

**A Review of Instruments Used  
In the Assessment of Children**

**Presented by:**

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## Developmental Assessments

### Purposes of Developmental Assessment & Screening

- to identify infants who may be at risk for developmental delay,
- to diagnose the presence and extent of developmental problems,
- to identify an infant's specific abilities and skills, and
- to determine appropriate intervention strategies. (Wyly, 1997)
- as evaluation of intervention strategies
- prediction of future competencies
- assessment of skills that are fundamental for success in a classroom environment (McCormick, 2008)

### Infants and Toddlers

- occurs routinely in medical care settings
- infant-toddler care/education/intervention programs
- rely on brief screening instruments
- more complete assessments of children who do not seem to be developing at the usual pace

### General types of infant and toddler developmental assessments

- questionnaires for the primary caregiver about the child's activities, either soliciting the achievement of specific developmental milestones or eliciting more general assessments of child development
- observations of child activities on a limited number of items (Glascoe, 2003)
- any child found to have developmental difficulties requires access to a more refined assessment with a professionally administered developmental tool

### Domains of Development

- General Cognitive skills
- Language
- Motor
- Socioemotional development
- Functional abilities appropriate to the age of the child

### Cognitive Screening Tools

Caregiver Report	Observation	Mixed
Ages and Stages	Developmental Indicators for Assessment of Learning-Revised	<b>Battelle Developmental Inventory Screening Test</b>
Infant Development Inventory	Slosson Intelligence Test	Developmental Profile-II
NCHS/NLSY Questionnaire	Lexington Developmental Scales	Preschool Screening System
Parents' Evaluation of Developmental Status	<b>Bayley Infant Neurodevelopmental Screener (BINS)</b>	Denver Developmental Screening Test II

**Cognitive Diagnostic Tools**

- **Bayley Scales of Infant Development, Third ed.**
- McCarthy Scales of Children's Ability
- **Mullen Scales of Early Learning**

**Language Screening Tools**

Caregiver Reports	Observation
The Quick Test	Peabody Picture Vocabulary Test
Communication and Symbolic Behavior Scales (Coplan, 1993)	Expressive One-Word Picture Vocabulary Test
Early Language Milestone Scale (Wetherby and Prizant, 2002)	

**Language Diagnostic Tools**

Caregiver Report	Observation	Mixed
Receptive Expressive Emergent Language Scale (REEL)	Reynell Developmental Language Scales	Sequenced Inventory of Communication Development
MacArthur-Bates Communicative Development Inventories	Preschool Language Scale	
	Test of Early Language Development	

**Motor Development**

**Screening**

- Early Motor Pattern Profile (EMPP) (Morgan and Aldag, 1996)
- Motor Quotient (Capute and Shapiro, 1985)

**Diagnostic**

**Bayley Scales of Infant Development, Third ed.**

- Movement Assessment of Infants (Chandler, Andrews, and Swanson, 1980)
- Peabody Developmental Motor Scales (Folio and Fewell, 1983)
- Alberta Infant Motor Scale (Piper and Darrah, 1994)

**Social-Emotional Development**

Caregiver Report	Observation	Mixed
Eyberg Child Behavior Inventory	Bayley Scales of Infant Development, Third ed	Vineland Social-Emotional Maturity Scale
Infant-Toddler Social Emotional Assessment, ITSEA		
Achenbach System of Empirically Based Assessment		
Devereux Early Childhood Assessment		

**Domain: Function/Activities of Daily Living**

- Vineland Adaptive Behavior Scale-II

**Specific Developmental Disabilities**

- Modified Checklist of Autism in Toddlers (Dumont-Mathieu and Fine, 2005)
- Checklist for Autism in Toddlers (CHAT) (Baird et al., 2000)
- Pervasive Developmental Disorders Screening Test-II (PDDST-II) (Siegel, 2004)
- Screening Tool for Autism in Two-Year-Olds (STAT) (Stone, Coonrod, and Ousley, 2000)
- Social Communication Questionnaire (SCQ) (Rutter, Bailey, and Lord, 2003)

**Bayley Scales of Infant Development- Third Edition**

- Purpose: Assess developmental functioning of infants and young children
- Population: children ages 1 – 42 months
- Administration Time: 30-60 minutes
- Publisher: The Psychological Corporation
- Cost: \$1299 per complete kit
- Scoring: hand or computer scoring available

**Bayley-III**

- Originally published in 1969; latest version 2006
- Assesses development across all 5 domains
- Socio-Emotional (Greenspan) and Adaptive domains are new additions
- To be used to identify children with developmental delays and provide data for treatment planning

**Bayley-III Psychometrics**

- provides norms at 10 day intervals of infants between 16 days and 5 months 15 days to allow for more precise measurement
- Psychometric properties exceed those recommended by American Educational Research Association, American Psychological Association, and National Council on Measurement
- Standardization included national sample of 1700 children between ages 16 days and 43 months and 15 days

- Stratified sampling for parent education, race/ethnicity, and geographic region
- Equal boys and girls for each age group

### **Bayley Infant Neurodevelopmental Screener (BINS)**

- Purpose: To identify infants who are developmentally delayed or have neurological impairments
- Population: ages 3 -24 months
- Administration: About 10 minutes
- Publisher: The Psychological Corporation
- Cost: \$220 per complete kit
- Utilizes a subset of the items from the Bayley Scales of Infant Development – Second Edition
- Screening tool; Inadequate as diagnostic tool
- Assesses 4 conceptual areas:
  - Basic Neurological Functions/Intactness
  - Receptive Functions
  - Expressive Functions
  - Cognitive Processes

### **BINS Psychometrics**

- Normative Sample: 600 nonclinical cases stratified according to ages, sex, race/ethnicity, geographic region, and parent education level
- Validity: Convergent validity with the BSID-II and the Battelle showed a trend to over identify infants when the highest cutoff score was used.

### **Battelle Developmental Inventory, 2<sup>nd</sup> Edition**

- Purpose: Screening, diagnosis, and evaluation of development
- Population: birth to 7 years, 11 months
- Administration: 60-90 minutes
- Publisher: Riverside Publishing
- Cost: \$1232 for complete kit with manipulatives
- Scoring: hand and computer scoring available
- Personal-Social, Adaptive, Motor, Communication, and Cognitive ability
- 100 item screening is a subset of total assessment
- Screens and evaluates early childhood developmental milestones providing a strong assessment-intervention link; Coordinates well with early childhood curricula

### **BDI-2 Psychometrics**

- Normative Sample: 2500 children in 30 states; stratified according to age, sex, race/ethnicity, geographic region, and SES
- Validity/Reliability: Test-Retest reliability .93 for 2 year olds .94 for 4 year olds; Convergent validity with BSID-II, the Vineland, the WPPSI-III range from .60-.75

### **Mullen Scales of Early Learning**

- Purpose: A comprehensive measure of cognitive functioning for infants and preschool children
- Population: birth to 68 months
- Administration: 15-60 minutes
- Publisher: American Guidance Services

- Cost: \$849.65/per complete kit
- Scoring: hand or computer scoring available
- Identifies a child's strengths and weaknesses
- Assesses early intellectual development and readiness for school
- Provides a foundation for successful interventions

### **Mullen Psychometrics**

- Normative Sample: 71 clinicians over 8 years; 1849 children between ages of 2 days and 69 months; 51% male, 49 % female; Stratified according to race/ethnicity, SES geographic region, and community size
- Validity/Reliability: Concurrent validity with Bayley .70. Test-Retest reliability measure for 2 age groups. For younger group .82-.96, for older .71-.79

### **Vineland Social-Emotional Early Childhood Scales**

- Purpose: To assess the social and emotional functioning of young children
- Population: birth to age 5 years, 11 months
- Administration Time: 15-25 minutes
- Publisher: American Guidance Service
- Cost: \$103 per complete kit
- Scoring: hand or computer scoring available
- Subset from the Vineland Adaptive Behavior Scale
- Screening and identification of developmental delays but must be combined with other assessment for diagnostic purposes (Mullen)
- 3 scales: Relationships, Play and Leisure, Coping Skills
- Validity/Reliability data derived from Vineland ABS

### **Vineland Adaptive Behavior Scales, Second Edition**

- Purpose: Designed as an adaptive behavior assessment system that measures self-sufficiency across the life-span.
- Population: Birth to age 90-11
- Administration: 45-65 minutes
- Publisher: Pearson
- Cost: \$420.65 for complete starter kit
- Scoring: hand and computer scoring available

### **Vineland II**

- Parent/Caregiver rating form, teacher rating form, and semi-structured interview
- Assesses 4 domains of functioning: Communication, Daily Living Skills, Socialization, Motor Skills
- Updated version improved diagnostic clarity to reflect the trend of the greater cultural expectations for adaptive behavior in individuals with developmental disabilities associated with placement in least restrictive living environments

### **Vineland II - Psychometrics**

- Normative Sample: National sample of 3695 stratified according to race/ethnicity, geographical region, sex, and mother's education level
- Validity/Reliability: Internal consistency reliabilities .80 for the three primary domains; The Vineland-II domain scores tended to show moderately strong convergent correlations with comparable scales from the Adaptive Behavior Assessment System, Second Edition, with correlations averaging around .70 for similar

scales. With regard to discriminant validity, Vineland-II domain scores tended to correlate at rather low levels with intelligence test scores from the Wechsler tests, correlations generally falling in the range from .10 to .35

### **The Difficulty of Assessing Young Children**

Undifferentiated nature of their capabilities, Infants being less differentiated than older children

- Sustaining attention
- There is no practical or reliable measure of any specific domain in early infancy that gives a precise prediction about the child's performance in that domain several years later (National Research Council and Institute of Medicine, 2000).

## **Intelligence**

### **History of IQ**

- Stanford Binet (1905)
- Alpha-verbal & Beta-nonverbal (WW I)
- FSIQ, VIQ, PIQ: Wechsler-Bellevue (1939)
- Subtest improvements
- Dealing with bias

### **CHC Model (Cattell-Horn Carroll)**

- Spearman (1904)  $g$  + specific factors
- Thurstone (1938) primary mental abilities
  - 7-9 PMAs, independent of  $g$
- Cattell-Horn:  $Gc$  and  $Gf$
- Carroll (1993) (CHC) three-stratum model
  - $g$  = general measure of ability
  - 10 = broad measures of ability
  - 70 = narrow measures of ability

### **Broad measures of ability (Flanagan, Ortiz & Alfonso, 2007)**

- Crystallized Intelligence ( $Gc$ ): breadth and depth of a person's acquired knowledge, ability to communicate one's knowledge, ability to reason using previously learned experiences.
- Fluid Intelligence ( $Gf$ ): broad ability to reason, form concepts, and solve problems using unfamiliar information or novel procedures.
- Quantitative Reasoning ( $Gq$ ): ability to comprehend quantitative concepts and relationships and manipulate numerical symbols.
- Reading & Writing Ability ( $Grw$ ): basic reading and writing skills.
- Short-Term Memory ( $Gsm$ ): ability to apprehend and hold information in immediate awareness and use it within a few seconds.
- Long-Term Storage and Retrieval ( $Glr$ ): ability to store information and fluently retrieve it later in the process of thinking.
- Visual Processing ( $Gv$ ): ability to perceive, analyze, synthesize, and think with visual patterns, including the ability to store and recall visual representations.
- Auditory Processing ( $Ga$ ): ability to analyze, synthesize, and discriminate auditory stimuli, including the ability to process and discriminate speech sounds that may be presented under distorted conditions.

- Processing Speed (*Gs*): ability to perform automatic cognitive tasks, when measured under pressure to maintain focused attention.
- Decision/Reaction Time/Speed (*Gt*): the immediacy with which an individual can react to stimuli or a task (typically measured in seconds or fractions of seconds; not to be confused with *Gs*, which typically is measured in intervals of 2-3 minutes).

### **Current Issues: Verbal vs Nonverbal Intelligence**

- Verbal and nonverbal measures are a “practical” method for assessing IQ based on alpha & beta tests
  - Tests have been “used to define the theory of intelligence that the test is intended to measure” (Naglieri, 2008, p. 68).
- Verbal tasks
  - Correlate with achievement testing
  - Concern about overlap
- BUT Rindermann (2007) argues that the overlap between verbal IQ and achievement is a function of one common latent ability and has some research to support this argument.
- Nonverbal tasks
  - Are culturally more fair (Naglieri, 2008)
  - Do not share overlap with achievement tests
  - So, the variance they capture may be more unique to the person’s intellectual abilities
    - If so, then the nonverbal tests may be a better measure of cognitive abilities

Many tests are trying to include the Verbal and Nonverbal while also trying to adhere to CHC model

### **Wechsler Intelligence Tests**

The Wechsler Intelligence Scales are some of the most well-known measures of cognitive abilities. Several of the subtests are similar to the Army Beta test (Picture Completion, Coding and Block Design). Early versions of the Information, Arithmetic and Digit Span subtests were found on the Army Alpha test.

#### **The current tests include:**

- Wechsler Preschool and Primary Scale of Intelligence, 4th Edition (WPPSI-IV) – ages 2.6 to 7.7)
- Wechsler Intelligence Scale for Children, 4<sup>th</sup> Edition (WISC-IV) – ages 6 to 16
- Wechsler Adult Intelligence Test, 4<sup>th</sup> Edition (WAIS-IV) – ages 16 to 90:11

### **WPPSI-IV**

Author: David Wechsler

Published by: Pearson (PsychCorp)

Copyright: 2012

Cost: \$1,145.00 (in box)

#### **Content Evaluation** (Wechsler, 2012)

Scale has been divided into two age bands, 2:6-3:11 years and 4:0-7:7 years

The WPPSI-IV has expanded to include additional subtests and index scores. Pearson reports that the testing time has been maintained or reduced while increasing construct coverage. The age range has been extended to 7 years 7 months. The test was normed and standardized on 1,700 children stratified for US census. Pearson reports comparable or improved psychometrics compared to the WPPSI-III.

- Primary Index Scales for Children ages 2.6 to 3.11:
  - Verbal Comprehension Index uses two subtests: Receptive Vocabulary and Information
  - Visual Spatial Index uses two subtests: Block Design and Object Assembly



- Working Memory Index uses two subtests: Picture Memory and Zoo Locations
- FSIQ is derived from the five subtests (all subtests listed above except Zoo Locations)
- Ancillary Index Scales for Children ages 2.6 to 3.11:
  - Vocabulary Acquisition uses two subtests: Receptive Vocabulary and Picture Naming
  - Nonverbal uses four subtests: Block Design, Object Assembly, Picture Memory and Zoo Locations
  - General Ability uses four subtests: Receptive Vocabulary, Information, Block Design and Object Assembly
- Primary Index Scales for Children ages 4.0 to 7.7:
  - Verbal Comprehension uses two subtests: Information and Similarities (other subtests are available)
  - Visual Spatial uses one subtest: Block Design and Object Assembly is available
  - Fluid Reasoning contains two tests: Matrix Reasoning and Picture Concepts
  - Working Memory includes two subtests: Picture Memory and Zoo Locations
  - Processing Speed uses two subtests: Bug Search and Cancellation
  - FSIQ is derived from six subtests: Information, Similarities, Block Design, Matrix Reasoning, Picture Memory and Bug Search
- Ancillary Index Scales for Children ages 4.0 to 7.7:
  - Vocabulary Acquisition uses Receptive Vocabulary and Picture Naming
  - Nonverbal uses Block Design, Matrix Reasoning, Picture Concepts, Picture Memory and Bug Search
  - General Ability uses Information, Similarities, Block Design and Matrix Reasoning
  - Cognitive Proficiency uses Picture Memory, Zoo Locations, Bug Search and Cancellation

#### **WISC-IV**

Author: David Wechsler  
Published by: Pearson  
Copyright: 2003  
Cost: \$1,069.00 (in box)

#### **Content Evaluation** (Wechsler, 2003)

The WISC-IV preserves much of its earlier design, but “tilts” its design to reflect the CHC Model:  
FSIQ or General Intelligence

Broad abilities includes four Index Scores derived from 10 narrow measures of ability

- Verbal Comprehension – Measures crystallized intelligence (3 subtests: Similarities, Vocabulary & Comprehension)
- Perceptual Reasoning – Measures fluid reasoning (3 subtests: Block Design, Picture Concepts & Matrix Reasoning)
- Working Memory – Measures working memory (2 subtests: Digit Span & Letter-Number Sequencing)
- Processing Speed – Measures speed of processing (2 subtests: Coding & Symbol Search)

#### **WISC-V Coming Late fall, 2014**

Author: David Wechsler  
Published by: Pearson  
Copyright: 2014  
Cost: \$1,031.00 (in box)

#### **Content Evaluation** (Wechsler, 2014)

The WISC-V continues to “tilt” its design to reflect the CHC Model:  
FSIQ or General Intelligence

Broad abilities now include five Index Scores

- Verbal Comprehension – Similarities, Vocabulary, Information & Comprehension
- Visual Spatial – Block Design and Visual Puzzles
- Fluid Reasoning – Matrix Reasoning, Figure Weights, Picture Concepts & Arithmetic
- Working Memory – Digit Span, Picture Span & Letter-Number Sequencing)
- Processing Speed – Coding, Symbol Search & Cancellation

### **WAIS-IV**

Author: David Wechsler

Published by: Pearson

Copyright: 2008

Cost: \$1,145.00 (in box)

#### **Content Evaluation** (Wechsler, 2008)

The WAIS-IV preserves much of its earlier design, but has started to “tilt” its design to reflect the CHC Model: FSIQ or General Intelligence

Broad abilities includes four Index Scores derived from 10 narrow measures of ability

- Verbal Comprehension – Measures crystallized intelligence (3 subtests: Similarities, Vocabulary & Information)
- Perceptual Reasoning – Measures fluid reasoning (3 subtests: Block Design, Matrix Reasoning & Visual Puzzles)
- Working Memory – Measures working memory (2 subtests: Digit Span & Arithmetic)
- Processing Speed – Measures speed of processing (2 subtests: Coding & Symbol Search)

#### **Reliability**

The Wechsler scales have outstanding reliabilities (Kaufman & Lichtenberger, 1999; Sattler & Saklofske, 2001).

Overall internal consistency for the normative sample was in the .90s for IQ and Index scores except for the PSI (PSI .87-.89). At the subtest level reliability is at .80s and .90s. Test retest stability ranges from .86 to .95 for IQ and Index scores. And .70s to .90s for subtests. Interscorer agreement is in the .90 for all subtests (Wechsler, 2002).

#### **Validity**

The test manuals provide evidence of construct validity and the current structure of the WISC-IV and WAIS-IV have been getting closer to the CHC model with its four Index scores. Independent researchers have replicated the four-factor structure of the WISC and WAIS (Georgas, Van de Vijver, Weiss and Saklofske, 2002). Content validity evidence is abundant with the Wechsler tests correlating well with other well-known tests such as the DAS .84-.91 (Elliott, 1990 and Wechsler, 2002), and the SB5 .80-.91 (Roid, 2003). Correlations between the Wechsler tests and achievement tests have yielded predictive validity estimates from .65 to .75 (Wechsler, 2002, 2003).

### **Stanford-Binet Intelligence Scales, 5<sup>th</sup> Edition**

Author: Gale Roid

Published by Riverside Publishing

Copyright date: 2003

Cost: \$1,087.00

The SB5 is an individually administered assessment of intelligence and cognitive abilities suitable for examinees aged two years through 85+ years. The SB5 yields a Full Scale IQ, Nonverbal IQ, Verbal IQ and an Abbreviated Battery IQ. Five index scores are reported. All IQ and Index scores have a mean of 100 with a standard deviation of 15. Subtest scores have a mean of 10 and a standard deviation of 3, providing an opportunity for comparing profile scores across other common IQ tests (Roid, 2003a).

There is an additional early childhood version of the test for ages 2-7 years suitable for those working with preschool assessment.

**Content Evaluation**

The SB5 is the first test to measure five cognitive factors in both nonverbal and verbal domains and is designed to measure several of the cognitive factors identified by the CHC theory (fluid reasoning, crystallized general knowledge, quantitative reasoning, visual-spatial ability and working memory). The CHC theory contends that intelligence is a multifaceted array of cognitive abilities with a general (g) measure composed of several dimensions (i.e., including the factors listed above) (Roid, 2003b).

**General or Full Scale IQ (derived from 10 subtests that measure narrow abilities)**

Broad abilities/Factors	Nonverbal	Verbal
Fluid Reasoning	Object Series/Matrices	Verbal Absurdities/Verbal Analogies
Knowledge	Picture Absurdities	Vocabulary
Quantitative	Quantitative Reasoning	Quantitative Reasoning
Visual-Spatial	Form Patterns	Position and Direction
Working Memory	Block Span (tapping)	Memory for Sentences/Last Word

**SB5 Testing Sequence**

- Administer Nonverbal Fluid Reasoning routing test.
- Administer Verbal Knowledge (vocabulary) routing test.
- Enter appropriate level for Nonverbal testlets
  - 6 nonverbal levels
  - Administer all testlets for appropriate level (ordered by level of difficulty), then proceed to next level and administer all testlets, etc. until ceiling is reached for each factor.
- Enter appropriate verbal level testlets
  - 5 verbal levels – complete all testlets for appropriate level and then proceed to next level – administer all testlets, etc until ceiling is reached for each factor.

**Technical Evaluation**

The SB5 was standardized on a nationally representative sample of 4,800 subjects ranging in age from 2.0 years to 85+ years (oldest subject was 96). Demographics of the normative sample was matched with the 2000 census for gender, ethnicity, geographic region and parental education (Roid, 2003b).

**Reliability**

Internal consistency averages .84-.89 across the 10 subtests. Split half coefficients for the FSIQ=.98, NVIQ=.95 and VIQ=.96. Abbreviated IQ=.91. Factor Index scores range from .90 to .92. Nonverbal subtests range from .85 to .88 and Verbal subtests range from .84 to .89 (Roid, 2003b). Test re-test reliability measures (i.e., 5-8 days) are reported for various ages and vary from .84 to .95 (Roid, 2003b). The practice effect in the test re-test procedure (5-8 days) showed an IQ difference of 2-5 points and that author argues that this lower practice effect might indicate that retesting can be done earlier than in other tests (author suggests retesting possible after 6 months rather than the traditional one-year delay) (Roid and Tippin, 2009).

**Validity**

Several studies providing content-, criterion-, construct-, and consequence-related validity are included in the technical manual (Roid, 2003b). Using confirmatory factor analysis, the five-factor model showed a strong and

favorable fit (.89 to .93). Confirmatory analyses using the full-length subtests from the SB5 and the WJ III showed a strong fit with the five-factor model aligning across the SB5 and the WJ III (Mather & Woodcock, 2001).

### **Kaufman Assessment Battery for Children, 2<sup>nd</sup> Edition**

Authors: Alan Kaufman and Nadeen Kaufman

Published by: Pearson (originally published by AGS)

Copyright: 2004

Cost: \$925.00

The KABC-II is defined as an individually administered and culturally fair test for children (minimizes verbal instructions and responses). The test employs a dual-theoretical model using both the Luria neuropsychological model and the Cattell/Horn/Carroll (CHC) model. It is normed for children ages 3-18.

#### **Content Evaluation** (Kaufman & Kaufman, 2004a)

The KABC-II uses a five factor design including the following factors and subtests:

##### **Simultaneous/Gv** (visual-spatial abilities)

- Triangles - assemble several foam triangles to match a picture
- Face Recognition - looks at photographs and select the correct face/faces shown in a difference pose from a selection
- Pattern Reasoning (ages 5 and 6) -
- Block Counting - count the number of blocks in a picture of a stack of blocks
- Story Completion (ages 5 and 6)
- Conceptual Thinking – select a picture from a set of 4 or 5 that does not belong with the set
- Rover - move a toy dog to a bone on a grid that contains several obstacles
- Gestalt Closure - fill in gaps in a partially completed inkblot drawing and describe the object/action

##### **Sequential/ Gsm** (short-term memory)

- Word Order - child touches a series of silhouettes of objects in the same order they were read by evaluator
- Number Recall – child recalls numbers in same order that they were read by evaluator
- Hand Movements - copy a series of taps the examiner makes on the table with hand

##### **Planning/Gf** (fluid reasoning)

- Pattern Reasoning (ages 7–18) - child selects the missing stimulus within a pattern
- Story Completion (ages 7–18) – child selects pictures to fill in a story line

##### **Learning/Glr** (long-term storage and retrieval)

- Atlantis - child then has points to correct picture when nonsense name is read
- Atlantis Delayed - repeat the Atlantis subtest 15-25 minutes later to assess delayed recall
- Rebus - child is taught word or concept associated with a rebus (drawing) - child reads aloud phrases composed of these rebuses
- Rebus Delayed – child repeats Rebus subtest 15-25 minutes later to demonstrate recall

##### **Knowledge/Gc** (crystalized intelligence - included in the CHC model only)

- Riddles – evaluator reads characteristics of verbal concept, the child points to it or names it
- Expressive Vocabulary – child names objects
- Verbal Knowledge – child selects picture that corresponds to a vocabulary word

KABC-II provides two general intelligence composite scores (M=100, SD=15): Mental Processing Index (MPI; Luria's model) and Fluid-Crystalized Index (FCI; CHC model). The Luria model takes 25-60 minutes to administer while the CHC model takes 30-75 minutes to administer. A separate nonverbal index is also available.

### **Technical Evaluation**

The KABC-II was standardized on a sample of 3,025 children chosen to match the 2001 U.S. Census for age, gender, geographical region, ethnicity and parent education. There are 18 age groups.

### **Reliability**

Average internal consistency for the MPI and FCI ranges from .95 to .97. Average test retest for the MPI and FCI ranges from .86 to .94 (correlations improve with age) groups (Lichtenberger, Sotelo-Dynega & Kaufman, 2009).

### **Validity**

Construct validity is supported by factor-analysis studies available in the KABC-II Manual. Confirmatory factor analysis reports high loadings on the intended scale and on the general factor. KABC-II is also supported by correlations with the WISC-IV, WPPSI-III, KAIT, and WJ-III (Kaufman & Kaufman, 2004).

One of the MMY reviewers was critical that while the KABC-II claims to reflect the Luria model of processing, it does not live up to its claims (see MMY for details).

## **Cognitive Assessment System-2<sup>nd</sup> Edition (CAS2)**

Authors Naglieri and Das

Published by: Riverside

Copyright: 2012

Cost: \$875.00 (without case)

Time to test: 40-60 minutes (shorter or standard formats)

The CAS is described as a multi-dimensional measure of ability based on a cognitive and neuropsychological processing theory called Planning, Attention, Simultaneous, and Successive (PASS) (Naglieri & Conway, 2009). The Riverside website states that the CAS is processing measure of ability that is fair to minority children, effective for differential diagnosis and related to intervention. It is designed for children ages 5 – 18.

### **Content Evaluation** (Naglieri & Das, 1997)

The CAS is based on the PASS theory that emphasizes basic psychological processes. Naglieri and Conway (2009) stress that PASS processes are the “building blocks of ability conceptualized within a cognitive processing framework, p 27.” PASS is defined as:

**Planning:** a mental activity that provides cognitive control, intentionality, organization, self-regulation and use of processes, knowledge, and skills. Naglieri and Conway (2009) note that the construct of Planning is tested through novel problem-solving where there is no previously acquired strategy. It is similar to the concept of executive functioning. Planning contains three subtests:

- Planned Number Matching: from row of numbers, identify two that are the same
- Planned Codes: similar to other coding tests (e.g., A=XO; B=XX; etc.). Child writes in correct code
- Planned Connections: connect numbers and letters in sequences that appear in a quasi-random order

**Attention** is described as a mental function that provides focused, selective cognitive activity over time that is resistant to distraction. Attention is measured using three subtests that include the following:

- Expressive Attention: Similar to Stroop Test where child reads color words printed in black in random order. Then child names colors of a series of rectangles printed in the same colors as named on previous

page. Then child is presented with color words printed in different ink colors that the colors the words name. Child says the color the word is printed in and not the name of the color.

- Number Detection: child finds the target stimulus (e.g., the numbers 1, 2, and 3 printed in an open font) located within many distractors, such as the same numbers printed in a different font.
- Receptive Attention: Targets are letters that are physically the same (e.g., L L but not L I). Then targets are letters that have same name but are not physically the same (e.g., L I but not P I).

**Simultaneous Processing** is a mental activity where the child integrates stimuli into inter-related groups or a whole. Simultaneous Processing Subtests include:

- Matrices: traditional matrix test
- Verbal Spatial Relations: measures comprehension of logical and grammatical descriptions of spatial relationships. Child selects one of six drawings that best answers a question. Typical item might include: "which picture shows a diamond below a circle?"
- Figure Memory: child is presented with a two-or three-dimensional geometric figure for 5 seconds. The child is then asked to identify this figure within a larger complex geometric pattern that contains the previous figure.

**Successive Processing** is described as a mental activity where a child processes stimuli in a specific serial order to form a chain-like progression. Successive Processing Subtests include:

- Word Series: child is read a series of words and then asked to repeat them in order
- Sentence Repetition: Twenty sentences are read to the child. The child is asked to repeat each sentence exactly as presented. Naglieri and Conway (2009) note that the sentences are composed of color words, such as "The blue yellows the green" in order to reduce semantic meaning from the sentences.
- Sentence Questions: Similar sentences are used as in Sentence Repetition but after each sentence is read, the child is asked a question about it. For example, the examiner reads, "The blue yellows the green," and then asks the child, "Who yellows the green?"
- Visual Digit Span

The CAS2 Full Scale score and each of the four PASS domains yields a standard score ( $M=100$ ,  $SD=15$ ). CAS2 subtests are reported as scaled scores (e.g.,  $M=10$ ,  $SD=3$ ). Many of the PASS subtests are based on work completed by Luria. Note how many of the tests avoid tasks associated with crystallized intelligence.

The CA2S includes the standard 12 subtest battery that can be administered in about 60 minutes. A shorter battery containing 8 subtests (two from each domain) takes about 40 minutes. The CAS was standardized on a sample of 1,342 children and is representative of the U.S. population stratified for gender, race, ethnicity, region, community setting, classroom placement and parental education.

### **Reliability**

The CAS2 12 Subtest Core Battery Full Scale reliability is .95 with PASS Scale reliabilities ranging from .86 to .93.

### **Validity**

Studies have found that children with a weakness in one or more of the PASS cognitive processes earned lower scores on achievement tests and were likely to be identified for special education services. The more marked the cognitive weakness, the low the achievement scores. Naglieri makes the argument that the use of traditional intelligence tests to compare with achievement to identify learning problems is faulty as traditional IQ tests contain questions that are similar to the questions on achievement tests (especially verbal and quantitative questions). The similar content inflates the relationship between IQ and achievement. The CAS does not include

achievement-like questions and has the advantage of predicting concurrent and future performance without the problem of content overlap (Naglieri and Conway, 2009).

Naglieri and Conway point out that while the CAS does not contain achievement-like questions, the correlations between the CAS and achievement tests is very similar to the relationship found between typical IQ tests and achievement. This finding provides construct validity for the CAS and suggests that the cognitive processes measured on the CAS are correlated with academic performance. Naglieri, and Ford (2005) report that since the CAS does not measure achievement-like skills, it is a fairer test for minorities, those who live in poverty and who may have a disadvantage on an IQ test that is at least partly measuring achievement rather than cognitive processing.

### **Woodcock Johnson-Fourth Edition Test of Cognitive Abilities**

Published by: Riverside

Copyright: 2014 (coming out this summer)

Cost: Complete Kit (Cognitive Test + Achievement Form A) - \$1,934.90 (in box)

Cognitive Battery: \$1148.85 (in box)

#### **Content**

The website indicates that this new edition of the Cognitive Battery is strongly oriented to the CHC model. It yields a new Gf-Gc Composite for comparison to measures of cognitive processing, oral language, and achievement.

([http://www.riversidepublishing.com/products/wj-iv/pdf/MS91542\\_WJIV\\_SellSheet\\_HR.pdf](http://www.riversidepublishing.com/products/wj-iv/pdf/MS91542_WJIV_SellSheet_HR.pdf)).

#### **Standard Battery**

- Test 1: Oral Vocabulary
- Test 2: Number Series
- Test 3: Verbal Attention—new
- Test 4: Letter-Pattern Matching— new
- Test 5: Phonological Processing— new
- Test 6: Story Recall
- Test 7: Visualization— new
- Test 8: General Information
- Test 9: Concept Formation
- Test 10: Numbers Reversed

#### **Extended Battery**

- Test 11: Number-Pattern Matching
- Test 12: Nonword Repetition— new
- Test 13: Visual-Auditory Learning
- Test 14: Picture Recognition
- Test 15: Analysis-Synthesis
- Test 16: Object-Number Sequencing
- Test 17: Pair Cancellation
- Test 18: Memory for Words

The WJ-IV website indicates that the Standard Battery includes seven tests that are used to derive the General Intellectual Ability (g) score. Factor scores for Comprehension-Knowledge (Gc), Fluid Reasoning (Gf, and Short-Term Working Memory (Gwm) are obtained from the Standard Battery. The efficiency with which an individual can perform cognitive tasks is measured by Cognitive Efficiency. In addition, a new *Gf-Gc Composite* is provided that the website professes will be valuable as a predictor score for evaluation of strengths and weaknesses across all

areas of cognitive processing, linguistic competency, and academic performance (Schrank, McGrew, Mather, & Woodcock, 2014).

### **Psychometrics**

Current psychometrics for the new WJ-IV could not be located online, but the previous editions of the WJ have been well regarded.

### **Nonverbal Tests of Intelligence**

#### **Comprehensive test of Nonverbal Intelligence, 2<sup>nd</sup> Edition (CTONI-II)**

Authors: Hammill, Pearson, & Wiederholt

Published by: Pearson

Copyright: 2009

Cost: \$457.00

Time to test: 40-60 minutes

The CTONI-II is the second edition of a norm-referenced test that uses nonverbal formats to measure general intelligence in children and adults (ages 6 to 89). The nonverbal format may be useful for those whose performance on traditional tests might be affected by language or motor abilities. The CTONI-II does not adhere to any particular theory of intelligence. It is a more practical approach to assessing ability using either simple oral instructions or pantomime instructions. The authors still point out that the CTONI-II measures most of the abilities measured by most intelligence tests. It does not measure general information, vocabulary or motor behavior.

#### **Content Evaluation** (Hammill, Pearson & Wiederholt, 2009)

The CTONI-II measures analogical reasoning, categorical classification and sequential reasoning using six subtests:

**Pictorial Analogies and Geometric Analogies** use a 2x2 matrix format to measure complex cognitive ability (i.e., this is to that (foot and shoe in the upper boxes) as this is to what (hand is to – select picture of glove) lower two boxes in matrix).

**Pictorial Categories and Geometric Categories** require the test taker to deduce the relationship between two stimulus figures (for example two different types of chairs) and then from a list of pictures, choose an object that can be used for sitting.

**Pictorial Sequences and Geometric Sequences** contain different figures that bear some sequential relationship to one another. The last box is empty and the test taker chooses from a list of figures the figure that best fits the sequence. The test taker must recognize the rule that is guiding the progression of figures (Hammill & Pearson, 2009).

The CTONI-II was normed on a sample of 2,827 people from 10 states. U.S. Census information was used to stratify the sample for geographic region, gender, ethnicity, parent education and income. The CTONI-II yields age equivalents (they apologize for offering them 😊), Percentile ranks, scaled scores (M=10, SD=3) and composites (M=100 and SD=15). A Full Scale composite is also offered.

#### **Reliability**

Internal consistency coefficients for the subtests were in the .80s and in the .90s for the composite scores.

Test-retest coefficients for a 2-4 week interval were in the .80s for subtests and the higher .80s and .90s for the composites (Hammill & Pearson, 2009).



### **Validity**

The magnitude of the correlations between the CTONI-II and several other intelligence tests (TONI-4, UNIT, RIAS, WISC-IV, KAIT) are all large ( $r=.50$  to  $.69$ ) or very large ( $r=.70$  to  $.89$ ). Correlations between the CTONI-II and various achievement batteries (for reading and math) were in the large to very large range (Hammill & Pearson, 2009).

### **Wechsler Nonverbal Scale of Ability (WNV)**

Authors: Wechsler & Naglieri

Published by: Pearson

Copyright: 2006

Cost: \$737.95

Time to test: Full Battery (4 subtest): 45 minutes, Abbreviated (2 subtest): 20 minutes

The WNV website describes the test as a nonverbal measure of ability for anyone. Especially designed for culturally and linguistically diverse groups. It is normed for ages 4 to 21.

### **Content Evaluation** (Wechsler & Naglieri, 2006)

The WNV is comprised of a variety of subtests intended to measure general ability in different ways. Most of the WNV subtests can be found in other Wechsler products. Those subtests include the following:

- Matrices: Adapted from the Naglieri Nonverbal Ability Test NNAT.
- Coding: Adapted from the WISC-IV.
- Object Assembly: Adapted from the WPPSI-III and the WISC-III.
- Recognition: A new match-to-stimulus subtest. Child looks at page with geometric designs and then chooses which of four of five responses matches the original design.
- Spatial Span: From the WMS-III, the test taker mimics the examiner's tapping on a series of blocks in order or in reverse order.
- Picture Arrangement: Adapted from the WAIS-III, the test taker arranges a set of picture cards to tell a logical story.

Four subtests are used for to obtain a full scale IQ. For children 4-7 the Matrices, Coding, Object Assembly and Recognition subtests are used. For those age 8-21 Matrices Coding, Spatial Span and Picture Arrangement are used.

The WNV was standardized on two samples, one collected in the U.S. that consisted of 1,323 people stratified for age, sex, race/ethnicity, education level, and geographical region, and the other collected in Canada that included 875 participants across a stratified sample similar to the U.S.

### **Reliability**

Internal reliability for the U.S. sample ranges from  $.74$  to  $.91$  for the subtests and  $.91$  for the full scale scores. Similar correlations were found with the Canadian sample.

### **Validity**

The WNV full scale IQ correlates with the WISC-IV at  $r=.76$ . While the manual contains support for its validity, the MMY review suggested that more work needs to be done in this area.

## Shorter Batteries

### Wechsler Abbreviated Scale of Intelligence-Second Edition

Author: David Wechsler – Project team directed by Hsin-Yi Chen

Published by: Pearson

Copyright: 2011

Cost: \$327.00 (in box)

Time to test: 4 subtest: 20-30 minutes

#### Content Evaluation (Pearson, 2011)

A short and reliable measure of intelligence for clinical and research settings. It is normed for ages 6-89 and contains four familiar subtests (Vocabulary & Similarities make up the Verbal Comprehension Index, and Block Design and Matrix Reasoning makes up the Perceptual Reasoning Index). The four subtests yield a Full Scale IQ. All IQ scores use a mean of 100 with a standard deviation of 15. The subtest scores yield T scores (M=50, SD=10). An even shorter Full Scale IQ can be obtained using two subtests (i.e., Vocabulary and Matrix Reasoning).

If it is determined that a full battery is needed, the four WASI-II subtests can be substituted for their equivalent subtests on either the WISC-IV or WAIS-IV. This saves time and can minimize carryover affects.

Standardization was completed using a sample of 2,245 children and adults ages 6 to 90 years. The sample was stratified for age, sex, race/ethnicity, education level and geographic region using the current U.S. Census data.

#### Reliability

Internal reliability for the subtests varies by age, but in general the reliability coefficients fall within the upper .80s to the upper .90s. The IQ scales are a little higher than the coefficients of the individual subtests. For the children's sample, test-retest stability with a mean interval of 10 days ranged from .76 to .93 for subtests and .91 to .93 for the Full Scale (4 subtest) IQ scales.

#### Validity

Correlations with the WISC-IV ranged from .75 for Similarities to .83 for Block Design. The IQ correlations ranged from .88 for the WISC-IV to .90 for the WAIS-IV. Construct validity of the WASI-II was supported by the intercorrelations of the WASI subtests and IQ scales and through factor analysis. Some concern has been raised for the use of factor analysis since only two subtests are available for each IQ score (normally three variables – or subtests – would be desired); however, a factor pattern emerges that supports separating the verbal from the nonverbal tests. The WASI, the WASI-II and the K-BIT-2 appear to measure the same constructs (Canivez, Konold, Collins & Wilson, 2009).

### Reynolds Intellectual Assessment Scales (RIAS)

Authors: Reynolds & Kamphaus

Published by: Psychological Assessment Resources (PAR)

Copyright: 2003

Time to test: Four subtest Composite IQ requires about 20-25 minutes

Time to test: Composite Memory Index requires additional 10-15 minutes

Cost: \$448.00

### **Content Evaluation (Reynolds & Kamphaus, 2003)**

The RIAS is an individually administered test of intelligence that is co-normed with a supplemental measure of memory that is normed for ages 3 to 94. It includes four subtests, two which make up the Verbal Intelligence Index (VIX) and two that make up the Nonverbal Intelligence Index (NIX). A Composite Index (CIX) is derived from the four subtests. A composite Memory Index is obtained from two supplemental memory subtests. The authors report that the test was designed to join practical and theoretical aspects of the assessment of intelligence (Reynolds & Kamphaus, 2003). The RIAS applies the CHC model as a primary theoretical guide while also maintaining verbal and nonverbal domains.

#### **Verbal Subtests are as follows:**

**Guess What:** test takers are provided with 2 or 3 clues and asked to deduce the object of concept being described. The Guess What subtest measures verbal reasoning in combination with vocabulary and language development.

**Verbal Reasoning:** examinee listens to a propositional statement that forms a verbal analogy and is asked to respond with one or two words that completes the idea or proposition. This test measures verbal-analytic reasoning with less emphasis on vocabulary than the Guess What subtest.

#### **Nonverbal Subtests are as follows:**

**Odd Item Out:** test taker is presented with a picture card containing 5 to 7 pictures or drawings and asked to determine which one does not belong with the others. This test measures nonverbal reasoning, spatial ability and visual imagery.

**What's Missing:** the test taker is shown a picture with a key element missing and is asked to identify that key element. This test measures nonverbal reasoning.

#### **Composite Memory Scale**

**Verbal Memory Index:** brief stories are read out loud to the test taker who is asked to recall them. This test measures encoding and brief storage of verbal material within a meaningful context.

**Nonverbal Memory Index:** A stimulus picture is presented to the test taker for five seconds followed by an array of pictures. The test taker must identify the target picture from the array of six pictures. Measures encoding, short-term storage and recognition of pictorial stimuli that are both concrete and abstract and without meaningful reference.

The RIAS yields index scores ( $M=100$ ,  $SD=15$ ) for a verbal IQ, a nonverbal IQ, a composite IQ and a composite memory index.

The RIAS was normed on a sample of 2,438 participants from 41 states between 1999 and 2002. The sample was stratified for age, gender, ethnicity, education level (parent education for children) and geographic region.

#### **Reliability**

Internal reliability using coefficient alpha reached .84 or higher for every age group. The median alpha reliability estimate was reported as .90 or better. Test-retest stability with an average interval of 21 days were in the .70s and .80s.

#### **Validity**

Confirmatory factor analyses suggest that the CIX, VIX and NIX possess evidence of factorial validity. The authors report that the CMX needs further research with a variety of clinical and nonclinical samples (Reynolds & Kamphaus, 2009).

Correlations with the WISC-IV such as RIAS-VIX with WISC-IV-VCI were in the .80s whereas the RIAS-VIX with the WISC-IV-PII ranged in the .40s to the .70s. The CIX correlations with the WISC-IV-FSIQ ranged from .79 to .90. Additional correlations were reported for achievement indicating that the RIAS has good predictive value for educational achievement.

### **Kaufman Brief Intelligence Test-2<sup>nd</sup> Ed.**

Authors: Alan Kaufman and Nadine Kaufman

Published by: Pearson (originally by AGS)

Copyright: 2004

Time to test: 20 minutes

Cost: \$250.00

### **Content Evaluation (Kaufman & Kaufman, 2004b)**

The KBIT-2 contains 3 subtests. Two verbal (Verbal Knowledge and Riddles) and one nonverbal (Matrices) that yield a VIQ, NVIQ and a Composite score. Normed on 2120 examinees from 34 states and stratified to the 2001 US Census for education status (or mother's education), geographical region, race and ethnicity. Norms are available for ages 4 – 90. It is considered a reputable screening test for intelligence. It is easy to administer and easier to score than other abbreviated batteries like the WASI-II.

### **Reliability**

Interval consistency correlations for Verbal were .86-.96, for Nonverbal they were .78 to .93 and for IQ composite they were .89 to .96. Test-retest with mean interval of 28 days yielded correlations from .76 to .93.

### **Validity**

Compared to WASI, WISC-IV, WAIS-III yielded correlations in the moderate to high range.

Good test for a short screening tool.

## **Personality Assessment in Children & Teens**

### **Considerations in Personality Assessment**

- Expansion of practice,
- Need to be thorough,
- Need to integrate data
- Role of theory (Flanagan, 2007)

### **Expansion of Practice**

- thorough assessment of personality, or social/emotional/behavioral functioning.
  - school psychologists generally do a more thorough job of assessing cognitive domains
  - clinical psychologists tend to do a more thorough job of assessing psychopathology.
- (Flanagan, 2007)

### **Need to be Thorough**

- a construct-based approach to assessment results in a broader view of the individual and his or her functioning because more aspects of constructs can be measured with greater specificity

### **Need to Integrate Data**

- Consider all data and being open to modifying interpretations on the basis of new information.
- Accept divergence in findings and seek to explain it to capture the uniqueness of the individual.
- A more useful report is more than separate descriptions of the numerical data from each test

### **Role of Theory**

- test interpretation should occur within a theoretical framework
- many personality assessment devices were developed atheoretically, allowing interpretation according to a preferred framework (Esquivel and Flanagan, 2007).

### **The Use of Drawings with Children**

- Drawings are less threatening
- Drawings provide focused discussion
- Drawings supply creative solutions
- Drawings provide visual representations of problems areas
- Drawings expand therapeutic engagement (Oster & Crone, 2004)

### **Drawings in the Test Battery**

- Reveal the dimension of fantasy and imagination often not captured in observations, checklists, and interviews
- Entry point into the subjective world of the client
- Rough idea of developmental level (Oster& Crone, 2004)

### **Drawing Assessments**

- Draw-A-Person (Machover, 1952)
  - Reflects person's self-concept
  - Projections of conflicts and concerns
- Draw-A-Person in the Rain (Verinis, Lichtenberg, & Henrich, 1974)
  - Rain represents perceived external stress
- Mother-and-Child drawing (Gillepsie, 1994)
  - Interpersonal self

### **Drawing Assessments**

- House-Tree-Person (Buck, 1948)
  - Seen as standard
  - House represents home life, interpersonal dynamics of family
  - Tree represents unconscious feelings toward the self
  - Person represents perceptions of self or who they wish to be
- Kinetic House-Tree-Person (Burns, 1987)
  - Adding action reflect clients' well being more profoundly than static drawings
- Draw-A-Family (Appel, 1931)
  - Attitudes toward family members and perception of family roles
- Kinetic Family Drawing (Burns & Kaufman, 1970).
- Kinetic School Drawing (Prout & Phillips, 1974)

### **Children's Apperception Test (CAT)**

- Purpose: A projective method of investigating personality
- Population: Ages 3-10
- Administrative Time: varies
- Publisher: C.P.S., Inc.
- Cost: \$142 for complete kit

### **CAT (2 versions – animal & human)**

- Consists of 10 picture cards showing animals engaged in relationship-oriented interactions
- Designed to elicit how children perceive, respond to, and resolved different developmental problems
- Presented as a game to child
- Pictures presented in specific order
- What is going on in the picture
- What the animals are doing
- What happened before in the story
- What will happen next

### **CAT Psychometrics**

- No psychometric information reported in manual
- psychometric concepts are not fully applicable to projectives (Anastasi, 1996)

### **Personality Assessment in Adolescence**

- Clarity in assessment needed to help address
  - Serious emotional disturbance
  - Juvenile delinquency
  - Violence
  - Mental health issues (Crespi & Politikos, 2008)

### **Millon Adolescent Clinical Inventory (MACI)**

- Purpose: Assess and adolescent's personality along with self-reported concerns and clinical syndromes
- Population: ages 13-19 – intended for a clinically disturbed population
- Administration: 30 minutes
- Publisher: NCS Assessments
- Cost: \$125 for starter kit (manual, 3 assessments, and mail-in scoring)

### **MACI**

- Appropriate for clinically disturbed population
- NOT appropriate as assessment of normal personality or as a screening tool
- 160 items, 27 content scales, and 4 response bias scales
- Personality Pattern scales parallel DSM IV personality disorders
- Test construction follows domain theory of Millon

### **Personality Pattern Scales**

- Introversive
- Inhibited
- Doleful

- Submissive
- Dramatizing
- Egotistic
- Unruly
- Forceful
- Conforming
- Oppositional
- Self-Demeaning
- Borderline Tendency

#### **Expressed Concerns**

- Identity Diffusion
- Self-devaluation
- Body disapproval
- Sexual discomfort
- Peer Insecurity
- Social Insensitivity
- Family Discord
- Childhood abuse

#### **Clinical Syndromes**

- Eating Dysfunctions
- Substance-abuse Proneness
- Delinquent Predisposition
- Impulsive Propensity
- Anxious Feelings
- Depressive affect
- Suicidal Tendency

#### **MACI Psychometrics**

- Normative Sample: Primary sample of 579 adolescents, 2 cross validation samples of 138 and 194 each. All subjects were in treatment programs.
- Validity/Reliability: Cronbach alpha reliabilities range from .73-.91. Content validity is congruent with theory of personality developed by author. Concurrent validity with the judgments of clinicians less than .35

#### **Minnesota Multiphasic Inventory – Adolescent (MMPI-A)**

- Purpose: To assess major patterns of personality and emotional disorders
- Population: ages 14-18
- Administration: 45-60 minutes
- Publisher: University of Minnesota Press
- Cost: \$210 starter kit
- Scoring: hand, computer, and mail-in scoring available

#### **MMPI-A**

- Resembles the MMPI-2
- 4 sets of scales;
  - Validity scales
  - Basic clinical scales

- Content Scales
- Supplementary scales
- Support diagnosis and treatment planning in a variety of settings.
- Identify the root causes of potential problems early on.
- Provide information to share with parents, teachers, and others in the adolescent's support network.
- Guide professionals in making appropriate referrals

### Validity Scales

- ? - Cannot Say (reported as a raw score)  
VRIN - Variable Response Inconsistency  
TRIN - True Response Inconsistency  
F<sub>1</sub> - Infrequency 1  
F<sub>2</sub> - Infrequency 2  
F - Infrequency  
L - Lie  
K - Correction

### Clinical Scales

- 1 (Hs) Hypochondriasis  
2 (D) Depression  
3 (Hy) Hysteria  
4 (Pd) Psychopathic Deviate  
5 (Mf) Masculinity–Femininity  
6 (Pa) Paranoia  
7 (Pt) Psychasthenia  
8 (Sc) Schizophrenia  
9 (Ma) Hypomania  
0 (Si) Social Introversion

### MMPI-A Psychometrics

- Normative Sample: Adolescent subjects obtained through schools in 8 states. Balanced sample across geographic region, urban-rural residence, and ethnic background. Heavily skewed in the direction of higher education and occupational level.
- Validity/Reliability: Content validity established with the MMPI and the MMPI-2

## Behavior Rating Scales

### Achenbach System of Empirically Based Assessment: The Preschool and School-Age Behavior Checklists

Authors: T. Achenbach & L. Rescorla

Published by: Achenbach System of Empirically Based Assessment

Cost: Child Behavior Checklist pkg of 50 = \$25.00

Preschool computer scoring starter kit = \$330.00

School-Aged computer scoring starter kit = \$430.00

The Child Behavior Checklists (CBCL) are well-known behavior rating scales for preschool and school-aged children that were first published in the 1980s. The CBCL is designed to assess behavior and emotional problems as well as



social competencies as reported by parents, teachers and through self-report. Updating for DSM-5 + new early childhood autism rating scale.

The Preschool CBCL (2000) scales are normed for ages 1.5 to 5 years. They include 99 items with ratings for parents, childcare workers and teachers. An element of the CBCL/1½-5 is the Language Development Survey (LDS), that uses parents' reports to examine children's expressive vocabularies and word combinations, along with risk factors for language delays. Syndrome scales include: Emotionally Reactive; Anxious/Depressed; Somatic Complaints; Withdrawn; Sleep Problems; Attention Problems; Aggressive Behavior.

The Teacher Report Form for the CBCL/1½-5/LDS contains items that child behavioral health experts from ten cultures have rated as being consistent with DSM diagnostic categories. The DSM-Oriented Scales include: Affective Problems; Anxiety Problems; Pervasive Developmental Problems; Attention Deficit/Hyperactivity Problems; Oppositional Defiant Problems.

The school age assessment is normed for children ages 6 to 19 and includes forms for parents/surrogates, teachers and self-report. The empirically based syndrome scales for teachers and parents include:

Anxious/Depressed;	Withdrawn/Depressed
Somatic Complaints	Social Problems
Thought Problems	Attention Problems
Rule-Breaking Behavior	Aggressive Behavior.

DSM oriented scales are also available and are reported to be consistent with DSM-IV categories and include:

Affective Problems	Anxiety Problems
Somatic Problems	Attention Deficit/Hyperactivity Problems
Oppositional Defiant Problems	Conduct Problems.

In 2007 multicultural norms were added to both the Preschool and School-Aged scales that provides problem-scale profiles in relation to multicultural norms. Different norms are provided for different societies

### **Reliability**

Test-retest for the preschool form using an average 8 day interval yielded correlations in the .80s and .90s with a mean  $r = .85$ . Test-retest on the school-aged form yielded a mean  $r = .88$  with stability ratings after 12 months averaging  $r = .65$ . Inter-parent agreement was observed with a  $r = .61$  and the agreement between caregivers and teachers was correlated at .65. Internal consistency for the school-aged forms ranged from the .70s to the .90s. Additional information pertaining to the scales' reliability is available at the website: [www.aseba.org](http://www.aseba.org).

### **Validity**

Content validity is well-established through extensive research and revisions of the forms. This information is available in the manuals that are available through the scales' website ([www.aseba.org](http://www.aseba.org)). Good discrimination between children referred for behavioral health and special education services is noted when compared to a group of non-referred children with similar demographics.

### **Behavioral Assessment System for Children-2<sup>nd</sup> Ed.**

Author: Randy Kamphaus and Cecil Reynolds

Publisher: Pearson (originally published by AGS)

Copyright: 2004

Full length form: 10-20 minutes for parent and teacher ratings

Costs: Hand score starter kit: \$527.60  
Web-based scoring available

The BASC-II is a set of rating scales that include the Teacher Rating Scales (TRS), Parent Rating Scales (PRS), Self-Report of Personality (SRP), Student Observation System (SOS), and Structured Developmental History (SDH).

The BASC-2 parent and teacher rating scales provide 16 clinical subscales:

Activities of Daily Living	Functional Communication
Adaptability	Hyperactivity
Aggression	Leadership
Anxiety	Learning Problems
Attention Problems	Social Skills
Atypicality	Somatization
Conduct Disorder	Study Skills
Depression	Withdrawal

### **Content (Reynolds & Kamphaus, 2004)**

The BASC-2 is designed to assist in treatment planning, evaluation and intervention as well as to assist with differential diagnoses when used with the DSM-IV. The teacher rating scales vary in length from 100 to 139 items. The parent ratings range from 134 to 160 items. Total scores for each scale are converted to composite scores, scaled scores, percentiles and there are graphs available with the computerized scoring program.

The BASC-2 was normed on a general population of American children and adolescents from various settings that included 4,650 teacher ratings and 4800 parent ratings. A clinical norm sample included 5281 reports from teacher, parent and self-ratings.

### **Reliability**

Internal consistency has yielded coefficient alphas in the .90s for composite scales and in the .80s for subscales. Test-retest reliability with one to eight week intervals were in the .80s for composites and .70s and .80s for subscales.

### **Validity**

The manual describes several measures to compare the BASC-2 with similar scales. In general, correlations were in the high .70s and .80s (Achenbach scales, Conner scales, etc.).

## **Conners 3**

Author: K. Conners

Publisher: MHS Publishers

Full length form: 20 minutes

Costs: Hand score kit with 25 forms: \$449.00 (recently updated for DSM-5)  
Software scoring program (unlimited use): \$321.00

The Conners 3 is the third edition of a behavior rating scale used to assess for ADHD and other childhood disorders. There are scales for parents and teachers (ages 6-18) and a self-report form for ages 8-18. The Conner, 3 contains several scales including:

General Psychopathology	Inattention
Hyperactivity/Impulsivity	Learning Problems

Executive Functioning	Aggression
Peer Relations	Family Relations
ADHD Inattentive	ADHD Hyperactive-Impulsive
ADHD Combined	Oppositional Defiant Disorder
Conduct Disorder	

The Conners 3 has three validity scales titled: Positive Impression, Negative Impression and an Inconsistency Index. The subscale raw scores are converted to T scores (mean=50, SD=10).

### **Reliability**

Internal consistency coefficients are .90 and above for parent and teacher ratings and .85 and above for the self reports. Interrater reliability is described as .82 to .98. Some subscales were slightly lower.

### **Validity**

Exploratory and confirmatory factor analysis yielded a five factor model for parents (learning problem, aggression, hyperactivity/impulsivity, peer relations and executive functioning. A four factor model better suited the teacher ratings (learning problems, aggression, hyperactivity/impulsivity, and peer relations. Correlations between parent and teacher rating was .60.

Convergent validity with BASC-II, CBCL, etc were reported as reasonable.

The Conners 3 is a well-designed and improved over previous Conners scales and highly recommended for clinical use (Arfa, 2010).

### **Child Depression Inventory, 2<sup>nd</sup> Ed.**

Author: Maria Kovacs

Publisher: MHS

Copyright: 2011

Time to test: 5 – 15 minutes

Cost: Complete hand score kit: \$289.00

Complete software score kit: \$399.00

The Children's Depression Inventory 2 (CDI2) is a rating scale designed to obtain ratings of a child's depression from parents, teachers and self-report. The rating scale is based on the original CDI that enjoyed much success. The scale can be administered as a paper-pencil test, online or with a computer. The scales provided by the CDI2 include Emotional Problems and Functional Problems and four subscales including:

Negative Mood	Negative Self-Esteem
Ineffectiveness	Interpersonal Problems

A full length scale provides 28 items, whereas, a short screening scale uses 12 items.

The CDI2 was normed on a sample of 1187 parent ratings and 631 teacher ratings representing 26 different states in the U.S. It is evenly proportioned for age and gender and the sample's racial/ethnic distribution matches the U.S. census distribution. A clinical sample of 319 youth ages 7 to 17 with diagnoses of Major Depressive Disorder, ADHD, Conduct Disorder, Generalized Anxiety and Oppositional Defiant Disorder was obtained.

### **Reliability**

Internal consistency using coefficient alpha was nonclinical samples ranged from .68 to .88 and for clinical sample .76 to .89. Test-retest with interval of 1-4 weeks ranged from .54 to .67. For 6 month interval it was .54.

### **Validity**

A relationship is noted between CDI and self-esteem measures. Little is offered comparing the CDI with other depression scales for children. Considered acceptable as a screening instrument, (MMY-17).

### **Revised Children's Manifest Anxiety Scale: Second Edition (RCMAS-2)**

Authors: Cecil R. Reynolds & Bert O. Richmond

Publisher: Western Psychological Services

Copyright: 2008

Cost: Basic kit: \$119.00

Time to administer: 10-15 minutes

The RCMAS-2 is a brief self-report inventory measuring the level of anxiety in 6- to 19-year-olds. The test is made up of 49 items covering the following scales:

physiological anxiety	worry
social anxiety	defensiveness
inconsistent responding index	

A cluster of 10 items assesses performance anxiety. The Defensiveness scale replaces and improves upon the RCMAS Lie scale, and the Inconsistent Responding index is new to this edition.

Norms are based on an ethnically diverse sample of more than 2,300 individuals ages of 6 and 19, with similar numbers of males and females. Norms are provided for three age groups: 6 to 8 years, 9 to 14 years, and 15 to 19 years. The website reports that because RCMAS-2 scales correlate highly with RCMAS scales, the research using the RCMAS extends to the RCMAS-2. Seligman, Ollendick, Langley, Baldacci and Bechtoldt (2004) found that the RCMAS was able to discriminate between anxiety disorder and externalizing disorders, but it was not as sensitive to discriminating between anxiety disorder and other internalizing disorders.

### **Vanderbilt Scales**

Copyright: 2002 American Academy of Pediatrics and the National Initiative for Children's Healthcare Quality  
Available via many websites

The NICHQ Vanderbilt Assessment Scales for parents and teachers screen for ADHD, Oppositional/Conduct behaviors, and anxiety/depression. The instruments are primarily used to assess for symptoms of ADHD. The Teacher version contains 18 items that assess ADHD, an additional 10 items that assess for oppositional and conduct problems, 7 items that screen for depression and anxiety and 8 additional items that rate academic performance and classroom behaviors. The parent form contains 18 items that assess ADHD, 8 items that screen for oppositional behaviors, 14 items that evaluate for conduct problems and 7 items that rate anxiety and depression. Additional items rate school performance, relationships with family members and peers.

Psychometric properties include Cronbach alpha's at .90 or better. With regard to the 18 items used to diagnose ADHD the two subscales (9 items for inattentive and 9 items for hyperactivity), factor analysis supports this two factor model. Internal consistencies were .93 or higher and the scale correlates well with the Computerized

Diagnostic Interview Schedule for Children. The Vanderbilt scales have become a popular and easy to use behavior rating scale to assess for ADHD with parents and teachers (Wolraich, Lambert, Doffing, Bickman, Simmons, & Worley, K., 2003).

### **Child and Adolescent Functional Assessment Scale (CAFAS)**

Author: Kay Hodges

Publisher: Functional Assessment Systems (Kay Hodges)

Copyright: 2000

Time to test: 10 minutes

Cost: Costs are not posted on their website – paper forms are available but FAS appears to be trying to market it as an online tool with a yearly fee.

The basic CAFAS assesses a youth's functioning across eight domains that include:

School	Home
Community	Behavior Toward Others
Mood/Emotions	Self-Harmful Behavior
Substance Use	Thinking

Ratings are made on a four point scale (Severe-30, Moderate-20, Mild-10 and Minimal-0). Additional ratings are available for caregiver resources.

The CAFAS was normed on 4758 children. Average test-retest correlations are .78, interrater reliability is .92 and inter consistency is between .73 and .78 (Hodges & Wong, 1996). Hodges and Wong. It has demonstrated validity in predicting service utilization among youth with serious emotional disturbance (Hodges, Doucette-Gates & Kim, 2000).

### **Child and Adolescent Needs and Strengths (CANS)**

Author: John Lyons

Publisher: Praed Foundation

Copyright: 1999

Different versions of the CANS are in use in several states by child welfare, mental health and juvenile justice applications. A comprehensive, multi-system version also exists. Some versions of the CANS can be downloaded from the Praed website.

The CANS is somewhat similar to the CAFAS. It rates life domains using a range of 0 to 3 (no evidence-0, a history of the concern but doing well-1, significant problem-2, severe problem-3). The life domains include:

Family	social functioning
Medical	developmental
learning problems	sexuality
self-care	community.

There are additional domains that evaluate school, child behavioral/emotional needs, acculturation, etc. There is another section that assesses strengths across a range of domains (family, talents, interpersonal, educational, resiliency, etc.).

Reliability studies indicate that the CANS is reliable at the item level. Training and certification is required for the use of the CANS and there is a recommended minimum for certification (reliability of 0.70 using an intraclass correlation coefficient on a test vignette). Average reliability after training is approximately 0.80. Reliability on case record is 0.85 and reliability with a live interview is at least 0.90. Validity has been explored using other measures with similar constructs such as the CAFAS and CBCL. Validity has been demonstrated through the relationship of the CANS to service use and outcomes. (Anderson, Lyons, Giles, Price & Estle, 2003).

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