

# How to Read, Understand and Use Psychoeducational Reports

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This document is designed to enable teachers, counsellors, and other professionals to read, understand, and apply the information available in psychoeducational reports. It will also sensitize teachers and counsellors to the elements of a *quality* psychoeducational assessment, to be informed consumers with the ability to discriminate high quality from low quality reports, and to effectively use the information in thorough, quality assessments.

## What is psychoeducational assessment?

Psychoeducational assessment provides estimates of the client's intellectual, or cognitive, abilities and educational achievement levels. It also yields recommendations relevant for educational planning. Sources of assessment data include background information, educational history and records and data from tests of intelligence and educational achievement, and, at times, ratings tests of attention, behaviour/emotions and adaptive behaviour. Psychoeducational assessment is designed to answer these questions: *Does the client have a learning disability(ies)? Mental retardation? Attentional problems? What are the client's academic and cognitive abilities, strengths and weaknesses? What are appropriate educational recommendations? Accommodations?* While learning, not emotional problems, is the focus of psychoeducational assessment, behaviour/emotional and medical issues may need to be addressed in psychoeducational assessment. Compiling, integrating, and analyzing all assessment data yields educational and other relevant recommendations. Though the formats of psychoeducational reports vary, most assessments include certain basic components. A psychoeducational report is a type of psychological report that focuses on assessment and interpretation of educationally related psychological tests and educational tests, including tests of intelligence and cognitive abilities, achievement tests, and tests of behaviour and attention.

## Intelligence Tests

Intelligence tests are commonly referred to as IQ tests. The most common IQ tests in current use are the Wechsler intelligence scales (Information on the tests and ratings forms discussed in this chapter was gleaned from McGrew and Woodcock, 2000, Overton, 2000, and Sattler, 1988). The Wechsler Adult Intelligence Scale -III (WAIS-III) was published in 1997 by Psychological Corporation and is appropriate for ages 16 through 89. There are also child and preschool versions of the Wechsler scales. The Wechsler scales yield:

- Full Scale Intelligence Quotient (IQ): overall, composite measure of intelligence
- Verbal IQ: estimate of verbal comprehension and expression
- Performance IQ: estimate of visual-spatial reasoning

Supplementary Measures of Cognitive Abilities In addition, there are supplementary indexes that include measures of Verbal Comprehension, Perceptual Organization, Processing Speed (a measure of information processing speed) and Working Memory (a measure of short term memory and attention). Other adult intelligence scales include

- Stanford Binet Intelligence Scale, Fourth Edition, ages 3 to 23 (Riverside Publishing Company) Kaufman Adolescent and Adult Intelligence Test, ages 11 to 85 (American Guidance Service)
- Woodcock Johnson III (WJIII) Tests of Cognitive Ability, ages 2 to 90 (Riverside Publishing Company)

The WJIII is a newly published revision (2001) of the Woodcock Johnson Revised (WJR) Tests of Cognitive Ability. It provides subtest and composite scores in several areas of cognitive ability. Some experts (see McGrew & Flanagan, 1998) consider the Woodcock-Johnson batteries to provide the most sound, research-based measures of intelligence and its components. Extensive factor analytic studies provide support for the ways in which the WJIII defines and measures intelligence and its subcomponents. Though many state departments of education and other agencies do not yet recognize the WJIII as an overall measure of IQ, many do recognize its value in providing supplemental information about important cognitive processing abilities, important in the diagnosis of learning disabilities. In addition to an overall "IQ", the WJIII (and WJR) yields measures of these abilities: Auditory Processing - discrimination, analysis and synthesis of auditory stimuli; perception and discrimination of speech sounds despite interfering background noise

- Phonemic Awareness - manipulation, analysis and synthesis of discrete sounds
- Visual Processing - (includes visual memory) perception, analysis and synthesis of visual stimuli; storage and memory of visually presented stimuli; mental manipulation of visual patterns
- Long Term Retrieval/Memory - storage and retention of information with ability to retrieve it at a later time
- Short Term Memory - processing and holding auditory information in awareness, then manipulating it within a few seconds
- Processing Speed - rapid cognitive processing without higher order thinking; attentiveness and fluency of simple information processing
- Verbal Reasoning - reasoning and comprehension using language, verbal expression, vocabulary
- General Information/Knowledge - acquired knowledge, long-term memory
- Fluid Reasoning - inductive and deductive reasoning, problem solving and concept formation on novel tasks that are nonverbal or limited in language demands
- Quantitative Ability - understanding mathematical concepts and relations

Often implicated in learning disabilities are the areas of auditory processing, phonemic awareness, processing speed, short-term memory, and long term retrieval. Because "traditional" IQ tests yield measures of only some of the above abilities, a good psychoeducational assessment should supplement a "traditional" IQ measure such as the Wechsler or Binet with additional measures from the Woodcock or other batteries. This practice of using measures from different tests to assess the various areas of cognitive functioning is referred to as *cross battery assessment*.

### **Educational / Achievement Tests**

Educational testing, typically norm referenced achievement testing, is an important component of psychoeducational assessment. Assessment of achievement is an important part of assessment to rule

out/diagnose learning disabilities and mental retardation. In addition, attention problems are often related to achievement problems. In most cases, poor achievement is what triggers the referral for assessment. Learning disabilities are a *pattern* of scores representing unevenness in intellectual and academic abilities and skills. While all people have some strengths and weaknesses (e.g., stronger in quantitative than verbal skills), a person with learning disabilities has *significant* variability in both intellectual/cognitive abilities and related academic variability. The most common example is reading disabilities. These are usually associated with deficits in auditory processing; processing speed, and/or phonemic awareness but the essential component is unexpectedly weak reading skills. Mental retardation is typically defined as significantly sub-average intellectual/cognitive functioning (approximately two standard deviations below the mean) *and* significantly weak adaptive behaviour. Though some states do not specify the levels of academic achievement required for someone to be identified as having mental retardation, it is understood that achievement is generally subaverage as well.

Most individual norm-referenced achievement tests are designed for a wide age span (often preschool through high school) and cover the basic academic areas of reading, mathematics, and written language. Sometimes oral language is also assessed. Federal law defines the seven areas of learning disability as

- Basic Reading (includes phonetic decoding and sight word recognition)
- Reading Comprehension;
- Mathematics Calculation;
- Mathematics Reasoning;
- Written Expression (includes basic writing skills, spelling, and composition)
- Oral Expression
- Listening Comprehension

There are many individual achievement tests commercially available; however only a few are normed on adult populations. Two of the most common in use with adults include:

- Woodcock Johnson III Tests of Achievement (a revision of the WJR Tests of Achievement) ages 2 to 90, very comprehensive, provides multiple measures of reading, mathematics, written expression, and language (Riverside Publishing Company)
- Wide Range Achievement Test, III (WRAT-III) ages 5 to 75, screening test only, provides one measure each of reading, mathematics, and writing (Jastak)

In ruling out learning disabilities, it is important to thoroughly assess each area of suspected disability or difficulty. In addition, some assessment in the area(s) of suspected strength is useful in making comparisons and determining patterns of strength and weakness. Because reading disabilities are the most common type of learning disability and because problems in phonological skills are common in almost 90% of all reading disabilities (Lyon, 1996) it is critical to obtain a measure of phonetic decoding or word attack skills. Of the tests listed above, only the WJIII has a separate, strong measure of phonetic decoding. Screening tests such as the WRAT-III can be useful as screening instruments. However, brief screening measures should not be used to rule out learning disabilities because they do not provide thorough, comprehensive measures of the various components of reading, writing, and

language.

### **Measures of Adaptive Behaviour**

State and federal laws require that a measure of adaptive behaviour (i.e., domestic, daily living, social and functional academic and communication skills) must be obtained in making a diagnosis of Mental Retardation. Commonly used measures of adaptive behaviour include:

- Vineland Scales of Adaptive Behaviour, Survey Form and Expanded Form, Newborn to age 18-11 with separate norms for adults with mental retardation (American Guidance Service)
- Scales of Independent Behaviour-Revised, infants through adults, includes a long and short form (Riverside Publishing Company)

### **Tests and Ratings of Attention**

There is no single test for Attention Deficit Hyperactivity Disorder (ADHD). However, there are several behaviour ratings and computerized tests of attention; most provide measures of hyperactivity-impulsivity and inattentiveness. Some commonly used measures include (note: the following attention ratings forms and tests are available from ADD Warehouse):

#### Behaviour Ratings

- Conners Adult ADHD Rating Scales, ages 18 through 50 "or older"
- Attention-Deficit Scales for Adults
- Brown Attention-Deficit Disorder Scales, Adult Version
- Adult Version Copeland Symptom
- Checklist for Attention Deficit Disorders, Adult Version

#### Computerized Tests of Attention

- Conners Continuous Performance Test, ages 6 through adult
- Tests of Variables of Attention, ages 4 through 80
- Gordon Diagnostic System, children and adults
- Integrated Visual and Auditory Continuous Performance Test (IVA), ages 5 through adult

### **Behaviour Ratings and Reviews of Other Reports**

Finally, results of emotional/behaviour ratings and reviews of other reports may be included.

Psychoeducational testing typically does not include extensive personality, behaviour, or projective testing (e.g., Rorschach) because learning is the focus of psychoeducational testing. However, referral for more clinically oriented psychological testing may be made if indicated by assessment data.

### **Who can perform a psychoeducational assessment?**

In Tennessee, psychoeducational assessment can be performed by school psychologists, as licensed by the State Department of Education, and by psychologists and psychological examiners, licensed by the Health Related Boards. While psychologists and psychological examiners in most specialty areas of psychology have some training in assessment, persons with training in school psychology typically receive *extensive* training in educationally relevant assessment and in relating assessment to

instruction. In selecting psychologists or other professionals to perform assessment, it is important to ascertain if the professional has specific training and expertise in psychoeducational assessment, particularly assessment of learning disabilities and other learning-related disorders.

### **What are the components of a good psychoeducational assessment?**

- Referral Question(s)
- Referral Source
- Background Information
- Assessment Procedures
- Relevant Test Procedures
- Assessment Results
- Interpretation of Results
- Summary and Recommendations

#### **Referral Question:**

First, it is important to identify the referral question. Why is the client being referred? For our purposes, the most common reason is to rule out a learning disability. However, there are rival explanations for a client's poor progress, including attentional problems, emotional problems, low overall ability (i.e., low average or borderline intellectual ability) and mental retardation. In some cases, the referral question may not be explicitly stated; nonetheless, the question determines the specific areas to be included in assessment.

#### **Referral Source:**

Who referred the client for assessment?

#### **Background Information:**

Educational history, current educational services or status, educational goals, results of any screening instruments (e.g., brief IQ or achievement tests) and social and medical history should be reported here. Especially relevant is educational history. Any available scores on school or classroom administered standardized or informal tests and information about classroom performance (e.g., "has difficulty spelling commonly used words") should also be included. Background information may be gleaned from records, screening tests, questionnaires, checklists and interviews with the client and relevant professionals (e.g., teacher, counselor).

#### **Assessment Procedures:**

All sources of information should be listed; all assessment procedures should be listed. These include any and all formal and informal tests, questionnaires, and any other assessments performed by the examiner. In addition, interviews, record reviews, and any and all other sources of data are listed here. Assessment procedures are determined by the referral question and by data gathered during assessment. For a learning disability, state and federal guidelines must be followed. Assessment for learning disabilities requires administration of:

- Individually administered full length IQ test
- Individually administered achievement test with multiple measures of reading, writing,

- mathematics, and, sometimes, language
- Additional cognitive testing in areas not addressed by the IQ test (e.g., auditory/ phonological processing, long term retrieval and retention)

In addition, if attentional problems are indicated in history, interview, and/or assessment, additional assessment should include rating scales to assess Attention Deficit/Hyperactivity Disorder and/or a computerized test of attention. Finally, if low borderline or mentally deficient intellectual functioning is indicated, additional assessment must include a measure(s) of adaptive behaviour.

**Relevant Test Behaviours:**

In this section, information impacting rapport and the actual testing itself are reported. For example, the client's timeliness for the session, demeanor, attention span, work habits, affect, motivation, energy level, talkativeness, and any other potentially relevant characteristics should be described here *in objective, nonjudgmental terms*. Unusual habits or mannerisms should be described. Wearing eyeglasses or contacts, use of a hearing aid, frequent requests to have items repeated, handedness, and requests for frequent breaks should be reported.

**Assessment Results:**

Test results should be reported in terms of standard scores and percentiles. In some cases, grade equivalents are also appropriate.

Standard Score has a predetermined mean and standard deviation (in most cases, 100 is the mean and 15 is the standard deviation). These scores can be added and subtracted for comparison purposes. For scores with a mean of 100 and standard deviation of 15, the following classification categories are typically used:

130 & above:	Very Superior
120-129	Superior
110-119	High Average
90-109	Average (BELL CURVE GOES HERE)
80-89	Low Average
70-79	Borderline

Percentile: A score that represents a person's rank, ranges from 1 to 99. A score at the 50th percentile means the client's score was equal to or better than 50% of those on whom the test was normed.

Grade Equivalent: A rough approximation of the client's level of functioning in a given academic area. Technically, a grade equivalent score is average of the raw scores that were obtained by persons in the norming sample in a given grade.

**Interpretation of Results:**

The results should be interpreted and integrated in a meaningful way for the reader. Global scores (e.g., full scale IQ scores, composite scores on achievement tests) should be discussed first with more specific information (i.e., composite or scale scores and individual subtest scores) to follow. The client's *interindividual* strengths and weaknesses (that is, his/her performance as compared to others') and the client's *intraindividual* strengths and weaknesses (his/her performance in some areas relative to



others) should be discussed. A learning disability exists when the client has some *intraindividual* strengths and weaknesses; that is, some high ability and achievement areas and some low ability and achievement areas. For example, a client with a reading disability may have average or better overall intelligence but weaknesses on processing speed and auditory processing cognitive tasks combined with strengths in mathematics and weaknesses in reading. Comparisons of this type should be made in the interpretation section of the report. Some reports include a separate *interpretation* section while others include interpretation with the reporting of the scores.

**Note:**

Many states use a *Standard Score Discrepancy Model* to determine the presence of a learning disability. Specifically, the client's IQ score is compared to one or more achievement test scores. If there is a *significant discrepancy* between the two, then the client is said to have a learning disability. Some states require the discrepancy to be more than one standard deviation (i.e., more than 15 points) to be considered significant. Other states require a larger discrepancy (e.g., more than 1.5 standard deviations, which would be more than 22.5 points). Still other states do not use a discrepancy formula to determine learning disabilities. Some use a *regression* formula. There are several variations of the regression formula but they all are designed to determine if a significant difference between IQ and achievement exists. Regression formulas take into account the correlation between IQ and achievement and base determination of a significant difference on achievement test scores, which are *predicted* by the examinee's IQ score. As IQ scores get further from the average, the associated predicted achievement scores get closer, or *regress* toward the mean. The result is that it is statistically more rare for a person with an IQ below the average to have a 15 point difference between IQ and achievement than it is for a person with an IQ above the mean. Regression formulas for determining discrepancies correct for this statistical problem.

**Summary and Recommendations:**

This is perhaps the most important part of the report, and, unfortunately, where many reports fall short. Examiners with appropriate educational background and experience should produce well-founded recommendations, especially instructional recommendations. A succinct summary of the most relevant background and assessment information should be followed by a clearly stated diagnosis (es). Next should follow specific instructional recommendations. The assessment data should yield educationally relevant suggestions. For example, clients with reading disabilities may need sequenced instruction with a heavy emphasis on phonological skills. Another client with slow processing speed might benefit from timed drills in math facts to increase speed of math fact recall/retrieval. Other types of recommendations may include accommodations such as extended time, audiotaped presentations of reading material, shortening or modifying format of assignments, and breaking large tasks into smaller ones. In addition to educational recommendations, recommendations for further assessment (e.g., medical testing) and other services (e.g., psychological counselling or therapy) may be appropriate. In some cases, assessment may indicate the client does not appear capable of performing at a level consistent with meeting current goals (e.g., passing the GED). Recommendations for counselling and seeking alternative services would thus be appropriate.

**Educational Recommendations for Common Cognitive and Academic Weaknesses**  
**Compiled by Sherry Mee Bell, Ph.D.**

Based on Mather, N. "Interpretation of the WJ-R Cognitive and Achievement Batteries, Workshop presented to Knox County Schools, October 1999

Cognitive Ability	Common Academic Weaknesses	Recommendations for Weakness in This Area
<p><b>Long Term Retrieval</b></p> <ul style="list-style-type: none"> <li>• Storage and retention of information;</li> <li>• Ability to retrieve and use previously stored information</li> </ul>	<ul style="list-style-type: none"> <li>• Basic Reading Skills</li> <li>• Reading Comprehension</li> <li>• Written Expression</li> </ul>	<ul style="list-style-type: none"> <li>• Review, repeat</li> <li>• Multisensory teaching/learning strategies</li> <li>• Provide <b>meaning</b></li> <li>• Limit amount of new information</li> </ul>
<p><b>Auditory Processing</b></p> <ul style="list-style-type: none"> <li>• Discrimination, analysis, and synthesis of auditory stimuli</li> <li>• Auditory attention, perception and discrimination despite background noise</li> </ul>	<ul style="list-style-type: none"> <li>• Basic Reading Skills</li> <li>• Written Expression</li> </ul>	<ul style="list-style-type: none"> <li>• Provide multisensory learning</li> <li>• Provide class notes and study guides</li> <li>• Use visual aids and graphic organizers</li> <li>• Use semantic or mental mapping techniques</li> </ul>
<p><b>Phonemic Awareness</b></p> <ul style="list-style-type: none"> <li>• Manipulation, analysis and synthesis of discrete sounds</li> </ul>	<ul style="list-style-type: none"> <li>• Basic Reading Skills</li> <li>• Spelling</li> <li>• Written Expression</li> <li>• Basic Writing Skills</li> </ul>	<ul style="list-style-type: none"> <li>• Teach phonemic awareness</li> <li>• Teach basic phonics rules</li> <li>• Teach spelling with reading</li> <li>• Emphasize patterns in words to be learned</li> </ul>
<p><b>Visual Processing</b></p> <ul style="list-style-type: none"> <li>• Perception, analysis and synthesis of visual stimuli</li> <li>• Storage and memory of visual</li> </ul>	<ul style="list-style-type: none"> <li>• Not strongly related to achievement</li> </ul>	<ul style="list-style-type: none"> <li>• Use manipulatives</li> <li>• Teach verbal mediation of visual/spatial skills</li> </ul>



stimuli		
<p><b>Short Term Memory (Auditory)</b></p> <ul style="list-style-type: none"> <li>• Processing and holding auditory stimuli in awareness</li> <li>• Manipulating/using it within a few seconds</li> </ul>	<ul style="list-style-type: none"> <li>• Basic Reading Skills</li> <li>• Reading comprehension</li> <li>• Math Reasoning</li> </ul>	<ul style="list-style-type: none"> <li>• Review and repeat</li> <li>• Teach memory strategies</li> <li>• Keep directions short</li> <li>• Provide class notes</li> <li>• Use audiotape recorder to record class notes</li> </ul>
<p><b>Processing Speed</b></p> <ul style="list-style-type: none"> <li>• Rapid cognitive processing without higher order thinking</li> <li>• Attentiveness and fluency in processing</li> </ul>	<ul style="list-style-type: none"> <li>• Basic Reading Skills</li> <li>• Written Expression</li> <li>• Math Calculation</li> </ul>	<ul style="list-style-type: none"> <li>• Provide extended time</li> <li>• Emphasize quality over quantity in assignments</li> <li>• Use flash cards and timed drills</li> <li>• Teach skills to automaticity</li> </ul>
<p><b>Verbal Reasoning</b></p> <ul style="list-style-type: none"> <li>• Reasoning and comprehension using language</li> <li>• Verbal Expression</li> <li>• Vocabulary</li> </ul>	<ul style="list-style-type: none"> <li>• Basic Reading Skills</li> <li>• Reading Comprehension</li> <li>• Written Expression</li> <li>• Math Reasoning</li> </ul>	<ul style="list-style-type: none"> <li>• Teach vocabulary</li> <li>• Relate new information to already learned information</li> <li>• Provide context and background</li> </ul>
<p><b>General Information and Knowledge</b></p> <ul style="list-style-type: none"> <li>• Acquired knowledge</li> <li>• Long term memory</li> </ul>	<ul style="list-style-type: none"> <li>• Basic Reading Skills</li> <li>• Reading Comprehension</li> <li>• Written Expression</li> <li>• Math</li> </ul>	<ul style="list-style-type: none"> <li>• Teach vocabulary</li> <li>• Relate new information to already learned information</li> <li>• Provide context and background</li> <li>• Relate material to be learned to student interests</li> </ul>

	<ul style="list-style-type: none"> <li>Calculation</li> <li>Math Reasoning</li> </ul>	and experiences
<b>Fluid Reasoning</b> <ul style="list-style-type: none"> <li>Inductive and deductive reasoning</li> <li>Problem Solving on novel tasks</li> </ul>	<ul style="list-style-type: none"> <li>Reading Comprehension</li> <li>Written Expression</li> <li>Math Calculation</li> <li>Math Reasoning</li> </ul>	<ul style="list-style-type: none"> <li>Review and repeat material to be learned</li> <li>Use manipulatives</li> <li>Teach problem solving skills</li> <li>Guide learning step by step</li> </ul>
<b>Quantitative Reasoning</b> <ul style="list-style-type: none"> <li>Understanding math concepts and relations</li> </ul>	<ul style="list-style-type: none"> <li>Math Calculation</li> <li>Math Reasoning</li> </ul>	<ul style="list-style-type: none"> <li>Use manipulatives</li> <li>Teach problem solving</li> <li>Drill for automaticity on math facts</li> <li>Use practical, every day math</li> <li>Use calculators to teach, check work and when math concepts are the emphasis</li> </ul>

## References

Lyon, G. R. (1996). *Learning disabilities, reprinted in 98/99 Annual Editions: Educating exceptional children*, Freiberg, K. L., ed., Guilford, CT: Dushkin/McGraw-Hill.

Mather, N. (1999). *Interpretation of the WJ-R cognitive and achievement batteries*. Presentation to Kno: October, 1999.

Mather, N. & Jaffe, L. E. (1992). *Woodcock-Johnson Psychoeducational Battery-Revised: Reports and recommendations*. New York: Wiley.

Mather, N., McGrew, K. S., & Woodcock, R. (2001). *The Woodcock-Johnson III Tests of Cognitive Ability and Tests of Achievement*. Workshop presented to the National Association of School Psychologists, Ap

McGrew, K.S. & Flanagan, D.P. (1998). *The intelligence test desk reference*. Boston: Allyn & Bacon.

McGrew, K.S. & Woodcock, R. (2001). *Woodcock-Johnson III technical manual*. Chicago: Riverside P

Overton, T. (2000). *Assessment in special education: An applied approach, 3<sup>rd</sup> ed.* Upper Saddle River,

Sattler, J. M. (1988). *Assessment of children.* Jerome M. Sattler, Publisher: San Diego.

2 Links from Simple intro-Diag. Report

The Diagnostic Report

If a learning disability is diagnosed, the diagnostic report should contain information and recommendations for accommodation. The following are helpful in understanding diagnostic tests, results, and recommendations.