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Training Session By
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Conflict of Interest Notice

I am a co-author of the Pediatric Performance Validity Test Suite and receive royalties from its sales. While I view my comments and opinions as expressed to be accurate, you should judge the facts and materials for yourself and make an independent decision regarding your choice of diagnostic and related techniques.
What We Hope to Accomplish

This training provides a brief overview of literature on pediatric performance validity assessment, with an emphasis on the need for evaluating effort in clinical and school settings when making diagnostic decisions about children and youth based on scores from maximum performance tests such as measures of IQ, academic achievement, and a variety of neuropsychological and psychoeducational tests.

The training provides a detailed introduction to the Pediatric Performance Validity Test Suite™ (PdPVTS™), a new digital performance validity measure developed specifically for use with children and youth.

"Everybody's Doing It": Cheating Scandal Shows How Privileged Kids Fake Disability
The Hollywood Reporter, 3/16/19
Scott Johnson, Peter Keifer

"According to the indictment, Singer told one client, Gordon R. Caplan, the co-chairman of New York law firm Willkie Farr & Gallagher LLP, to instruct his daughter “to be stupid, not to be as smart as she is” when being tested by a psychologist on Singer’s payroll, who would then diagnose the student with a learning disability, thus qualifying her for extra time."
“Alexander [an educational planner] said she knew someone from a private school who took her son to a psychiatrist and instructed him to give wrong answers to questions, specifically in order to get the qualifying diagnosis.”

“I said what you’re doing is wrong,” said Alexander. The friend replied, “Everybody’s doing it.”

“The schools are aware of it, but they can’t do anything about the fake diagnoses because they have been provided by doctors.”

“I have seen more than a few of my classmates flock to specialists with the hopes of being diagnosed with a disorder that would qualify them for extra time on their entrance exams,” Glassman wrote.

“Extra time has been exploited by some wealthy families who use their easy access to expensive medical professionals to give their children an upper hand in the college admissions process.”

A PVT is a measure of whether the individual under assessment is giving their optimal performance, i.e., best effort, on tests traditionally characterized as maximum performance tests where standard or common interpretations of results rely on the examinee doing their best.
Some Other Terms You Will Encounter

• The terms effort testing, response bias testing, symptom validity testing, and performance validity testing were used interchangeably in the clinical literature for many years.

• Currently, symptom validity refers to the veracity of examinee’s subjective/psychological complaints such as assessed by self-report on an SVT, or symptom validity test such as the SIMS (Structured Inventory of Malingered Symptoms).

• Performance validity refers to the accuracy of an examinee’s cognitive scores as an indication of their actual cognitive, neuropsychological, or educational status. Assessment of performance validity is often referred to as effort testing.

• We will define some other terms in this literature later.

For many years, clinicians believed that children did not lie or malinger or otherwise engage in dissimulation as do adults - or, if they did, it was very easy to detect.

They were wrong. (Me included)

Are children capable of deception?
Lying/Deception

The act by which one deliberately makes a false statement with intent to instill false beliefs into the mind of another

Research on Children’s Lie-Telling Behavior

Temptation Resistance Paradigm
- Lie-telling emerges as early as age 2.5
  - 2-3 year olds are less inclined to lie about transgressions - but some do!
  - Early lie-telling involves self-serving lies
    -- Avoid punishment or obtain reward--

This is a consistent pattern across cultures and considered a normal aspect of development.


Concealing the Lie: Nonverbal vs. Verbal Behavior

- Young children (< 8 years) show good nonverbal leakage control
  - Most lie-tellers display positive nonverbal behaviors: good eye contact, relaxed facial expressions, positive tone of voice
  - Lie-tellers may show more positive nonverbal behaviors than truth-tellers (e.g., big smiles)

- Young children show poor semantic leakage control
  - Tend to make statements that contradict the lie
  - But—9- to 8-year-olds are able to conceal a lie with plausible responses to follow-up questions

Cognitive Development and Lie-Telling

- Research demonstrates a positive correlation between lie-telling and executive functioning.
  - Inhibitory control
  - Working memory
  - Planning
- Children with higher executive skills and theory of mind are able to maintain a lie — they are less apt to make contradictory statements.


Evidence of Performance Invalidity in Youth

- SSD evaluations
- Failure rates of children administered either TOMM or MSVT

<table>
<thead>
<tr>
<th></th>
<th>TOMM</th>
<th>MSVT</th>
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<tbody>
<tr>
<td>Significantly Below Chance</td>
<td>8.7%</td>
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<td>Chance or below</td>
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<tr>
<td>Failing</td>
<td>28.3%</td>
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TOMM=Test of Memory Malingering.
MSVT=Medical Symptom Validity Test
Data from Chafetz, Abrahams, & Kohlmaier, 2007
Evidence of Performance Invalidity in Youth

12-19% Base Rate of suboptimal effort in a Clinical sample of 8-17 year olds with mTBI

- Premorbid LD, ADHD, reading problems, and special education services were not associated with MSVT failure

Kirkwood & Kirk (2010); Kirkwood, Peterson, Connery, Baker & Grubenhoff (2014); Kirkwood, Yeates, Randolph, & Kirk (2012)

Evidence of Performance Invalidity in Youth

14% base rate of suboptimal effort in a Clinical sample with psychiatric, neurological, and neurodevelopmental conditions ages 7-18

- Age, intellectual functioning, and cognitive impairment were not associated with WMT failure
- Children who failed the WMT acknowledged poor effort


Published Reports

Malingered ADHD

- Conti (2004). Three cases of adolescents within a juvenile detention center diagnosed with conduct disorder who feigned ADHD symptoms to obtain medication.

Information about ADHD symptoms was obtained from internet and during group therapy sessions.
Published Reports

Flaro & Boone (2009)

- 16 yo male with a history of aggression and violent behavior, including manslaughter. Court-ordered evaluation to determine if a history of mTBIs caused the behavioral issues.
- Failed Computerized Assessment of Response Bias (CARB) and WMT
- Severely impaired range scores on tests of memory, executive functioning, and auditory comprehension
- During feedback, acknowledged his attempt to appear cognitively impaired in order to receive a lighter sentence.

Malingering By Proxy

- Cassar et al (1996): 13 y/o female and mother collaborate to falsely report her severe oppositional behavior, mood swings, and distractibility to obtain disability benefits.
- Roberts (1997): 9 y/o male and mother collaborate in falsely reporting his violent and impulsive behavior to obtain disability benefits.
- Stutts, Hickey, & Kasdan (2003): 13 y/o male feigned inability to use upper extremity for 2 years during litigation. Video surveillance revealed he had full use of his arm.
- Chafetz & Prentkowski (2011): SSD evaluation of 9 y/o male. His mother reported history of ADHD symptoms, oppositional behavior, poor reading, communication, and learning. Multiple PVTs "failed" with a significantly below chance score on TOMM.

Published Reports

1. 16 yo male with history of mTBI in MVA seen in clinical context due to persisting/worsening of symptoms.
   - Failed MSVT and TOMM
   - Inconsistencies in neuropsychological test data
   - Motivation: Injury status allowed more time with girlfriend

2. 8 yo female with history of concussion in a fall seen in a clinical context for persisting symptoms.
   - Significantly below chance scores on MSVT/TOMM; failed Rey 15 Item Test
   - Impaired scores across all neuropsychological domains
   - Motivation: School avoidance
**Published reports**

  3. 15 yo male quarterback with sports concussion with persistent symptoms
     - Failed TOMM and MSVT
     - Inconsistencies in neuropsychological test data
     - Motivation: an "out" from playing quarterback

- 4. 13 yo female with mTBI from MVA with persistent symptoms
  - Failed TOMM and MSVT
  - Inconsistencies in neuropsychological test data
  - Motivation: Keep parents together

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**How prevalent is performance invalidity in LD and ADHD evaluations?**

A significant proportion of college students demonstrate poor effort during LD/ADHD evaluations.

- Suhr et al. (2008)
  - 30% of college students undergoing ADHD evaluations failed multiple performance validity tests

- Sullivan, May, & Galbally (2007)
  - 15% of college students undergoing LD evaluations failed the Word Memory Test
  - 47.6% undergoing ADHD evaluations failed the WMT

Both studies found that failed performance validity testing was associated with lower neuropsychological test scores.

Recent news reports demonstrate that high school students will also give poor effort to obtain admissions and other testing accommodations.

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**SSD and mTBI Litigation**

- Among children undergoing evaluations for social security disability benefits, the percentage of performance-invalid test scores has been estimated at between 48% and 60% (Chafetz, 2008).
- Among pediatric mild traumatic brain injury samples, the prevalence of performance-invalid scores has been reported to range from 12% to 20%.
- It is therefore essential to determine whether or not test data can be relied upon or interpreted as valid representations of a child/youth’s ability.
Best Effort Is Required for Diagnostic Inferences When Tests of Ability or Skill Are Employed

In order to be confident that the results of a comprehensive evaluation are valid reflections of an individual’s status, one must have a measure of whether the individual under assessment is giving their optimal performance (Kirkwood, 2015; Larrabee, 2015).

In assessment of brain-behavior relationships, as Reitan reiterated for over 40 years, you cannot draw inferences about brain status unless you elicit maximum performance from the examinee.

Maximum Performance Tests v. Typical Performance Tests

- Maximum performance tests include tests of intelligence, aptitude, achievement, memory, and/or neuropsychological performance, or any test of ability or skill-based assessment—how well CAN you...?
- Typical performance tests include measures of personality and behavior, including most rating scales, attitudes, and other variables where how you usually or typically behave or perform is the key issue.
- In the absence of best effort, accurate inferences cannot be drawn re brain-behavior relationships, intelligence, academic levels, or other skill levels.

Dissimulation

- Dissimulation represents an intentional presentation by someone that is inconsistent with or dissimilar to the their actual or true clinical state.
- It is not a unitary construct and can be difficult to detect.
- Children clearly are able to follow instructions to engage in dissimulation on cognitive tests when properly worded instructions are provided.
- Children and youth have been found to fabricate symptoms during medical, psychological, and neuropsychological examinations.
How Do PVTs or Effort Tests Work?

- Tests of performance validity, effort, or suboptimal performance, provide stimulus materials and tasks that appear to be difficult and to require effort and attention to answer correctly.
- The perception of difficulty is often reinforced by the directions.
- In fact, the tasks are relatively easy, and few examinees who exert effort and attention will miss more than a very small number of the items.
- Multiple choice tasks are preferred because of totally objective scoring and chance levels of responding are also easily calculated and can reinforce decision-making about suboptimal performance.

Why do we need tests to identify suboptimal effort?

Because we are just not good at it except in really extreme cases. We need actuarial/empirical help!

Prospects for faking believable deficits on neuropsychological testing

Heaton, Smith, Lehman, & Vogt, 1978

10 neuropsychologists were asked to review test data and determine if the profiles represented genuine impairment due to a TBI patient or feigned impairment

- Included WAIS, HRNB, MMPI, and demographic information
- Diagnostic accuracy ranged from chance-level to 20% above chance
Neuropsychologists’ ability to predict distorted symptom presentations
Dandachi-Fitzgerald, Merckelbach, & Ponds, 2017

31 Dutch neuropsychologists predicted the outcome of performance and symptom validity assessment following record review and clinical interview.

• 53% of the cases failing both PVT and SVT were accurately predicted as likely to have problematic validity test scores

• Conclusion: Results from validity tests have incremental value

Detecting Deception in Children

Adults are not successful in detecting lying based on the child’s nonverbal behavior even when informed that a high number of children lied.
Talwar & Lee (2002); Talwar, Gordon, & Lee, (2007)

Meta-analysis of 45 studies found adult accuracy in detecting deceptive statements in children did not differ from chance.
Gongola, Scurich, & Quas (2017)

PVT is Routine in Forensic Evaluations

From a recent forensic report:
“Neuropsychological and psychological testing is the generally accepted objective approach to delineating an individual’s range of neurocognitive skills, potentials, and limitations, as well as their personality features and styles... Tests with built-in validation measures are utilized to fully edify examiners and courts with objective and reliable data. Neuropsychological protocols employ performance validity testing to assess effort and symptom validity measures to determine the accuracy of self-report that, ultimately, determine the reliability and validity of the testing data.”
PVTs Should Be Included in All Clinical Exams of Children and Youth

- The importance of including symptom and performance validity assessment in all neuropsychological and psychological evaluations, whether clinical or forensic, has been discussed in a position paper published by the National Academy of Neuropsychology and the practice guidelines outlined by the American Academy of Clinical Neuropsychology.
- Diagnostic and classification decisions in schools and clinics are equally if not more important than most forensic assessments and require PVT as well if we are to interpret examinee performance accurately and objectively.

Professional Organizations

NAN
- "Adequate assessment of response validity is essential in order to maximize confidence both in the results of ability measures and in the diagnoses and recommendations that are based on the results."
- "Assessment of response validity, as a component of a medically necessary evaluation, is medically necessary."

AACN
- "Use of psychometric indicators is the most valid approach to identifying neuropsychological response validity."
- Recommends use of multiple validity measures covering multiple domains distributed throughout the testing due to variations in effort.

Bush et al. (2005); Heilbronner et al. (2006)

Performance Validity Assessment: What are we measuring?

Suboptimal Performance (SOP)
Defined as “instances of examinee not performing to the best of his or her ability as directed on tests”
(Strauss, Sherman, & Spreen, 2006)
Performance Validity Assessment: What are we measuring?

Performance validity tests scores inform the clinician about the validity of scores on maximum performance tests.

Reynolds & Livingston (2012)

Performance Validity Assessment: What are we measuring?

• Did the child/adolescent comply with the test demands (i.e., “do the best you can”)?
• Did the child/adolescent demonstrate his/her maximum abilities or skills?
• Are the neuropsychological and/or psychoeducational test scores an accurate representation of the individual’s ability?

Why would children not provide sufficient effort? – exemplary not exhaustive reasons

• Compensation
  • Instructed by parents for SSD/SSI eligibility/Legal settlement
  • Medication-seeking
  • School avoidance
  • Academic/Test accommodations/services (504/IEP determinations)
• Sports avoidance
• Fatigue
• Faking bad on baseline testing
• Attention-seeking
• Somatization
• Sick Role
• Poor cooperation/oppositional (ODD, CD, Adolescence)
• Boredom
• Cry for help
• Certain psychiatric illnesses

Chafetz, Abrahams, & Kohrmaier (2007); Donders (2005); Rohling (2004); Salekin, Kubak, Lee, Harrison, & Clark (2018)
Malingering

- In the DSM-5, malingering is defined as “the intentional production of false or grossly exaggerated physical or psychological symptoms, motivated by external incentives” (p. 726).
- One of a number of explanations of sub-optimal performance.
- Sub-optimal performance is not a synonym for “malingering,” but may prompt the clinician to investigate further.
- Conclusions of malingering require additional investigation to determine the intent and incentive(s) underlying inadequate effort.

Primary and Secondary Gain

Primary Gain
Behavior provides relief of psychological distress or conflict
- e.g., Conversion Disorder or Functional Neurological Symptom Disorder

Secondary Gain
Deliberate behavior that provides an external benefit or advantage
- e.g., Malingering

Secondary Gains

Material-Legal Gains
- Monetary rewards/Financial
- Avoid duties or responsibilities e.g., Criminal responsibility, work, sports, school
- Academic accommodations

Psychosocial Gains
- Attention
- School-related factors e.g., school anxiety, academic struggles, peer conflict/bullying
- Family-related factors e.g., increased parental attention, decreased marital conflict

Baker & Kirkwood (2015); Slick & Sherman (2012)
Is there evidence that PVT failure is associated with maximum performance test scores?

PVT Failure and Neuropsychological Test Scores in Adults

Green, Rohling, Lees-Haley & Allen (2001). Effort has a greater effect on test scores than severe brain injury in compensation claimants.

- 904 Medico-legal referrals (CHI/TBI, neurological disorders, psychiatric conditions, orthopedic injuries, chronic pain, chronic fatigue, fibromyalgia, and various other conditions.)
- Overall neuropsychological test scores were significantly higher in those passing PVTs than those failing PVTs
- Inverse relationship between severity of cognitive impairment and PVT score
- Scores on performance validity tests accounted for more variance in neuropsychological test scores than neurological impairment, age, or education

PVT Failure and Neuropsychological Test Scores in Children

A mixed clinical sample who failed the Word Memory Test:
- Performed significantly lower on memory testing
- 2/3 SD below passers on immediate and delayed trials of the Children’s Auditory Verbal Learning Test and Rey Complex Figure Test
- Other neuropsychological tests did not differ between groups

PVT Failure and Neuropsychological Findings in Children

Children/adolescents with mTBI who failed the MSVT:

• Reported significantly more post concussive symptoms
  • PVT failure is strongly associated with increased symptom reporting

• Performed significantly lower across neuropsychological tests (nonverbal reasoning, memory, attention, processing speed, motor functioning)
  • 5-16% of passers scored > 1 SD below normative mean
  • 40%+ of failures scored > 1 SD below normative mean

Kirkwood, Peterson, Connery, & Grubenhoff (2014); Kirkwood, Yeates, Randolph, & Kirk (2012)

Performance validity test failure predicts suppression of neuropsychological test results in developmentally disabled children.

Abstract
There is increasing awareness of the need to use Performance Validity Tests (PVTs) when assessing cognitive abilities in children. Since 1996, there has been an ongoing clinical study of the use of three PVTs with a consecutive series of 1,285 developmentally disabled children. In this study, we report on the results of these PVTs in children of many diagnostic categories. Failure rates on all three tests were very low. The mean scores on the effort measures in those passing the PVTs were extremely high. Failure on each PVT was found to be associated with a significant and widespread suppression of scores across a neuropsychological battery. Failure on even one PVT significantly suppresses ability test scores.

Implications of failed PVTs

• Failed PVTs indicate that the child/adolescent did not demonstrate their true ability and, as a result, the neuropsychological and/or psychoeducational test scores cannot be interpreted as reflecting the underlying construct of the test.
• Failed PVTs do not indicate the reason for the child or adolescent's suboptimal effort during testing.

But this much is clear--in the context of failed PVTs, the obtained test scores cannot be used accurately to determine the presence of cognitive deficits, diagnosis, or appropriate treatment/services.
Performance Validity Assessment

Objective evidence of performance validity is critical to the accuracy of test score interpretation, diagnosis, and treatment recommendations.

Pediatric Performance Validity Tests

Performance Validity Assessment Tests Developed for Children/Adolescents

Free-standing PVTs—Only 2 Currently
- Pediatric Performance Validity Suite (PdPVTS; McCaffrey, Lynch, Leark, & Reynolds, 2020)
- Memory Validity Profile (MVP; Sherman & Brooks, 2015)
- In practice, most common option historically has been to use a PVT designed for adults.

Embedded PVT
- Child and Adolescent Memory Profile (ChAMP; Sherman & Brooks, 2015)
  - Built-in Validity Indicators
  - Lists Recognition subtest, Objects subtest
- California Verbal Learning Test—Children’s Version (CVLT; Delis, Kaplan, & Ober, 2014)
  - Forced Choice Recognition Trial
  - Recognition Discrimination score
- Test of Memory and Learning 2nd Ed (TOMAL-2; Reynolds & Voress, 2007)
  - Paired Recall, Easy pair failures
Pediatric Performance Validity Test Suite
(PdPVTS \ PeedsPeeVeeTeez)

Robert J. McCaffrey, PhD, Julie K. Lynch, PhD, Robert A. Leark, PhD, & Cecil R. Reynolds, PhD

Initial release will be in English with a Spanish version following shortly. Users will have access to both English and Spanish versions at no added cost. Spanish release will be highlighted with a push notification to the PdPVTS app.

PdPVTS

• The Pediatric Performance Validity Test Suite (PdPVTS) is designed to evaluate the credibility of performance in children and adolescents aged 5 to 18 years. It provides an indication of the validity of the interpretation of test scores (i.e., noncredible performance informs the evaluator that test scores obtained during the course of that evaluation may not qualify for the interpretations the test is designed to provide). The PdPVTS is comprised of five individual tests covering visual and verbal domains:

1) Find the Animal (visual scanning and classification)
2) Matching (visual recognition)
3) Shape Learning (visual recognition)
4) Silhouettes (visual organization)
5) Story Questions (verbal recognition)
PdPVTS

Provides an efficient objective approach to assessing performance validity with children and adolescents

• Five individual tests covering verbal and visual domains.
• Child friendly stimuli designed to engage children and youth—not an extension of an adult test.
• Digital platform: Administered on any touch screen device (iOS or Windows tablet, laptop with tablet portability).
• English and Spanish.
• Each test requires 3-5 minutes.

PdPVTS

• Flexible administration:
  • The number & order of tests administered is at clinician’s discretion.
  • Tests can be dispersed at various points across an evaluation.
• Age-specific cut scores
• Immediate access to test score/outcome (Pass/Fail)
• Computer Score Report includes base rate data for the general population and clinical groups

PdPVTS

• Scores on the PdPVTS allow the evaluator to make an objective, data-based decision about whether the examinee’s performance represents their true level of ability or skill on the construct(s) being assessed.
• An indication of suboptimal performance suggests, at the very least, that the common interpretations of test scores as reflecting the constructs intended to be assessed are not valid and cannot be relied on to inform decisions.
PdPVTS User Qualifications

• Professionals credentialed in their respective jurisdiction to use psychological and psychoeducational tests, such as pediatric neuropsychologists, school psychologists, clinical child psychologists, and educational diagnosticians.

• Although technicians may administer the PdPVTS where allowed by law, interpretation of the results is limited to professionals with MHS C-level qualifications.

• All users of the PdPVTS, whether limited to administration as examiners or including interpretation as evaluators, must also be familiar with and adhere to the technical manual and the requirements of the current Standards for Educational and Psychological Testing.

• Users of the PdPVTS must assume ultimate responsibility for the administration and interpretation of any test materials they use. Individuals who have only been exposed to testing and measurement issues through the technical manual will not be qualified as interpreters of the PdPVTS.

Development of the PdPVTS

Four Main Goals

1. Develop tests that are engaging and efficient specifically for children and youth.

2. Develop tests that are culturally neutral.

3. Include tests that cover multiple domains relevant to cognitive evaluations that are comprehensive and plausible as measures of cognitive function.

4. Develop tests available in a digital format compatible with various platforms and devices.
Digital Platform

- PdPVTS application is downloaded on an iOS or Windows device
- No limit to the number of devices
- Developed to allow offline assessment

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<thead>
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<tr>
<td>Downloading PdPVTS application</td>
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<td>Initial Login on the device</td>
<td>Test administration</td>
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<tr>
<td>Generating detailed Score Report</td>
<td>Obtaining pass/fail test scores immediately</td>
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General Normative Sample

- N=838 individuals ages 5 to 18 years
- Demographically representative of the U.S. Population
- No history of neurological, neurodevelopmental, behavioral, or psychological disorders
- Excluded if hearing, visual, or motor impairment prohibited from taking the tests using standardized administration

Clinical Samples

- Attention Deficit/Hyperactivity Disorder (n = 149)
- Anxiety-related Disorders (n = 65)
- Depressive disorders (n = 58)
- Behavioral Disorders (Oppositional Defiant Disorder, Conduct Disorder) (n = 65)
- Intellectual Disability (n = 81)
- Language Disorder (n = 63)
- Specific Learning Disability (n = 79)
- Mild Traumatic Brain Injury (n = 50)
- Moderate/Severe Traumatic Brain injury (n =23)

Simulation Sample

- 300 participants age 5 to 18 years instructed to display poor effort
  - Ages 5 to 12 years instructed to pretend tests were too difficult and make mistakes on purpose.
  - Ages 13-18 years instructed to pretend they sustained a TBI in a car accident.
Validation Studies

- Gender, race/ethnicity, parental educational level, and handedness were not significantly associated with test scores.
- Age was significantly associated with test scores → Age-adjusted cut scores were established that:
  - Maintained specificity at 90 - 95%
  - Ensured adequate sensitivity
- Story Questions was identified as developmentally inappropriate for ages 5-6 due to high error rate.

Reliability Internal Consistency

<table>
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<th>PiPVT Tests</th>
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<th>Clinical Samples</th>
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<td>Story Questions (ages 7-11)</td>
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<td>Story Questions (ages 12+)</td>
<td>175</td>
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Test-Retest Stability  (N = 42, Interval: 12-32 days)

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<th>Time 2</th>
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Performance on the PdPVTS

Sensitivity vs Specificity in PVT

- Sensitivity in PVT = Detecting invalid performance or inadequate effort when it is present.
- Specificity in PVT = Detecting valid performance (or the lack of invalid performance).
Sensitivity vs Specificity in PVT

• Maintaining high specificity is critical.
• Yet, as specificity goes up, sensitivity goes down.
• Not much data in children and youth.
• Adult data: Two meta-analyses demonstrate this phenomenon.
  Vickery, Berry, Inman, Harris, and Orey (2001) reported an average PVT Sp equal to .950 contrasted with an average Sn equal to .600. In a subsequent meta-analysis, Sollman and Berry (2011) reported an average PVT Sp equal to .900 and Sn equal to .690. So, on a per test basis, on average, from 31% to 44% of examinees who were truly performing invalidly are not detected as doing so by an individual PVT.

Sensitivity vs Specificity: What to do?

• Use multiple PVTs.
• Among adults, basing detection of malingering on the presence of 2 or more PVT failures, improved detection of definite malingerers to 87.5%, with a slight drop in specificity for correctly identifying 88.9% of the moderate and severe TBI group as performing validly.
• Verdict remains out on children and youth.
• PdPVTS provides base-rate data however.

Performance on the PdPVTS by Clinical Group

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<td>2.7</td>
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<td>2.1</td>
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<td>0.6</td>
<td>100.0</td>
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<td>18.8</td>
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82

83

Performance on the PdPVTS by Clinical Group

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<td>2.1</td>
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<td>100.6</td>
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<td>18.8</td>
<td>1.0</td>
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Performance on the PdPVTS by Clinical Group

Performance on the PdPVTS by Clinical Group (continued)

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<td>23.9</td>
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<tr>
<td>Stroop (Reading)</td>
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<td>4.1</td>
<td>28.5</td>
<td>3.2</td>
<td>24.0</td>
<td>1.2</td>
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<td>Story Construction (Gr 1)</td>
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<td>1.9</td>
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<td>32.3</td>
<td>2.5</td>
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<td>1.9</td>
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<td>Story Construction (Gr 6-7)</td>
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<td>31.3</td>
<td>1.1</td>
<td>18.5</td>
<td>1.4</td>
<td>32.5</td>
<td>2.6</td>
<td>36.0</td>
<td>1.9</td>
</tr>
</tbody>
</table>

Computer Score Report

- Obtained scores and outcome for each PdPVTS test administered.
- Chance level scores are flagged (*). Refer to manual to determine if a score is significantly below chance.
- General Population and Clinical groups base rates for failing each test and the specific combination of tests administered.
- Optional for item responses by test.

Score Report
Case 1. 14 year old female with history of ADHD and oppositional behavior

Summary of PiPiVITS Scores
The examinee failed 2 out of 5 PiPiVITS tests taken, suggesting that they were not exerting maximum effort during this time. This information should be combined with other assessment results and their motivation for poor performance should be explored.

<table>
<thead>
<tr>
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<th></th>
<th></th>
<th></th>
<th></th>
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<tbody>
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<td>Age</td>
<td>14</td>
<td>14</td>
<td>14</td>
<td>14</td>
<td>14</td>
</tr>
<tr>
<td>Admin Date</td>
<td>27 Mar 15</td>
<td>27 Mar 15</td>
<td>27 Mar 15</td>
<td>27 Mar 15</td>
<td>27 Mar 15</td>
</tr>
<tr>
<td>Admin Time</td>
<td>1:00 PM</td>
<td>1:00 PM</td>
<td>1:00 AM</td>
<td>3:00 PM</td>
<td>3:00 AM</td>
</tr>
<tr>
<td>Obtained Score</td>
<td>24/25</td>
<td>19/25</td>
<td>13/25</td>
<td>22/25</td>
<td>15/25</td>
</tr>
<tr>
<td>Outcome</td>
<td>PASS</td>
<td>FAIL</td>
<td>FAIL</td>
<td>PASS</td>
<td>FAIL</td>
</tr>
</tbody>
</table>

* Score is 45 or below; chance level.
Case 1. 14 year old female with history of ADHD and oppositional behavior

PdPVTS Base Rates

| Population | PdPVTS Base Rates for Each Test | PdPVTS Base Rates for Each Test, Combined
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Matching</td>
<td>Shape</td>
</tr>
<tr>
<td>General Population</td>
<td>2%</td>
<td>2%</td>
</tr>
<tr>
<td>ADHD</td>
<td>4%</td>
<td>1%</td>
</tr>
<tr>
<td>Anxiety</td>
<td>5%</td>
<td>4%</td>
</tr>
<tr>
<td>Behavior Disorder</td>
<td>3%</td>
<td>5%</td>
</tr>
<tr>
<td>Depression</td>
<td>5%</td>
<td>4%</td>
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<tr>
<td>Intellectual Disability</td>
<td>6%</td>
<td>4%</td>
</tr>
<tr>
<td>Language Disorder</td>
<td>9%</td>
<td>9%</td>
</tr>
<tr>
<td>Learning Disability</td>
<td>9%</td>
<td>9%</td>
</tr>
<tr>
<td>Sensory</td>
<td>7%</td>
<td>7%</td>
</tr>
<tr>
<td>Motor and Sensory TBI</td>
<td>9%</td>
<td>9%</td>
</tr>
</tbody>
</table>

Note: ADHD = Attention Deficit Hyperactivity Disorder; Behavior Disorder = Conduct Disorder; Depression; Intellectual Disability; Language Disorder; Learning Disability; Sensory TBI; Motor and Sensory TBI

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Case 2. 12 year old male who sustained a sport-related concussion

Summary of PdPVTS Scores

The examiner scored all PdPVTS tests. It suggests that traditional interpretations of test scores can be supported by the level of effort exhibited by the examinee.

<table>
<thead>
<tr>
<th>Test</th>
<th>Pass for Annual</th>
<th>Matching</th>
<th>Shape</th>
<th>Silhouettes</th>
<th>Story</th>
<th>Total</th>
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<tr>
<td>PdPVTS</td>
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<td>91.9%</td>
<td>91.9%</td>
<td>91.9%</td>
<td>91.9%</td>
<td>91.9%</td>
</tr>
</tbody>
</table>

Outcome: PASS PASS PASS PASS

---

PdPVTS Base Rates

| Population | PdPVTS Base Rates for Each Test | PdPVTS Base Rates for Each Test, Combined
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Matching</td>
<td>Shape</td>
</tr>
<tr>
<td>General Population</td>
<td>2%</td>
<td>2%</td>
</tr>
<tr>
<td>ADHD</td>
<td>4%</td>
<td>1%</td>
</tr>
<tr>
<td>Anxiety</td>
<td>5%</td>
<td>4%</td>
</tr>
<tr>
<td>Behavior Disorder</td>
<td>3%</td>
<td>5%</td>
</tr>
<tr>
<td>Depression</td>
<td>5%</td>
<td>4%</td>
</tr>
<tr>
<td>Intellectual Disability</td>
<td>6%</td>
<td>4%</td>
</tr>
<tr>
<td>Language Disorder</td>
<td>9%</td>
<td>9%</td>
</tr>
<tr>
<td>Learning Disability</td>
<td>9%</td>
<td>9%</td>
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<tr>
<td>Sensory</td>
<td>7%</td>
<td>7%</td>
</tr>
<tr>
<td>Motor and Sensory TBI</td>
<td>9%</td>
<td>9%</td>
</tr>
</tbody>
</table>

Note: ADHD = Attention Deficit Hyperactivity Disorder; Behavior Disorder = Conduct Disorder; Depression; Intellectual Disability; Language Disorder; Learning Disability; Sensory TBI; Motor and Sensory TBI

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Image source:
Case 3: Carillo, female age 13, ADHD, SLD concerns

Summary of PDPVTS Scores

The examinee passed all 4 PDPVTS tests taken. This suggests that traditional interpretations of test scores can be supported by the level of effort exhibited by the examinee.

<table>
<thead>
<tr>
<th>Test</th>
<th>Find the Animal</th>
<th>Matching</th>
<th>Shape Learning</th>
<th>Silhouette</th>
<th>Story Questions</th>
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</thead>
<tbody>
<tr>
<td>Age</td>
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<td>13</td>
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<td>Admin Date</td>
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<td>Apr 19, 2019</td>
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<tr>
<td>Admin Time</td>
<td>11:13 AM</td>
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<tr>
<td>Obtained Score</td>
<td>2420</td>
<td>2425</td>
<td>2235</td>
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<td><strong>Outcome</strong></td>
<td>PASS</td>
<td>PASS</td>
<td>PASS</td>
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<td>PASS</td>
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Case 3, cont.

PDPVTS Base Rates

<table>
<thead>
<tr>
<th>Population</th>
<th>Base Rates for Each Test</th>
<th>Base Rates for Each Test</th>
<th>Base Rates for Each Test</th>
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<tr>
<td>General Population</td>
<td>2.32%</td>
<td>2.32%</td>
<td>2.32%</td>
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<tr>
<td>ADHD</td>
<td>2.32%</td>
<td>2.32%</td>
<td>2.32%</td>
</tr>
<tr>
<td>Anxiety</td>
<td>2.32%</td>
<td>2.32%</td>
<td>2.32%</td>
</tr>
<tr>
<td>Depression</td>
<td>2.32%</td>
<td>2.32%</td>
<td>2.32%</td>
</tr>
<tr>
<td>Language Disorder</td>
<td>2.32%</td>
<td>2.32%</td>
<td>2.32%</td>
</tr>
<tr>
<td>Learning/Disability</td>
<td>2.32%</td>
<td>2.32%</td>
<td>2.32%</td>
</tr>
<tr>
<td>Mild TBI</td>
<td>2.32%</td>
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<tr>
<td>Moderate/Severe TBI</td>
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</table>

Case 4: Isaac M mTBI Litigation

Summary of PDPVTS Scores

The examinee failed both PDPVTS tests taken, suggesting that they were not exerting maximum effort during those times. This information should be combined with other assessment results and their motivation for poor performance should be explored.

<table>
<thead>
<tr>
<th>Test</th>
<th>Find the Animal</th>
<th>Matching</th>
<th>Shape Learning</th>
<th>Silhouette</th>
<th>Story Questions</th>
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<td>Admin Time</td>
<td>11:13 AM</td>
<td>1:20 PM</td>
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<td>Obtained Score</td>
<td>1820</td>
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</tr>
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<td><strong>Outcome</strong></td>
<td>FAIL</td>
<td>---</td>
<td>FAIL</td>
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Case 4, cont.

Digital Platform: Device Requirements for PdPVTS app

Minimum iOS device requirements
- iOS 9, 10, 11, or 12
- Minimum screen size of 7.9”; minimum resolution of 1024 x 768 pixels
- Touchscreen; must lie flat

Minimum Windows device requirements
- Windows® 10
- Minimum screen size of 7.9”; minimum resolution of 1024 x 768 pixels
- Touchscreen; must lie flat
- Dual-Core 2.4 GHz processor
- 512 MB of RAM
- 1.1 GB of hard drive disk space

Options after PdPVTS test completed

- **View test results**: Requires password for access.
- **Save session**: Allows return to administer additional PdPVTS tests later, even if the evaluation runs across several days.
- **End session**: This option indicates that you have administered the PdPVTS you plan to use in this case. If selected, you will not be able to administer any of the remaining PdPVTS.
FAQS

• How could PdPVTS be used to inform school evaluations?
• My evaluations typically take more than one session (done over multiple days). How would I use the PdPVTS in this case?
• How would a clinician find the PdPVTS useful in the context of an evaluation for TBI, ADHD, or ASD?
• With persons with suspected ID, would it be more advisable to administer all five tests given the base rate of failing 1 or 2 tests is higher than other clinical groups?
• I work in a juvenile justice setting and we can’t be online. Will I be able to use this where I work?
• When you have PVTs – how do you communicate the results back to the youth or parent?
Thank you!
Cecil R. Reynolds, PhD
Texas A&M University
crrh@earthlink.net
References


References
