

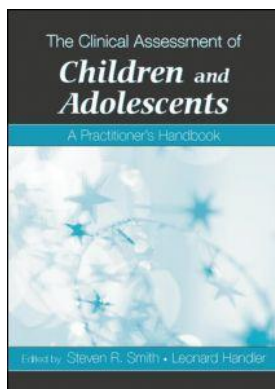
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## **The Clinical Assessment of Children and Adolescents: A Practitioner's Handbook**

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### **Integrating Neuropsychology and Personality Assessment with Children and Adolescents**

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INTEGRATING NEUROPSYCHOLOGY  
AND PERSONALITY ASSESSMENT  
WITH CHILDREN AND ADOLESCENTS

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There is an Indian parable of six blind men who encounter different parts of a large elephant and are asked to describe what it is they are feeling. The man who grasps the trunk reports that he's holding a snake; the next man, who is holding one of the large tusks, insists that it is a spear; another man, grasping one of the animal's large legs, says that it is a tree. The point of the parable is that incomplete evidence results in incomplete conclusions and a narrow perspective of the entire beast.

As applied psychology becomes increasingly specialized, psychologists also run the risk of drawing incomplete conclusions about patients and their functioning. Understanding something as complex as human phenomenology through only one narrow lens guarantees that our perceptions and conclusions will be similarly narrow. I argue, as have others (Meyer, 2002; Ready, Stiemann, & Paulsen, 2001; Wilson, 1993), that we can and should have both breadth and depth as our goal in all clinical activities, including psychological assessment.

In this chapter, I discuss the current division between neuropsychology and personality assessment. I examine differences in training, test usage, and scientific literature that give rise to somewhat different (and perhaps incomplete) perspectives of our patients. I then discuss the neuropsychological challenges posed by traditional personality assessment and behavioral measurement of children and adolescents and the types of "lessons" that personality assessors can learn from neuropsychology. Similarly, I explore ways in which neuropsychology practice can inform the assessment of child and adolescent personality and behavior. Last, I present a case example and provide some recommendations for clinicians who wish to move toward integrating neuropsychological and personality assessment in practice. Throughout, I argue that the meaning of a given personality or neuropsychological test score should be seen as contingent upon the full array of patient functioning.

## ON SEPARATENESS

The separation between neuropsychology and personality assessment begins early in training. Neuropsychologists receive extensive specialized training in cognitive neuroscience, neuropsychological assessment, and psychometrics, in addition to generalist training in clinical psychology (Hannay et al., 1998). The ultimate goal of neuropsychological training is a board certification that would attest to the clinician's expertise in the field. Those who conduct personality assessments, on the other hand, are not required to engage in a specified course of training, but do need to be well versed in their particular tools and instruments as well as the complexity of human personality, psychopathology, and interpersonal dynamics. Although the Society for Personality Assessment has outlined some training guidelines and board certification in assessment is available through the American Board of Assessment Psychology, these are not as tied to clinical training experience as is seen in neuropsychology. This does not imply, however, a lack of rigor in personality assessment training; my point here is merely that the foci, guidelines, and certification processes of clinical psychologists who identify themselves as personality assessors versus neuropsychologists are different and may result in different perspectives about patient functioning.

In addition to training experiences, there are substantial differences in the types of tests used in neuropsychology and personality assessment. For example, Rabin, Barr, and Burton (2005) conducted a survey of the membership of the National Academy of Neuropsychology, International Neuropsychological Society, and APA's Division 40 (Clinical Neuropsychology) to determine what measures are most commonly given by neuropsychologists. In this survey, respondents were asked to rate their top three assessment measures. A similar survey was conducted by Camara, Nathan, and Puente (2000), who surveyed both neuropsychologists and clinical psychologists in APA. The results of both surveys are displayed in Table 3.1. The question asked by the two surveys was slightly different (i.e., "top three" in Rabin et al. [2005] versus "most common" in Camara et al. [2000]), but it seems that neuropsychologists appear quite unlikely to use traditional measures of personality and psychopathology (e.g., the Rorschach was listed as 34th) and that most assessment by clinical psychologists is focused on either personality or cognitive functioning.

**TABLE 3.1.**  
Test Usage by Clinical Neuropsychologists and Clinical Psychologists

<i>Neuropsychologists<sup>a</sup></i>	<i>Clinical psychologists<sup>b</sup></i>
1. WAIS-III	1. WAIS-R/III
2. WMS-III	2. MMPI-2
3. Trail making test	3. WISC-III
4. CVLT-II	4. Rorschach
5. WISC-III	5. Bender-Gestalt
6. Halstead-Reitan battery	6. TAT
7. Wisconsin card sort	7. Wide range achievement test-R/III
8. Rey-Osterrieth complex figure	8. H-T-P
9. MMPI-2	9. WMS-III
10. Rey auditory verbal learning test	10. MCMI

<sup>a</sup>From Rabin et al. (2005). Neuropsychologists were asked to rate top three assessment measures given.

<sup>b</sup>From Camara et al. (2000). Clinical psychologists were asked to list most common assessment measures given.

To determine whether this difference in clinical practice was reflected in the empirical literature, I conducted a brief keyword search in the *Journal of Personality Assessment (JPA)* and the *Archives of Clinical Neuropsychology (ACN)*. These two journals were chosen as exemplars of their respective disciplines; *JPA* is the official journal of the Society for Personality Assessment and *ACN* is the journal for the National Academy of Neuropsychology. In *ACN*, I searched for the terms “Rorschach,” “TAT,” and “MMPI-2.” There were no articles in which either the Rorschach or TAT was used. As expected, the MMPI-2 was frequently represented, yielding a list of 25 publications. In *JPA*, I ran a search for the words “neuropsychology” and “cognition.” This search found only two articles in *JPA* that addressed the integration of personality assessment and neuropsychology (Acklin & Wu-Holt, 1996; Sliverstein & McDonald, 1988), and one of these (Acklin & Wu-Holt, 1996) is not an empirical article.

The point of this discussion is to highlight the fact that although the neuropsychologist and the personality assessor are generally charged with assessing different aspects of patient functioning and so should have different backgrounds and experiences, these differences may not only signal that they are examining different parts of the elephant, but that they do so with a different perspective of how to interpret what they observe. I agree with Ready, Stiemann, and Paulsen (2001) that neither assessment approach in isolation can capture the completeness of patient functioning. After all, our patients have complex cognitive, psychological, interpersonal, and intra-psychic lives, and it stands to reason that more information will yield a more complex understanding of patients and their particular profile of strengths and difficulties.

### Current Integrations

I am certainly not the first person who has raised this issue of fully integrating neuropsychology and personality assessment. There is some literature reporting on the utility of using personality assessment in combination with neuropsychological assessment. The large majority of this literature organizes its theses into one of two categories: a) personality assessment measures can be used to aid in the assessment of neuropsychological dysfunction (Colligan, 1997; Perry & Potterat, 1997; Perry, Potterat, Auslander, Kaplan, & Jeste, 1996; Piotrowski, 1937a, 1937b; Reitan, 1955), and b) personality assessment measures can be used to assess personality and psychopathology in patients with neurological impairments (Ellis & Zahn, 1985; Exner, Colligan, Boll, Stischer, & Hillman, 1996.; Malmgren, Bilting, Frobarj, & Lindqvist, 1997; Sliverstein & McDonald, 1988; Wilson, 1993) and learning disabilities (Acklin, 1990). A full summary of these issues is beyond the scope of this chapter, but the reader is directed to an excellent review by Minassian and Perry (2004).

Despite these two areas of overlap and a general consensus that all test scores should always be interpreted in light of all relevant data (Weiner, 2003), little has been done to examine how different forms of assessment can help inform the interpretation of tests. For example, how might a particular personality assessment test score *modify* how we interpret a neuropsychological test score? Similarly, how does a particular profile of neuropsychological deficit change our interpretation of personality assessment scores? In most of the literature, it appears as though the *meaning* of all test scores is held constant, despite the pattern of test findings. That is, two patients who have elevated scores on a Rorschach measure of thought disorder (such as the Perceptual-Thinking Index [PTI]) might both be seen as having cognitive distortions reflective of thought disorder. However, one patient’s elevated PTI score may be due to a psychotic cognitive process, whereas the other patient’s score may be due to a neuropsychological processing problem, linguistic issue, etc. This level of perspective,

crucial to understanding the patient, would not be possible if the assessment did not include a neuropsychological component. In clinical practice, test scores would give us a much more complete understanding of the patient if they were interpreted and understood by the integration of several different forms of measurement, both neuropsychological and personality. With only a narrow pool of data, there is an increased likelihood of overlooking or overinterpreting something of importance. In short, we should not describe the elephant's tail after only examining its legs.

## THE NEUROPSYCHOLOGY OF PERSONALITY ASSESSMENT

In this section, I discuss the neuropsychological implications of traditional personality and behavioral assessment of children and adolescents. Generally speaking, the assessment of youth typically involves using interviews, behavior ratings, self-report measures, and projective techniques. All of these measurement techniques pose unique neuropsychological challenges for younger patients. Particularly relevant is the use of projective techniques, such as the Rorschach Inkblot Test (Exner, 2003). Among clinicians treating children and adolescents, the Rorschach remains one of the most commonly used means of assessing psychopathology and personality (Archer & Newsom, 2000). The test allows for the exploration of psychological resources, coping, affective style, and interpersonal resources and behavior (Acklin, 1990; Archer & Krishnamurthy, 1997; Exner, 2003; Exner & Weiner, 1995; Holaday, 2000; Stokes et al., 2003).

Interestingly, one of the first uses of the test, namely as a measure used to diagnose psychosis and other forms of thought disorder, may remain one of the test's greatest strengths (Hilsenroth, Fowler, Padawer, & Handler, 1997; Holaday, 2000; Ilonen et al., 1999; Kleiger, 1999; Smith, Baity, Knowles, & Hilsenroth, 2001; Stokes, Pogge, Grosso, & Zaccario, 2001; Wood, Nezworski, Lilienfeld, & Garb, 2003). Although the question remains as to how the Rorschach is able to assess these types of distorted cognitive functions, it seems fair to hypothesize that, on some level, the Rorschach is assessing neurocognitive functions such as cognitive organization, reasoning, working memory, and inhibition. Because the Rorschach represents a complex visuospatial stimulus that must be effectively organized and understood by patients, it presents a neuropsychological challenge of sorts. Certainly, any derailment in this organization process can result in a distorted Rorschach profile that may identify patients as psychotic or otherwise thought disordered. Without an appreciation of the patient's neuropsychological profile, clinicians may falsely conclude that the patient is more disturbed than is the case or that the disturbance is due to personality issues rather than physiological problems. In short, some patients just don't see the ink in the same way.

Self-report measures pose another neuropsychological challenge. At the most basic level, patients must possess the ability to read and interpret the test statements. Although many self-report measures for youth are written at a second-grade reading level, those with learning disabilities or other lexical processing issues might struggle with such measures. What might first appear as defensive responding, inattention to test items and other response styles that might be reflected in validity scales, may merely be the result of reading or comprehension issues. When children and adolescents have difficulty translating their thoughts and feelings into words, their ability to fully respond to self-report measures of personality or psychopathology may be compromised. Such children may respond to test items in a way that is overly concrete or idiosyncratic. For example, I once tested a child who responded "True" to a self-report item, "I often hear voices that others do not hear." When asked about this, he

responded, “When [my friend] whispers to me at school, the teacher can’t hear him, but I can.” Follow-up, clarification, and questioning are an integral part of good clinical practice.

Probably the most common form of assessing children and adolescents is the behavior rating scale (BRS; Cashel, 2002). The BRS offers the clinician several advantages, including ease of administration, scoring, and interpretation; cost effectiveness; speed; and convenience. It is important to note that the constructs purportedly measured by the BRS are generally psychological in nature. That is, if a child or adolescent is withdrawn and has flat affect, these might be codified as symptoms of depression. Similarly, if a child displays unusual stereotyped behavior and perseverative interests, these might be interpreted as signs of an autism-spectrum disorder. However, all of these symptoms are seen in patients with brain injury or other neurocognitive disorders. The distinction between “organic” and “psychiatric” may not be as useful as once thought (Semrud-Clikeman, Kamphaus, Teeter, & Vaughn, 1997), and clinicians need to be aware that the labels for the behavioral clusters assessed by behavior rating scales may be incomplete or misleading.

### **How Neuropsychology Can Inform Personality Assessment**

To briefly summarize these global ideas:

1. Not all brains are created equal, and some people just don’t see the ink in the same way. That is, depending on a person’s given profile of cognitive functions, the very stimulus used in personality assessment may have different meanings and functions. This is true for all forms of assessment, but may be particularly relevant for projective techniques such as the Rorschach.
2. Similarly, children and adolescents with limited verbal capacity, dyslexia, or an inability to recognize and label their internal experience may appear withdrawn, resistant, concrete, or inconsistent on self-report measures of personality. Children may be given psychopathology diagnoses, but they may be mislabeled because of cognitive problems that are not primarily psychiatric in origin.
3. Behavior rating scales are measures of behavior, not of psychopathology necessarily. Clinicians should be sensitive to the fact that the BRS assesses a wide array of child and adolescent functioning that might be “organic” rather than psychiatric or psychological in nature. Instead of relying on the labels that the test authors assign to individual scales, clinicians should concern themselves with the behaviors those scales measure and use alternative sources of data to determine etiology.
4. Brain injury or cognitive dysfunction leads to changes in personality and higher rates of psychopathology. Both children and adults who have sustained some type of cognitive insult (including prenatal events) are at risk for developing emotional and behavioral disorders. Again, what might be seen as a primarily psychological or psychiatric issue may be more neurocognitive in origin. Personality assessment alone may not accurately capture these types of issues.
5. Neurodevelopmental issues are important for assessment of youth of any age. When we assess children and adolescents, we are taking a snapshot of their position along a developmental continuum. The neurocognitive and, therefore, the psychological world of a child is constantly changing.
6. Cognitive capacities are important to an understanding of a person’s reality. That is, other things being equal, an individual with an IQ of 80 typically has a very different

experience of the world than does someone with an IQ of 120. In interpreting personality assessment results, we must always be mindful of such differences in subjective experience.

Overall, it appears as though neuropsychological functioning not only affects how we should interpret each score, but rather, the entire meaning of personality assessment stimuli and data is contingent upon the cognitive functioning of a patient. Different cognitive functions result in different interpretations of test stimuli, resulting in a different meaning of the entire assessment experience.

## THE PERSONALITY OF NEUROPSYCHOLOGY

The impact of different forms of assessment is not unidirectional, however. Although little research has examined the relationship of personality to neuropsychological test performance (Rosselli, Ardila, Lubomski, Murray, & King, 2001), a large body of work has examined the relationship of affect to neuropsychology. For example, it is commonly believed that patients who are depressed will score worse on measures of processing speed and visuomotor integration, such as Block Design (Wechsler, 2004). However, it is difficult to evaluate this literature, because most of it involves adult patients with head trauma (Kaufman, Grossman, & Kaufman, 1994; MacNiven & Finlayson, 1993; Ruttan & Heinrichs, 2003). In a review of this literature, Reitan & Wolfson (1997) concluded that “there seems to be strong evidence that emotional disorders do not directly cause poor neuropsychological test performance” (p. 8). They go on to suggest that when patients have elevated scores on measures of affective disturbance and neuropsychological impairment, it is the neuropsychological impairment that is causing the affective disturbance. Echoing these sentiments, a recent study of cocaine-abusing adults found that personality variables, as measured by the Personality Assessment Inventory (Morey, 1991), were not related to scores on neuropsychological tests (Rosselli et al., 2001). Yet recent research has implicated the role of affect in the neuropsychological test performance in children. For example, in a study of evoked emotion in young children, where positive, negative, and neutral emotions were evoked through the reading of stories, researchers found that those children who heard positive stories performed better on Block Design than did children in the neutral or negative conditions (Rader & Hughes, 2005).

Thus, it appears as though affective state may play a role in some forms of neuropsychological test performance. But affect does not equate with personality *per se*. A line of research is emerging in neuropsychology that seeks to understand the ecological validity of neuropsychological test scores (Wilson, 1993). That is, this work seeks to understand what types of real-world impairments can be predicted based on neuropsychological test scores. This work has shown that using neuropsychological and personality assessment test scores in concert allows clinicians to predict different aspects of impairment in patient behavior. For example, like previous researchers, Zillmer and Perry (1996) and Ready et al. (2001) found little relationship between neuropsychological measures and personality in a sample of college students. However, these researchers found that the two measurement types were significantly related to different aspects of patient behavior. Specifically, neuropsychological test results predicted work and school achievement behaviors, whereas personality assessment measures predicted risk-taking, substance abuse, and aggression. They concluded that their results “highlight the importance of including personality measures in standard neuropsychological assessment in order to maximize predictive validity of external behaviors” (p. 320).

Although we can conclude that administering both personality and neuropsychological measures will improve the content and ecological validity of our assessment (Ready et al., 2001; Wilson, 1993), no research to date has explored how different personality characteristics affect a child or adolescent's performance on measures of neuropsychology. We know from clinical experience that a child's motivation, engagement, degree of perseverance, and frustration tolerance, all variables related to personality, are important to test performance. Although we have little research to draw on at this point, we can conclude that neuropsychologists should be watchful for affective, motivational, and dispositional variables that might affect the quality and nature of their test results. Thus, personality exerts a substantial impact on how test scores are interpreted and understood as part of a battery.

### **How Personality Assessment Can Inform Neuropsychology**

In the same way that neuropsychological assessment can inform personality assessment, personality assessment can add much to a neuropsychological test battery. For example:

1. A child or adolescent who is unmotivated, oppositional, depressed, anxious, or fearful is not an optimal neuropsychological testing patient. Although perhaps such a consideration is obvious, the clinician must consider the role of the youth's internal state as he or she attempts to solve complex neuropsychological problems. In addition to these psychological states, personality traits, such as an overly introverted interpersonal style, poor frustration tolerance, and neediness, can change the extent to which the child is able to fully engage with the test materials and the examiner.
2. Neuropsychological test scores alone can only tell us about some forms of real-world behavior. The overall picture of the child's or adolescent's day-to-day functioning is broadened by a consideration of affective, interpersonal, and intrapsychic variables as well. Personality assessment adds more predictive validity to the evaluation.
3. Personality assessment allows us to assess how a child or adolescent might be coping with cognitive issues. Research shows that children with learning disabilities suffer with significant issues of self-esteem and poor self-image (Martinez & Semrud-Clikeman, 2004). By coupling personality assessment with neuropsychological evaluations, clinicians can evaluate not only the presence of significant cognitive issues, but also their consequences for the child's internal world.

### **INTEGRATING NEUROPSYCHOLOGY AND PERSONALITY ASSESSMENT**

From this discussion, we can conclude that not all test scores are created equal. One patient's scores may be interpreted quite differently than another patient's scores, depending on neuropsychological or personality factors. I am advocating a somewhat ideographic approach where nomothetic scores are made relevant for each child by the incorporation of interpretation based on all factors, both personality-based and neurocognitive. From the above discussion, it appears as though there are two ways in which the complexity of a child's cognitive and personality profile may result in differences in the way we understand a particular test score. First, personality affects neuropsychology at the level of interpretation. That is, motivation, affect, perseverance, and other personality variables primarily influence how we *interpret* scores on measures of neuropsychology. For example, affective dysregulation



might affect scores on timed measures, or transient feeling states and motivation might distort “true” ability.

The second level at which we must consider the interaction between test scores is at the level of *meaning*. This level is far more fundamental than mere interpretation and relates primarily to the way in which neuropsychological functions affect personality assessment. Neuropsychological issues alter the patient’s fundamental ability to understand him- or herself, express his or her thoughts and feelings, and interact with the test stimuli. For example, poor left hemisphere (linguistic) functioning may result in an inability to effectively describe or capture internal experience. Similarly, differences in cognitive functioning may alter a child’s or adolescent’s understanding and experience of the very meaning of being evaluated. Therefore, although personality assessment may change the way we think of a particular test score, neuropsychology suggests that the entire meaning of a test or a testing experience may be slightly (or radically) different for each patient. Without a full assessment of both neurocognitive and personality factors, a clinician is only seeing one part of the elephant, and important information may be overlooked or underinterpreted.

### *Case Study: Jessica*

Jessica is a 10-year-old Caucasian girl referred for a comprehensive neuropsychological and personality assessment by her treating psychiatrist. Questions remained as to Jessica’s diagnosis, although she was being aggressively treated pharmacologically for bipolar disorder. Jessica achieved her developmental milestones on time and even talked a little earlier than average. She showed some difficulty in learning how to ride a bike, and her parents described her as “clumsy.” She attended a private school and was doing well academically in fourth grade, but she had a history of poor social interactions and disruptive behavior in the classroom. Both Jessica and her parents report that she had a history of explosive and unmodulated affect: “Sometimes she just flies off the handle.” She was also known as being “hard to discipline” and aggressive toward her younger siblings.

At the time that I saw her, Jessica was taking a mood stabilizer (Depakote), an antipsychotic (Seroquel), and an anxiolytic (Buspar). Interpersonally, she was somewhat distant and hard to reach. She was oppositional with a female psychometrician but subdued with me. She displayed very poor eye contact and seemed uninterested in the normal give-and-take of social interactions. Specifically, she would speak for extended periods of time on seemingly unrelated topics and would ignore me when I asked questions or tried to redirect her.

The assessment plan called for a full neuropsychological battery and personality assessment. To assess personality, Jessica was administered the Rorschach and the Personality Inventory for Youth (PIY, a 270-item self-report measure for children and adolescents; Lachar & Gruber, 1995). These personality assessment results, shown in Table 3.2, paint a picture of Jessica as a child who may have some serious perceptual and cognitive issues (as indicated by Rorschach scores of unusual perception and distorted cognition, e.g., PTI, Xu%, and FAB2). Her Rorschach scores, which reflected no use of texture (T) and whole human percepts [H:(H)], are congruent with her self-report of poor social skills on the PIY (e.g., Social Introversion, Feelings of Alienation). Certainly this profile of scores alone might begin to suggest some type of serious mental illness, such as bipolar or psychosis. Were we to have stopped at this point in the assessment, these might have been some of the conclusions we would have tentatively drawn.

**TABLE 3.2.**  
Jessica's Personality Assessment Scores

<i>Rorschach</i>	<i>Score</i>
R	24
Lambda	.8
EA	7, extratensive
D, adjusted D	0, 0
T	0
M	3
FM	5
PTI	4
X+%, Xu%, X-%	35, 50, 15
FAB2	3
H: (H)	0:4
<i>Personality Inventory for Youth</i>	<i>T-score</i>
Noncompliance	65
Feelings of alienation	67
Social introversion	58
Social skill deficit	71
Limited peer status	61

*Note.* T-scores have a mean of 50, with a standard deviation of 10.

However, I also administered neuropsychological tests for a full investigation of global cognitive functioning, achievement, visual-motor processing, and executive functions. To assess global cognitive functioning, I administered the Differential Ability Scales (DAS; Elliot, 1990). The Cognitive Battery of the DAS is organized into a set of core subtests that yield a General Conceptual Ability (GCA) score, as well as Verbal, Nonverbal Reasoning, and Spatial Cluster Scores. Although these scores are not identical to IQ scores from the WISC-IV (Wechsler, 2004), they are reasonably comparable to (and correlate highly with) such measures, inasmuch as they are normed with the same scale (i.e., mean of 100 and standard deviation of 15) and test similar content areas. The GCA can be compared with a Full Scale IQ score, whereas the Verbal, Nonverbal, and Spatial Clusters can be compared with Verbal and Performance IQ, respectively (with Performance IQ component analogs further subdivided between those that explicitly require spatial processing and those that do not).

Second, I administered the Wechsler Individual Achievement Test (2nd Edition; Wechsler, 2002) to examine Jessica's profile of academic strengths and weaknesses. A substantial portion of Jessica's evaluation, however, was spent on assessments of executive functions such as attention, abstraction, inhibition, and set switching. For example, she completed the Wisconsin Card Sorting Test (WCST; Heaton, Chelune, Talley, Kay, & Curtiss, 1993), a measure of abstract concept formation and ability to change cognitive set based on environmental feedback, and the Stroop Color-Word Test (Golden, 1978), a test of the patient's ability to inhibit prepotent cognitive responses. Jessica also completed the computerized Conners' Continuous Performance Test (Epstein et al., 2003), a measure of sustained attention and distractibility. Last, Jessica completed two measures of visual-motor processing, including the Beery-Buktenica Developmental Test of Visual-Motor Integration (VMI; Beery, 1997) and

the Rey-Osterrieth Complex Figure (Osterrieth, 1944; Waber & Holmes, 1985). These two latter measures assess the patient's ability to copy complex geometric shapes and designs.

Results of neuropsychological tests, listed in Table 3.3, indicate that Jessica is functioning in the Low Average range of psychometric intelligence. With relatively intact executive functions (e.g., Wisconsin Card Sorting Test, Conners' CPT, and Stroop) and achievement mechanics (i.e., Numerical Operations, Spelling, and Word Reading), Jessica has some very specific areas of deficit: nonverbal and spatial reasoning (e.g., DAS Nonverbal Ability Cluster), academic comprehension (i.e., Mathematics Reasoning and Reading Comprehension), and visual-motor processing (i.e., Beery VMI and Rey Copy).

These deficits seem to implicate a right-hemisphere disorder that limits her visuospatial integration and nonverbal reasoning and comprehension. This profile, in addition to her reported social difficulties, is suggestive of a neuropsychological condition such as a nonverbal learning disability (NLD; Rourke, 1989). Children with NLD often have difficulty understanding nonverbal information and communication. They appear socially odd and have pronounced difficulties with comprehension, organization, and visuospatial processing. The understanding and expression of affect may present particular difficulties. Jessica's history and profile of neuropsychological test scores are certainly suggestive of this type of dysfunction.

Now let us revisit her personality assessment scores. The self-report PIY results are consistent with the social deficits seen in children with NLD and thus add some support for that diagnosis. However, the results of the neuropsychological testing recast the Rorschach results in a somewhat different light. Specifically, some of the perceptual distortion seen on the Rorschach may be due to difficulties processing the Rorschach as a visuospatial image. That is, as a visuospatial stimulus, Jessica's perception of the blots may be somewhat unusual compared with others her age. In the same way that she had difficulty organizing the Rey

**TABLE 3.3.**  
Jessica's Neuropsychological Test Scores

<i>Global cognitive ability</i>		<i>Achievement test results</i>	
Differential ability scales	<i>Standard scores</i>	Wechsler individual achievement test-II	<i>Standard Scores</i>
General conceptual ability	87	Numerical operations	115
Verbal ability cluster	105	Spelling	128
Nonverbal ability cluster	85	Word reading	127
Spatial ability cluster	78	Mathematics reasoning	77
		Reading comprehension	75
<i>Executive functioning</i>		<i>Visual-motor functioning</i>	
Wisconsin card sorting test			<i>Standard Scores</i>
Error standard score	106	Beery VMI	35
Conners' CPT		Rey complex figure copy	55
Clinical confidence index	35%		
Stroop color-word test	<i>Standard scores</i>		
Word	88		
Color	86		
Color-word	89		

*Note.* All standard scores have a mean of 100, with a standard deviation of 15.

Complex Figure and solving nonverbal and spatial tasks, Jessica's basic ability to process the Rorschach stimulus appears to be weak.

Therefore, although an examination of personality assessment scores alone would have forced us to conclude that Jessica's perceptions of reality are distorted such that she may be psychotic or have poor reality testing, the addition of neuropsychological test data confirms that Jessica's cognitive processing is distorted, but that it may be distorted because of neuropsychological rather than psychiatric processes. The difference in these interpretations is important from the perspective of labeling and treatment in that treatment for NLD usually consists of social skills training, occupational therapy, and academic supports—a program that is very different from what would be implemented for Jessica were she to be labeled psychotic.

### **SUGGESTIONS FOR CLINICAL PRACTICE**

Some suggestions for clinicians evaluating children can be made based on the above discussion:

#### **A. Conduct a comprehensive history interview**

When patients are referred for an evaluation of psychological functioning, clinicians should be sure to conduct a full review of their medical and neuropsychological history. Although most clinicians will include these types of questions in their evaluations, this type of information should be used to help guide personality test interpretation. Questions that might be relevant include the following:

- a. Has the child repeated grades? Are there any problems with reading or reading comprehension? Learning disabilities? What types of relationships does he or she have with teachers?
- b. Has the child ever been knocked unconscious?
- c. Were developmental milestones achieved on time?
- d. Did the child have trouble learning how to ride a bicycle? Walk down/up stairs? Tie his or her shoes? Drink through a straw? Is the child clumsy or uncoordinated? Is he or she right or left handed?
- e. When was the child's most recent medical checkup? Vision screening? Hearing test?
- f. Has the child had any significant illnesses? Hospitalizations? Surgeries?

Similarly, clinicians should be aware of any family history of neuropsychological illness, degenerative disease, psychosis, or learning disabilities. It is also important to assess for any parental history of alcohol or drug abuse, so that prenatal toxicity can be ruled out.

#### **B. Regardless of the reason for referral, plan a battery with both cognitive and personality elements**

Understandably, conducting lengthy batteries of cognitive and personality assessment presents a clinical challenge, especially given the atmosphere of managed mental health care, which may make pursuing reimbursement for such services difficult or unlikely (Cashel,

2002; Piotrowski, 1999). However, the validity of an assessment is improved by more points of data that can be increased by the addition of even slightly more assessment (Meyer, 2002). A narrow perspective in an evaluation can lead to premature conclusions that reduce the effectiveness and usefulness of the testing.

For clinicians assessing for cognitive and educational concerns, the addition of an omnibus self-report measure of personality and a guardian-completed behavior rating scale will provide important information without adding too much time or effort. Such measures can be used to screen for more substantial issues that might require further assessment using additional measures and behavior-based (projective) assessment. Even the initial self-report and behavioral measures can be used to augment and aid in the interpretation of cognitive, neuropsychological, and educational assessments by allowing the clinician to assess for pathological issues related to depression and anxiety. Moreover, the assessment of the child's personality will allow the clinician to evaluate such characteristics as frustration tolerance, relationships with authority, social skills, and oppositionality, all of which might substantially affect the interpretation of the obtained cognitive test scores.

Similarly, for clinicians conducting assessment of personality and affective functioning, some measure of cognitive functioning is recommended. Although recent surveys have suggested that most child and adolescent clinicians do this as part of their practice (Archer & Newsom, 2000; Cashel, 2002), it is important to emphasize the importance of a cognitive screen in the interpretation of personality assessment measures. A measure of global cognitive functioning (IQ) seems like an appropriate addition to any assessment of personality or psychopathology and will allow clinicians to more fully characterize and understand the relationship the patient may have with his or her environment. The recent development of shorter measures of IQ (e.g., Wechsler Abbreviated Scale of Intelligence; Wechsler, 1999) makes such a cognitive screen less time consuming. Moreover, such an analysis will allow the clinician to fully determine whether the patient has adequate ability to process the test stimuli, read the test items, and adequately formulate responses. If there are significant signs from cognitive testing (such as a large discrepancy between verbal and nonverbal reasoning), this might be an indication that further testing is needed.

### **C. Observe behavior**

Clinicians conducting assessments should be sensitive to the child's or adolescent's motivation, engagement in the tasks, and receptivity to the assessment process. A child who lacks motivation or is oppositional with the evaluator will produce a profile of scores that is not reflective of his true ability or functioning. Like all testing data, observations can and should shape the way in which test scores are interpreted.

### **D. Balance ideographics with nomothetics**

Modern psychological and neuropsychological assessment allows us to assume a nomothetic approach to understanding patient functioning. That is, by using normative databases and making comparisons with a normative sample, we can determine whether patient functioning significantly deviates from the norm. From these deviations (or lack thereof), we are able to make interpretations about personality characteristics, psychopathology, neurocognitive functions, learning disabilities, etc. But, as the above discussion argues, a purely nomothetic approach to understanding test scores may be somewhat misleading, given each patient's unique profile of test scores. If personality partly determines how we interpret

neuropsychological test scores and if neuropsychology partly determines how patients make meaning of the personality measures, then we must be aware of these issues and make the effort to interpret tests accordingly. The art of assessment lies in the intersection of the clinician, patient, and test score.

## SUMMARY

Although neuropsychological assessment and personality assessment are seemingly distant fields in terms of training models, research base, and clinical orientation, both use the tools and procedures of assessment and measurement to more fully understand patient functioning. Despite a reliance on the psychometric method, there is little available research that can be drawn on to specifically examine how these forms of assessment can be meaningfully integrated. I have attempted to outline thoughts and ideas related to the integration of neuropsychology and personality assessment in clinical practice with children and adolescents. From my perspective, the integration of these measurement techniques occurs at the level of interpretation (the effect of personality on neuropsychological measurement) and the deeper level of meaning (the effect of neuropsychology on personality assessment). When done well, integration of neuropsychological and personality assessment results yields a more complex and comprehensive picture of patient functioning that can significantly alter how we understand our patients. To do less runs the risk of drawing conclusions about only one part of the elephant.

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