Identifying Cognitive Strengths and Weaknesses: Using KABC-II Normative Update

Gloria Maccow, Ph.D., Assessment Training Consultant

Agenda

- Overview of KABC-II NU
- Need for Normative Update
- Standardization
- Reliability and Validity
- Identifying Cognitive Strengths and Weaknesses

Authors

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What is KABC-II NU?

- The KABC-II NU updates the normative data for the KABC-II, a culturally fair, individually administered measure of cognitive ability.
- The KABC-II was published in 2004; the Normative Update for the KABC-II will be published in March 2018.

Overview of KABC-II NU

<table>
<thead>
<tr>
<th>Ages</th>
<th>Qualification Level</th>
<th>Administration</th>
<th>Scoring</th>
</tr>
</thead>
<tbody>
<tr>
<td>3–18 years</td>
<td>C</td>
<td>Paper-and-Pencil</td>
<td>Web-based (Q-Global) Scoring</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Manual Scoring</td>
</tr>
</tbody>
</table>

Need for Normative Update

- Changes in US Demographics, Curriculum, and Educational Practices
- Technology Leading to Changes in the Curriculum and in Educational Planning
- Impact of the Flynn Effect
Materials for KABC-II NU

- KABC-II easels, manual, stimulus and manipulative materials and record forms.

Test Structure

Three age-based core batteries that vary slightly in subtest and scale composition.

18 Subtests
- 2 Conceptual Thinking
- 3 Face Recognition
- 4 Story Completion
- 5 Naming Speed
- 6 General Knowledge
- 7 Verbal
- 8 Expression
- 9 Expressivity
- 10 Spatial Knowledge
- 11 Nonverbal
- 12 Block Counting
- 13 Word Order
- 14 Pattern Reading
- 15 Finger Movements
- 16 Token Test
- 17 Token Test
- 18 Index

Dual Theoretical Foundation of KABC-II Scales and Global Scales

<table>
<thead>
<tr>
<th>Luria Term</th>
<th>CHC Term</th>
<th>KABC-II Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sequential Processing</td>
<td>Short-term Memory (Gsm)</td>
<td>Sequential (Gsm)</td>
</tr>
<tr>
<td>Simultaneous</td>
<td>Visual Processing (Gv)</td>
<td>Simultaneous (Gv)</td>
</tr>
<tr>
<td>Learning Ability</td>
<td>Long-term Storage and retrieval (Glr)</td>
<td>Learning/Glr</td>
</tr>
<tr>
<td>Planning Ability</td>
<td>Fluid Reasoning (Gf)</td>
<td>Planning/Gf</td>
</tr>
<tr>
<td>Mental Processing</td>
<td>Crystallized Ability (Gc)</td>
<td>Knowledge/Gc</td>
</tr>
<tr>
<td>Index (MPI)</td>
<td>Fluid-Crystallized Index (FCI)</td>
<td></td>
</tr>
</tbody>
</table>
Updated Theoretical Foundations

- Cattell-Horn-Carroll (CHC) psychometric theory of cognitive abilities.
- Luria’s neuropsychological theory of processing.

Clinical Applications of KABC-II\textsuperscript{NU}

- SLD Identification
- Processing Strengths and Weaknesses
- Culturally and Linguistically Diverse Groups
- Giftedness
- Preschool children

Subtest Administration

- The content and structure of the KABC-II\textsuperscript{NU} test remains identical to the KABC-II.
- Examiners should refer to the KABC-II Manual for information regarding the determination of start points, discontinue rules, and time bonuses.
Norm Sample

- Cases collected as part of validity studies for standardization of KTEA-3 and WISC-V.
- N = 700

Representativeness of Children From Various Special Education Classifications

- Intellectual Disability
- Gifted/Talented
- Attention-Deficit/Hyperactivity Disorder
- Emotional/Behavioral Disturbance
- Specific Learning Disability
- Speech/Language Impairment

Reliability of Normative Sample

<table>
<thead>
<tr>
<th>Score</th>
<th>Average $r_{xx}$ (Ages 3–6)</th>
<th>Average $r_{xx}$ (Age 7–18)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sequential/Gsm</td>
<td>.91</td>
<td>.91</td>
</tr>
<tr>
<td>Simultaneous/Gv</td>
<td>.95</td>
<td>.95</td>
</tr>
<tr>
<td>Learning/Glr</td>
<td>.98</td>
<td>.97</td>
</tr>
<tr>
<td>Planning/Gf</td>
<td>---</td>
<td>.91</td>
</tr>
<tr>
<td>Knowledge/Gc</td>
<td>.94</td>
<td>.96</td>
</tr>
<tr>
<td>Delayed Recall</td>
<td>.92</td>
<td>.95</td>
</tr>
<tr>
<td>MPI</td>
<td>.96</td>
<td>.97</td>
</tr>
<tr>
<td>FCI</td>
<td>.97</td>
<td>.98</td>
</tr>
<tr>
<td>NVI</td>
<td>.94</td>
<td>.95</td>
</tr>
</tbody>
</table>
Validité

- Evidence Based on Internal Structure
- Evidence Based on Relations With Other Variables (KABC, WISC-V, KTEA-3)

THEORETICAL APPROACHES TO INTERPRETATION: IDENTIFYING COGNITIVE STRENGTHS AND WEAKNESSES

CHC Theory and KABC-II NU

Stratum III (General Ability)
- g (FCI)
- Stratum II (Broad)
  - Fluid Reasoning
  - Crystallized Ability
- Stratum I (Narrow)
  - General Sequential Reasoning
  - Language Development
  - General Information
  - Induction
  - Lexical Knowledge
  - Spatial Relations
  - Visualization
  - Spatial Scanning
  - Closure Speed
  - Working Memory
  - Learning Abilities
  - Memory Span
  - Associative Memory

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Planning/Gf Index (Fluid Reasoning)

**Gf** Fluid Reasoning

- Induction
- General Sequential Reasoning

Use of deliberate and controlled focused attention to solve novel problems that cannot be solved solely by using prior knowledge.

Knowledge/Gc Index (Crystallized Ability)

**Gc** Crystallized Ability

- Lexical Knowledge
- General Information
- Language Development

Depth and breadth of declarative and procedural knowledge and skills of one's culture.

Simultaneous/Gv Index (Visual-Spatial Processing)

**Gv** Visual Processing

- Visual Memory
- Spatial Relations
- Visualization
- Spatial Scanning
- Closure Speed

Make use of simulated mental imagery to solve problems.
Sequential/Gsm Index (Short-Term Memory)

Short-term memory refers solely to tasks that involve significant storage but only minimal processing; working memory suggests a more complex construct that consumes short-term memory.

Working Memory Model

(Baddeley & Hitch, 1974; Baddeley, 2000)

Learning/Glr Index (Long-Term Storage and Retrieval)

Ability to encode information (learning efficiency) and ability to retrieve information fluently (retrieval fluency).
Luria’s Neuropsychological Theory and KABC–II NU

Block 1: Maintains Arousal
- Attention
- Sensory-Motor
- Speed (and Efficiency)

Block 2: Codes & Stores Information
- Visual-Spatial
- Auditory-Verbal
- Memory (and Learning)

Block 3: Plans & Organizes
- Executive Functioning
- Learning (and Memory)
- Efficiency and Speed

Selecting A Theoretical Model

Culturally and Linguistically Diverse Students

AGES 7–18: NONVERBAL INDEX (NVI)

Scaled Scores
- Story Completion
- Triangle
- Block Counting
- Pattern Reasoning
- Hand Movements

%ile Rank

Conf Interval
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KABC-II NU

Cattell-Horn-Carroll (CHC) Approach
Dual Theoretical Foundation

Luria Neuropsychological Model

Culture Fair
Age range (3–18 years)

For More Information . . .

Coming Soon! The KABC-II NU is now available for pre-order and will be shipped in March 2018.

UPGRADE To upgrade to the KABC-II NU, existing KABC-II customers only need to purchase the KABC-II NU Norm Update Supplement (Item 25840).

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