underdeveloped English-language proficiency.

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CAS in Italy

Using US norms, Italian sample (N = 809) CAS Full Scale was 100.9 and matched US sample (N = 1,174) was 100.5 and factorial invariance was found

Psychological Assessment

1040-3590/12/$12.00 DOI: 10.1037/a0029828

Multigroup Confirmatory Factor Analysis of U.S. and Italian Children's Performance on the PASS Theory of Intelligence as Measured by the Cognitive Assessment System

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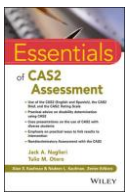
This study examined Italian and U.S. children's performance on the English and Italian versions, respectively, of the Cognitive Assessment System (CAS; Naglieri & Conway, 2009; Naglieri & Das, 1997), a test based on a neurocognitive theory of intelligence entitled PASS (Planning, Attention, Simultaneous, and Successive; Naglieri & Das, 1997; Naglieri & Otero, 2011). CAS subtest, PASS scales, and Full Scale scores for Italian (N = 809) and U.S. (N = 1,174) samples, matched by age and gender, were examined. Multigroup confirmatory factor analysis results supported the configural invariance of the CAS factor structure between Italians and Americans for the 5- to 7-year-old (root-mean-square error of approximation [RMSEA] = .038; 90% confidence interval [CI] = .033, .043; comparative fit index [CFI] = .96) and 8- to 18-year-old (RMSEA = .036; 90% CI = .028, .043; CFI = .97) age groups. The Full Scale standard scores (using the U.S. norms) for the Italian (100.9) and U.S. (100.5) samples were nearly identical. The scores between the samples for the PASS scales were very similar, except for the Attention Scale (d = 0.26), where the Italian sample's mean score was slightly higher. Negligible mean differences were found for 9 of the 13 subtest scores, 3 showed small d-ratios (2 in favor of the Italian sample), and 1 was large (in favor of the U.S. sample), but some differences in subtest variances were found. These findings suggest that the PASS theory, as measured by CAS, yields similar mean scores and showed factorial invariance for these samples of Italian and American children, who differ on cultural and linguistic characteristics.

Race & IQ

- Neurocognitive tests yield smaller differences
- CAS and CAS2 have the smallest differences



Mean Score Differences in Total scores by Race by Intelligence Test.	
Traditional IQ tests	
SB-IV (matched samples)	12.6
WISC-V (normative sample)	11.6
WISC–IV (normative sample)	11.5
WJ- III (normative sample)	10.9
WISC–IV (matched samples)	10.0
WISC-V (statistical controls normative sample)	8.7
RIAS-2 (normative sample)	8.0
Second Generation Intelligence Tests	
K-ABC (normative sample)	7.0
K-ABC (matched samples)	6.1
KABC-2 (matched samples)	5.0
CAS-2 (normative sample)	6.3
CAS (statistical controls normative sample)	4.8
CAS-2 (statistical controls normative sample)	4.3

Note: The data for these results are reported for the Stanford-Binet IV from Wasserman (2000); Woodcock-Johnson III from Edwards & Oakland (2006); Kaufman Assessment Battery for Children from Naglieri (1986); Kaufman Assessment Battery for Children-II from (Lichenberger, Sotelo-Dynega & Kaufman, 2009); CAS from Naglieri, Rojahn, Matto & Aquilino (2005); CAS-2 from Naglieri, Das & Goldstein, 2014; Wechsler Intelligence Scale for Children – IV (WISC-IV) from O'Donnell (2009), WISC-V from Kaufman, Raiford & Coalson (2016), Reynolds Intellectual Assessment Scale -2 Reynolds, C. R., & Kamphaus, R. W. (2015)

How Psychometric Bias is Studied (e.g., Jensen's Bias in Mental Tests)

- reliability of internal consistency of items
- reliability of test/retest scores
- rank order of item difficulties
- item intercorrelations
- factor structure of test
- magnitude of the factor loadings

- slope & intercept of the regression line
- correlation of raw scores with age
- item characteristic curve
- frequencies of choice of error distracters
- interaction of test items by group membership

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Differences in Mean Scores = Impact

- According to the *Standards for Educational and Psychological Testing* (AERA, APA, NCME, 2014), **equitable assessment** provides examinees *an equal opportunity to display one's ability* and … a fair chance to achieve the same level as others with equal ability on a construct being measured.
- The Standards also remind us that if a person has had limited opportunities to learn the content in a test of intelligence, *that test may be considered unfair* if it penalizes students for not knowing the answers **even if the norming data do not demonstrate test bias.**

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Test Validity and Social Justice

Validity is an overall evaluative judgment of the degree to which empirical evidence and theoretical rationales support the adequacy … *of interpretations* … based on test scores (Messick, 1989).

Validity is not a property of the test or assessment as such, but rather of the *meaning* of the test scores.

A study of "Consequential validity" evaluates the value of the implications of score interpretations as well as the actual and potential consequences of test use; especially in regard to sources of invalidity related to issues of bias, fairness, and distributive justice (Messick, 1980, 1989)."

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Verbal Tests are Discriminatory

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Illinois School District U-46

Main question: Does the District's gifted program unlawfully discriminate against Hispanic Students?

IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF ILLINOIS
EASTERN DIVISION

DANIEL, DINAH and DEANNA MCFADDEN, minors, by their parent and next friend, Tracy McFadden; KAREN, RODOLFO and KIARA TAPIA, minors, by their parent and next friend, Mariela Montoya; JOCELYN BURCIAGA, minor, by her parent and next friend, Griselda Burciaga; and KASHMIR IVY, minors, by their parent and next friend, Beverly Ivy; KRISTIANNE SIFUENTES, minors, by her parent and next friend, Irma Sifuentes,

Plaintiffs,

v.

BOARD OF EDUCATION FOR ILLINOIS SCHOOL DISTRICT U-46,

Defendant.

No. 05 C 0760

Judge Robert W. Gettleman

On July 11, 2013, Judge Robert Gettlemen issued a decision holding that District U-46 *intentionally* discriminated against Hispanic students specific in their gifted programming (placement), and found problems with policies and instruments for

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The Court's decision renewed the *Brown v. Board of Education* (1954) principle that 'separate is inherently unequal'.

... The court finds the District's method of identifying gifted Minority Students was flawed and resulted in an obvious disparate impact on those students by separating them from their gifted White peers.... By singling out most[ly] all Hispanic students for the segregated SET/SWAS program, the District deprived these children of that educational opportunity based on their ethnicity (p. 27).

Judge Gettlemen found discrimination regarding (a) tests for screening and for identification, (b) designated cutoff scores for screening and identification, (c) use of both verbal and math scores at arbitrary designated levels for screening and for identification, (d) use of weighted matrix, as well as content and criteria in weighted matrices that favored achievement and traditional measures, (e) too little reliance on a nonverbal test (Naglieri Nonverbal Ability Test) for admission to SWAS, (f) re-testing Hispanic students for middle school gifted program, (g) timing of testing, (h) use of parental referrals, and (i) use of teacher referrals (see Table 2).

Judge Gettleman's Decision

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Topics for Today

Diagnosis

- Behavioral symptoms define the disorder based on DSM-5

Description of the Individual

- Assessment of the Behaviors related to ASD
- Determining if there is a Cognitive Processing Component
  - Cognitive profiles for those with ASD, ADHD, and SLD
- Evaluate Social Communication and Social Interactions
- Ruling out Intellectual Disability
  - A *fair and equitable* way to assess ability for students who may have Autism
- Quantifying "Significant Impairment"

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Rating Scale of Impairment & EF

- "Impairment is a reduced ability to meet the demands of life because of a psychological, physical, or cognitive condition" (Goldstein & Naglieri, 2016, p. 6).
- The American Psychiatric Association in the new DSM-5 (APA, 2013) emphasizes impairment over and above symptom presentation.
- World Health Organization's International Classification of Functioning, Disability and Health (WHO, 2001) also has guidelines for impairment.

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RSI Forms and Norming

- RSI Normative Sample:
  - 2800 ratings
    - 800 ratings for each of the RSI (5-12 Years) Parent and Teacher forms
    - 600 ratings for each of the RSI (13-18 Years) Parent and Teacher forms
- Within 1% the 2010 U.S. Census targets on:
  - Race/ethnicity,
  - Region,
  - PEL
- Includes 11.6%-11.8% of clinical cases

RATING SCALE OF IMPAIRMENT (RSI)			
RSI (5–12 YEARS)		RSI (13–18 YEARS)	
PARENT FORM	TEACHER FORM	PARENT FORM	TEACHER FORM
Number of Items: 41 Reading Level: 5.8 Admin Time: 10 mins.	Number of Items: 29 Reading Level: 6.6 Admin Time: 5 mins.	Number of Items: 49 Reading Level: 5.9 Admin Time: 10 mins.	Number of Items: 29 Reading Level: 6.6 Admin Time: 5 mins.
RSI Scales School Social Mobility Domestic Family	**RSI Scales** School Social Mobility	**RSI Scales** School/Work Social Mobility Domestic Family Self-Care	**RSI Scales** School Social Mobility
TOTAL SCORE	TOTAL SCORE	TOTAL SCORE	TOTAL SCORE

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RSI Correlations (Manual pg. 115)

- RSI is most related to the CEFI and DESSA because all of these are reflections of frontal lobes concept of executive function

RSI Total Score	
Adaptive Behavior	
-.54	Adaptive Behavior Assessment System-II
Social-Emotional Competency	
-.71	Devereux Student Strength Assessment
Symptom Scales	
-.78	Comprehensive Executive Function Inventory
Symptom Scales	
.26	Conners CBRS — Content Scales
.29	Conners CBRS — Symptom Scales
Ability & Achievement	
-.05	Wechsler Intelligence Scale for Children-IV
-.06	Woodcock Johnson III Achievement
-.03	Cognitive Assessment System

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Pause…

For your thoughts and/or questions

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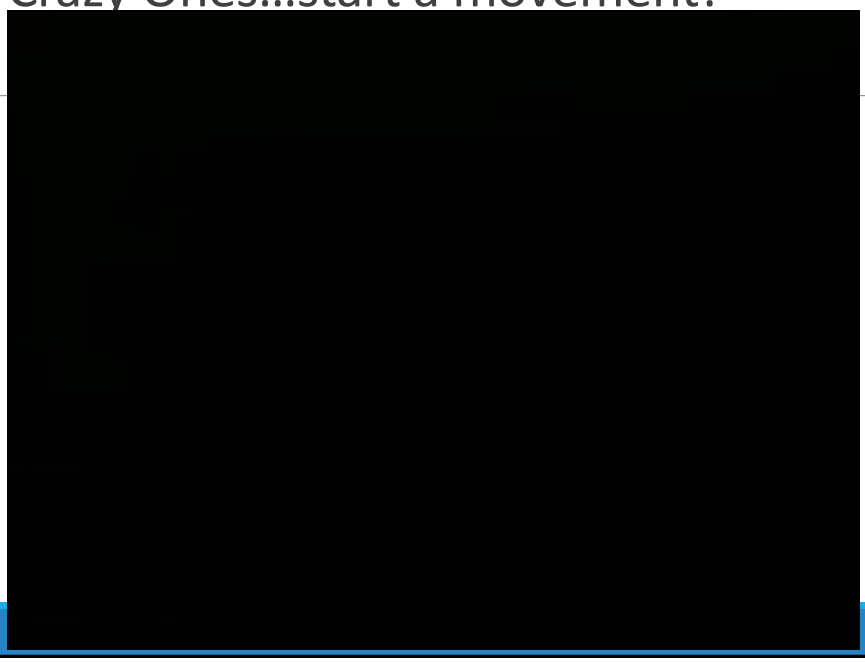
Crazy Ones…start a movement!



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