Overview of the WISC-V
Anne-Marie Kimbell, Ph.D.
Pearson Clinical Assessment

# An Overview of the WISC-V

Anne-Marie Kimbell, Ph.D.
National Training Consultant
Pearson

ALWAYS LEARNING PEARSON

## WISC-V

**Traditional Format Paper/Pencil**

**Digital Format on Q-interactive**

Scoring Options

**Handscore**

**Q-global Scoring & Reporting**

- Score Report
- Combination Reports
- Narrative Reports
- Interpretive Report

**Automatic Scoring & Reporting via Q-interactive**

Similar score report output as those available on Q-global, *plus*:

- Automatic subtest scoring
- Immediate scaled scores

ALWAYS LEARNING PEARSON

 Copyright © 2015. Pearson, Inc., or its affiliates. All rights reserved.

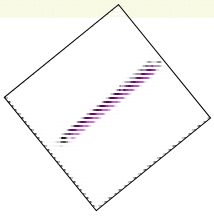
WISC®-V
WECHSLER INTELLIGENCE SCALE FOR CHILDREN®-FIFTH EDITION

## Paper Administration

ALWAYS LEARNING PEARSON

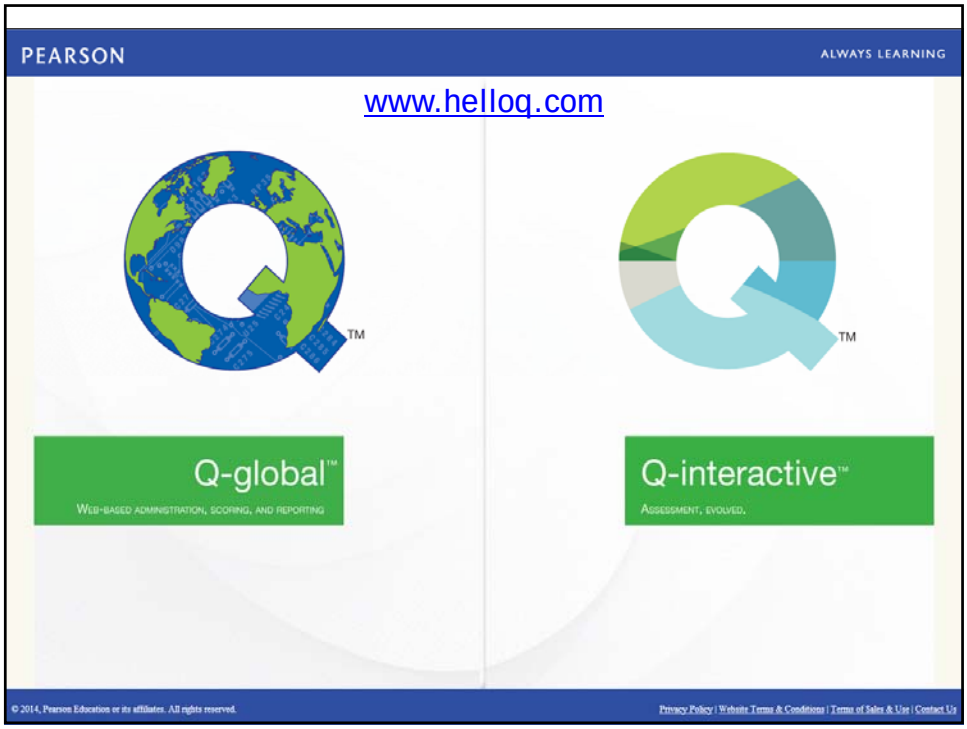
WISC®-V
WECHSLER INTELLIGENCE SCALE FOR CHILDREN®-FIFTH EDITION

## Digital Administration



ALWAYS LEARNING PEARSON

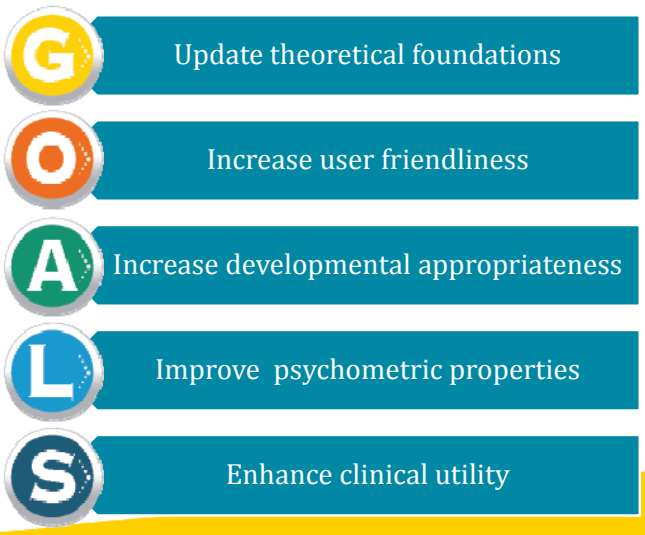
 Copyright © 2015. Pearson, Inc., or its affiliates. All rights reserved.





 Copyright © 2015. Pearson, Inc., or its affiliates. All rights reserved.

## WISC-V Revision Goals




ALWAYS LEARNING PEARSON

## 1. Update Theoretical Foundations

- Increase breadth of construct coverage by investigating and developing:
  - visual spatial subtest
  - fluid reasoning subtest
  - visual working memory subtest
  - subtests to measure additional processes related to learning (naming facility, associative memory)
    - to measure additional cognitive processes relevant to learning disabilities
- Coinciding with development of general intellectual ability is the enormous growth in verbal skills during early elementary years.
  - Implications for reading and writing development
- Working memory is important to the measure of cognitive functioning
  - related to fluid reasoning (Burgess & Braver, 2010; Hornung, 2011; Martinez et al., 2011)
  - implicated in a wide variety of academic problems and clinical conditions affecting children and adolescents (e.g., Archibald & Gathercole, 2006a, 2007; Borella, Caretti, & Pellegrina, 2010; Hutchinson, Bavin, Efron, & Sciberras, 2012; Fitzpatrick & Pagini, 2012)

ALWAYS LEARNING PEARSON

 Copyright © 2015. Pearson, Inc., or its affiliates. All rights reserved.

## 2. Increase User Friendliness

- Reduce testing time
  - 5 primary index scores: 65 minutes mean
    (10 minutes shorter than WISC-IV mean)
  - FSIQ: 48 minutes mean
    (27 minutes shorter than WISC-IV mean)
  - Shorter discontinue rules, fewer items, selecting subtests with briefer admin time to contribute to these scores

ALWAYS LEARNING PEARSON

## 3. Increase Developmental Appropriateness

- Instructions
  - Reduce vocabulary level
    - ceiling items on Similarities
    - "Advantages" and other high vocabulary level of items on Comprehension
  - Reduce verbosity
  - Demonstrate, practice, and teach the task
- Replace outdated art and items with more current and relevant

ALWAYS LEARNING PEARSON

 Copyright © 2015. Pearson, Inc., or its affiliates. All rights reserved.

## 4. Improve Psychometric Properties

- Items and scoring rules
- Norms and norming method
- Maintain or improve reliability
- Floors and ceilings
- Reevaluate item bias
  - Iterative psychometric analyses
  - Qualitative reviews by experts
- Significance level options for critical values

ALWAYS LEARNING PEARSON

## 5. Enhance Clinical Utility

- Provide subtests to measure cognitive processes known to be clinically sensitive to learning disabilities
- To enhance pattern of strengths and weaknesses (PSW) approach to learning disability evaluation
  - Naming Speed Literacy and Naming Speed Quantity
  - Immediate, Delayed, and Recognition Symbol Translation
- Provide PSW link in joint software with WIAT-III, KTEA-3 and with CELF-5
- Add special group studies based on use
  - Borderline Intellectual Functioning
  - English Language Learners

ALWAYS LEARNING PEARSON

 Copyright © 2015. Pearson, Inc., or its affiliates. All rights reserved.

## Enhance Clinical Utility (cont'd)

Composite Score Changes

- Full Scale IQ
  - Does not include all primary subtests
  - Quicker to obtain
- Five, factor-based Primary Index Scores
  - Verbal Comprehension Index,
  - Visual Spatial Index,
  - Fluid Reasoning Index,
  - Working Memory Index,
  - Processing Speed Index

ALWAYS LEARNING PEARSON

## Enhance Clinical Utility (cont'd)

- Test structure
  - Provide factor structure that simplifies interpretation (PRI→VSI/FRI)
- Score differences comparison methodology
  - Both index- and subtest-level: Strengths and weaknesses then pairwise

ALWAYS LEARNING PEARSON

 Copyright © 2015. Pearson, Inc., or its affiliates. All rights reserved.

## Enhance Clinical Utility (cont'd)

- Ancillary Index Scores
  - Quantitative Reasoning Index (QRI)
  - Auditory Working Memory Index (AWMI)
  - Nonverbal Index (NVI)
  - General Ability Index (GAI)
  - Cognitive Proficiency Index (CPI)
- New methods for strength and weakness analysis

ALWAYS LEARNING PEARSON

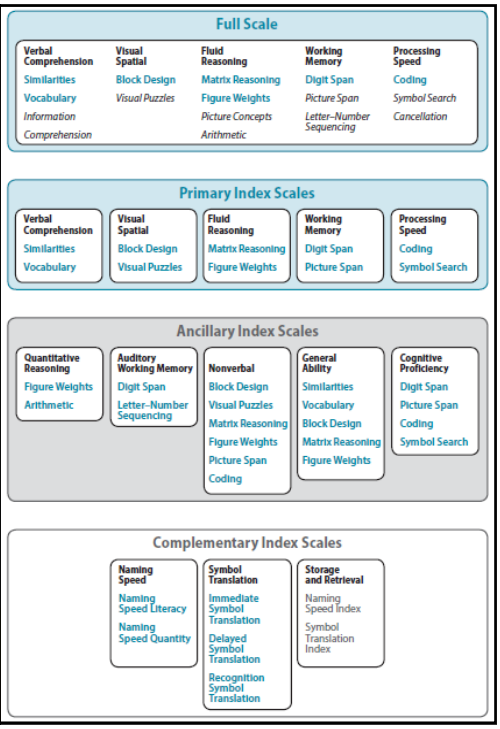

## WISC-V

Test Structure

ALWAYS LEARNING PEARSON

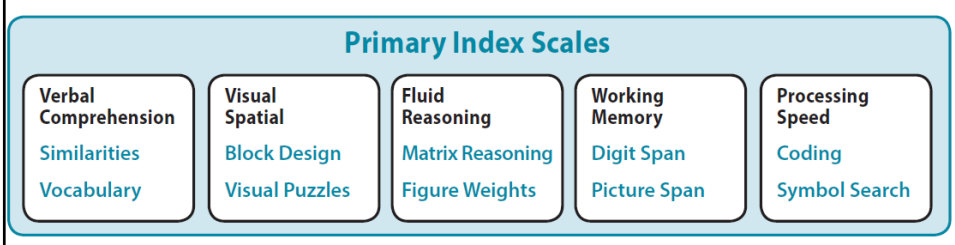
 Copyright © 2015. Pearson, Inc., or its affiliates. All rights reserved.

## WISC-V Test Framework




ALWAYS LEARNING

## Test Structure: Primary Index Scales




VCI VSI FRI WMI PSI

**Perceptual Reasoning Index (PRI)**
**Replaced**

ALWAYS LEARNING PEARSON

 Copyright © 2015. Pearson, Inc., or its affiliates. All rights reserved.

## Test Structure: Full Scale IQ

**Full Scale**

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

*Primary and Secondary Subtests*

ALWAYS LEARNING PEARSON

## Test Structure: Ancillary Index Scales

**Ancillary Index Scales**

| Quantitative Reasoning | Auditory Working Memory | Nonverbal | General Ability | Cognitive Proficiency |
|---|---|---|---|---|
| Figure Weights | Digit Span | Block Design | Similarities | Digit Span |
| Arithmetic | Letter–Number Sequencing | Visual Puzzles | Vocabulary | Picture Span |
| | | Matrix Reasoning | Block Design | Coding |
| | | Figure Weights | Matrix Reasoning | Symbol Search |
| | | Picture Span | Figure Weights | |
| | | Coding | | |

**QRI** **AWMI** **NVI** **GAI** **CPI**

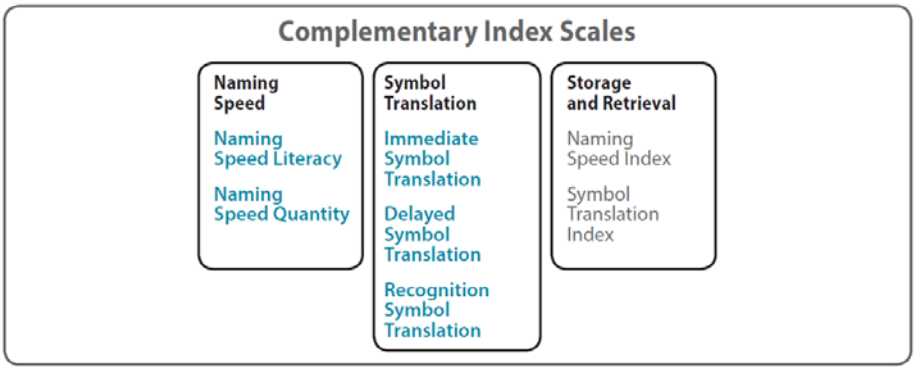
*New!*

*Indexes Retained!*

ALWAYS LEARNING PEARSON

 Copyright © 2015. Pearson, Inc., or its affiliates. All rights reserved.

## Test Structure: Complementary Scales and Subtests




On Record Form Analysis Pages and in
Administration and Scoring Manual Supplement: Optional carry-along

ALWAYS LEARNING PEARSON

## Substitution and Proration No More "Core" and "Supplemental"

| FSIQ Subtest | Allowable Substitutions for Deriving the FSIQ* |
|---|---|
| Similarities | Information or Comprehension |
| Vocabulary | Information or Comprehension |
| Block Design | Visual Puzzles |
| Matrix Reasoning | Picture Concepts |
| Figure Weights | Picture Concepts or Arithmetic |
| Digit Span | Picture Span or Letter–Number Sequencing |
| Coding | Symbol Search or Cancellation |

- Only one substitution OR proration on FSIQ
- No substitution or proration on any index score
- Less necessary with the expanded composite score options

ALWAYS LEARNING PEARSON

 Copyright © 2015. Pearson, Inc., or its affiliates. All rights reserved.

## Summary
### Total Raw Score to Scaled Score Conversion

| Subtest | Raw Score | Scaled Score | | | | | |
|---|---|---|---|---|---|---|---|
| Block Design | 30 | | 12 | | | | 12 |
| Similarities | 31 | 15 | | | | | 15 |
| Matrix Reasoning | 18 | | | 11 | | | 11 |
| Digit Span | 21 | | | | 9 | | 9 |
| Coding | 29 | | | | | 9 | 9 |
| Vocabulary | invalid | — | | | | | — |
| Figure Weights | 19 | | | 11 | | | 11 |
| Visual Puzzles | 16 | | 12 | | | | (12) |
| Picture Span | 21 | | | | 8 | | (8) |
| Symbol Search | 18 | | | | | 9 | (9) |
| Information | 20 | | | | | | (15) |
| Picture Concepts | 13 | | | | | | (10) |
| Letter–Number Sequencing | 12 | | | | | | (8) |
| Cancellation | 54 | | | | | | (10) |
| Comprehension | 23 | | | | | | (15) |
| Arithmetic | 18 | | | | | | (11) |
| Sum of Scaled Scores | | inval. | 24 | 22 | 17 | 18 | 82 |
| | | Verbal Comp. | Visual Spatial | Fluid Reas. | Work. Mem. | Proc. Speed | Full Scale |

**One Substitution**

ALWAYS LEARNING PEARSON


ALWAYS LEARNING PEARSON

 Copyright © 2015. Pearson, Inc., or its affiliates. All rights reserved.

## Subtest Types and Categories

| Subtest | Score Type | Category |
|---|---|---|
| Block Design | Scaled | Primary (FSIQ) |
| Similarities | Scaled | Primary (FSIQ) |
| Matrix Reasoning | Scaled | Primary (FSIQ) |
| Digit Span | Scaled | Primary (FSIQ) |
| Coding | Scaled | Primary (FSIQ) |
| Vocabulary | Scaled | Primary (FSIQ) |
| Figure Weights | Scaled | Primary (FSIQ) |
| Visual Puzzles | Scaled | Primary |
| Picture Span | Scaled | Primary |
| Symbol Search | Scaled | Primary |

ALWAYS LEARNING PEARSON

## Subtest Types and Categories

| Subtest | Score Type | Category |
|---|---|---|
| Information | Scaled | Secondary |
| Picture Concepts | Scaled | Secondary |
| Letter-Number Sequencing | Scaled | Secondary |
| Cancellation | Scaled | Secondary |
| Comprehension | Scaled | Secondary |
| Arithmetic | Scaled | Secondary |

ALWAYS LEARNING PEARSON

 Copyright © 2015. Pearson, Inc., or its affiliates. All rights reserved.

## Subtest Types and Categories

| Subtest | Score Type | Category |
|---|---|---|
| Naming Speed Literacy | Standard | Complementary |
| Naming Speed Quantity | Standard | Complementary |
| Immediate Symbol Translation | Standard | Complementary |
| Delayed Symbol Translation | Standard | Complementary |
| Recognition Symbol Translation | Standard | Complementary |

ALWAYS LEARNING PEARSON

## Changes

ALWAYS LEARNING PEARSON

 Copyright © 2015. Pearson, Inc., or its affiliates. All rights reserved.

## Subtests on WISC-IV Dropped from WISC-V

- Word Reasoning
  - Redundant measure of verbal comprehension (high correlation with Information)
- Picture Completion
  - Construct not as representative of visual spatial ability as others (secondary verbal loading)
- And we needed space for new subtests…

ALWAYS LEARNING PEARSON

## WISC-V Subtest Modifications

**WISC-V: Anticipated Subtest Modifications**

| Subtest | Domain | New WISC Subtest | If new, what W series? | Administration | Recording & Scoring | New Items | Paper | Digital |
|---|---|---|---|---|---|---|---|---|
| Information | VC | | | | x | x | x | x |
| Similarities | VC | | | | x | x | x | x |
| Vocabulary | VC | | | | x | x | x | x |
| Comprehension | VC | | | | x | x | x | x |
| Block Design | VS | | | x | x | x | x | x |
| Visual Puzzles | VS | x | WAIS-IV | | | | x | x |
| Matrix Reasoning | FR | | | | | x | x | x |
| Figure Weights | FR | x | WAIS-IV | | | | x | x |
| Picture Concepts | FR | | | | | x | x | x |
| Arithmetic | FR (TBD) | | | x | x | x | x | x |
| Digit Span | WM | | | x | x | x | x | x |
| Picture Span | WM | x | WISC-V | | | | x | x |
| Letter-Number Sequencing | WM | | | x | x | x | x | x |
| Coding | PS | | | x | x | x | x | x |
| Symbol Search | PS | | | x | x | x | x | x |
| Cancellation | PS | | | x | x | x | x | x |

ALWAYS LEARNING PEARSON

 Copyright © 2015. Pearson, Inc., or its affiliates. All rights reserved.

## Changes: New Subtests

New!

| Visual Spatial Index | Fluid Reasoning Index | Working Memory Index | Complementary Subtests |
|---|---|---|---|
| Visual Puzzles | Figure Weights | Picture Span<br>Digit Span<br>Sequencing added to Digit Span Subtest | Naming Speed Literacy<br>Naming Speed Quantity<br>Immediate Symbol Translation<br>Delayed Symbol Translation<br>Recognition Symbol Translation |

ALWAYS LEARNING PEARSON

## WISC-V on Q-interactive


ALWAYS LEARNING PEARSON

 Copyright © 2015. Pearson, Inc., or its affiliates. All rights reserved.

## Changes to Retained Verbal Comprehension Subtests

**Similarities**
**Vocabulary**
**Information**
**Comprehension**

- Revised scoring rules with data-based queries
- Reviewed vocabulary level (no more "*advantages*")
- New, contemporary item content
- Updated art with increased international portability

ALWAYS LEARNING PEARSON

## Changes to Retained "Perceptual Reasoning" Subtests

| Block Design | Matrix Reasoning | Picture Concepts |
|---|---|---|
| • New Complex Designs<br>• New Process Scores | Two Item Types Retained<br>• 2x2 matrix<br>• Serial Order | • Items revised so images not reused.<br>• New items. |

ALWAYS LEARNING PEARSON

 Copyright © 2015. Pearson, Inc., or its affiliates. All rights reserved.

## Changes to Retained "Perceptual Reasoning" Subtests

Block Design

- New complex designs
- New process scores
  - Partial Score
  - Simplified Break in Configuration Error Score (Dimension Errors on WISC-V)

ALWAYS LEARNING PEARSON

## Changes to Retained "Perceptual Reasoning" Subtests

Picture Concepts

- Items revised so images not reused
- New items

ALWAYS LEARNING PEARSON

 Copyright © 2015. Pearson, Inc., or its affiliates. All rights reserved.

## Changes to Retained Working Memory Subtests

| Letter-Number Sequencing | Arithmetic | Digit Span |
|---|---|---|
| • Eliminated rhyming letters and numbers.<br>• Teaching modified for floor.<br>– First, teach numbers before letters.<br>– Then, teach reordering task. | • New and Revised Items.<br>• One repetition on difficulty items; no repetition on easy items.<br>• Increased WM demands.<br>• Cross loading. | • Added trials to Forward ceiling.<br>• Added some trials for gradient.<br>• Added new Sequencing task. |

ALWAYS LEARNING PEARSON

## Changes to Retained Working Memory Subtests

Letter-Number Sequencing

- Eliminated rhyming letters and numbers.
- Teaching modified for floor:
  - First, teach numbers before letters.
  - Then teach reordering task.

ALWAYS LEARNING PEARSON

 Copyright © 2015. Pearson, Inc., or its affiliates. All rights reserved.

## Changes to Retained WISC-IV Working Memory Subtests

Arithmetic (Now on FRI)

- New and revised items.
- One repetition on difficult items; no repetition on easy items.
- Increased WM demands.
- **Cross loading (FR and WM)**.

ALWAYS LEARNING PEARSON

## Changes to Retained WISC-IV Working Memory Subtests

Digit Span (RF, pp.4-6)

- Added trials to Forward ceiling
- Added some trials for gradient
- Added new Sequencing task

ALWAYS LEARNING PEARSON

 Copyright © 2015. Pearson, Inc., or its affiliates. All rights reserved.

## Changes to Retained Processing Speed Subtests

| Coding | Symbol Search | Cancellation |
|---|---|---|
| • Item difficulty consistent across rows.<br>• Changed symbols for digital.<br>• Added process score – rotation errors. | • New symbols.<br>• Evaluating error scores – set errors and rotation errors. | • New art.<br>• Designed by quadrant (target to distracter ratio). |

ALWAYS LEARNING PEARSON

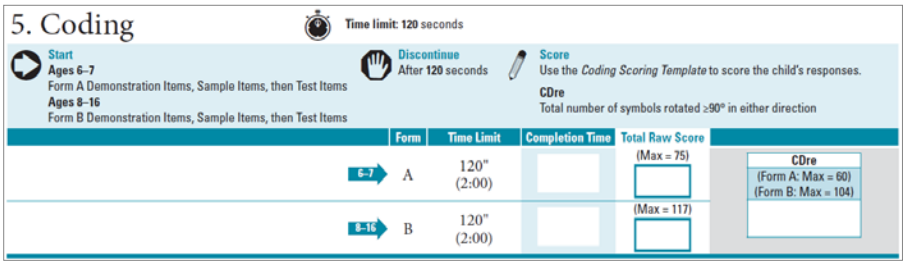
## Changes to Retained Processing Speed Subtests

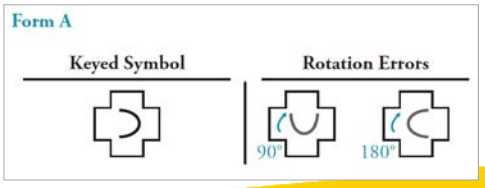
Coding
- Item difficulty consistent across rows
- Changed symbols for digital

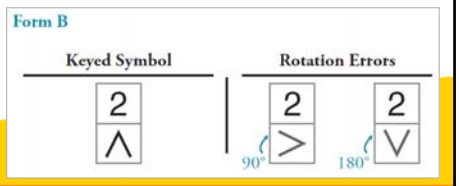
ALWAYS LEARNING PEARSON

 Copyright © 2015. Pearson, Inc., or its affiliates. All rights reserved.

## Changes to Retained Processing Speed Subtests




ALWAYS LEARNING PEARSON

## Changes to Retained Processing Speed Subtests

Symbol Search

- New symbols
- Evaluating error scores

ALWAYS LEARNING PEARSON

 Copyright © 2015. Pearson, Inc., or its affiliates. All rights reserved.

## Changes to Retained Processing Speed Subtests

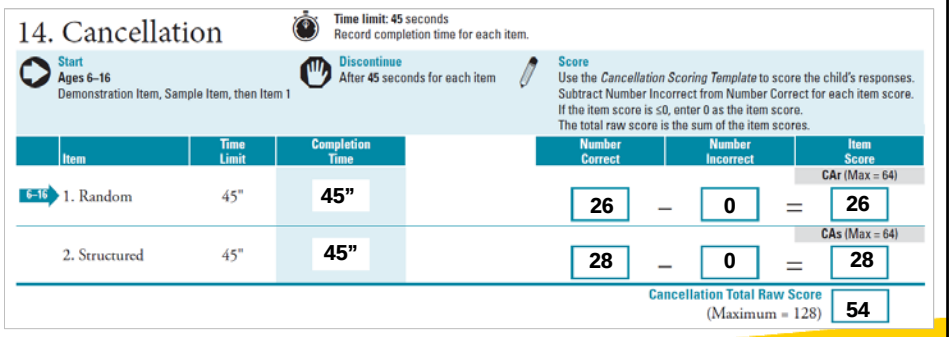
### Cancellation

- New art
- Designed by quadrant (target to distracter ratio)

ALWAYS LEARNING PEARSON

## Cancellation: Scoring

- All marked targets are scored as correct.
- All marked non-targets are scored as incorrect, even if a single mark passes through multiple objects.



14. Cancellation

Time limit: 45 seconds
Record completion time for each item.

Start
Ages 6–16
Demonstration Item, Sample Item, then Item 1

Discontinue
After 45 seconds for each item

Score
Use the *Cancellation Scoring Template* to score the child's responses.
Subtract Number Incorrect from Number Correct for each item score.
If the item score is ≤0, enter 0 as the item score.
The total raw score is the sum of the item scores.

| | Item | Time Limit | Completion Time | Number Correct | | Number Incorrect | | Item Score |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | CAr (Max = 64) |
| 6–16 | 1. Random | 45" | 45" | 26 | – | 0 | = | 26 |
| | | | | | | | | CAs (Max = 64) |
| | 2. Structured | 45" | 45" | 28 | – | 0 | = | 28 |
| | | | | | | | Cancellation Total Raw Score (Maximum = 128) | 54 |

ALWAYS LEARNING PEARSON

 Copyright © 2015. Pearson, Inc., or its affiliates. All rights reserved.

## New Subtests

Extend Content Coverage and Clinical Utility

ALWAYS LEARNING PEARSON

## New Subtests

New!

| Visual Spatial | Fluid Reasoning | Working Memory | Complementary |
|---|---|---|---|
| Visual Puzzles | Figure Weights | • Picture Span<br>• Digit Span Sequencing task added to DS | • Naming Speed<br>• Symbol Translation |

ALWAYS LEARNING PEARSON

 Copyright © 2015. Pearson, Inc., or its affiliates. All rights reserved.

## Visual Puzzles

- Child views a completed puzzle and selects three response options that would combine to reconstruct the puzzle.
- Item time limit of 30 seconds.
- Measures ability to analyze and synthesize abstract information.

ALWAYS LEARNING PEARSON

## Figure Weights

- Child views scale with missing weight(s) and selects the response option that balances the scale.
- Item time limit of 20 or 30 seconds.
- Measures quantitative and analogical fluid reasoning.

ALWAYS LEARNING PEARSON

 Copyright © 2015. Pearson, Inc., or its affiliates. All rights reserved.

## Digit Span Sequencing

- **Examiner reads a sequence of numbers; examinee recalls the numbers in ascending order.**
- *Digit Span Sequencing* **is similar to other tasks that are designed to measure working memory and mental manipulation.**

ALWAYS LEARNING PEARSON

## Naming Speed
### (Literacy and Quantity)

- Child names elements as quickly as possible.
- Quantity naming added to improve sensitivity to math disability (Pauly et al., 2011; Willburger et al., 2008).

Expands Patterns of Strengths and Weaknesses (PSW) analysis for specific learning disability (SLD) identification or to provide further information about rapid automatized naming if the need is present.

ALWAYS LEARNING PEARSON

 Copyright © 2015. Pearson, Inc., or its affiliates. All rights reserved.

## Symbol Translation

Learn Symbol-Word Associations and then translate symbol strings into phrases or sentences.

- Immediate Recall
- Delayed Recall (20-30 minutes after Immediate Recall)
- Recognition

Recognition

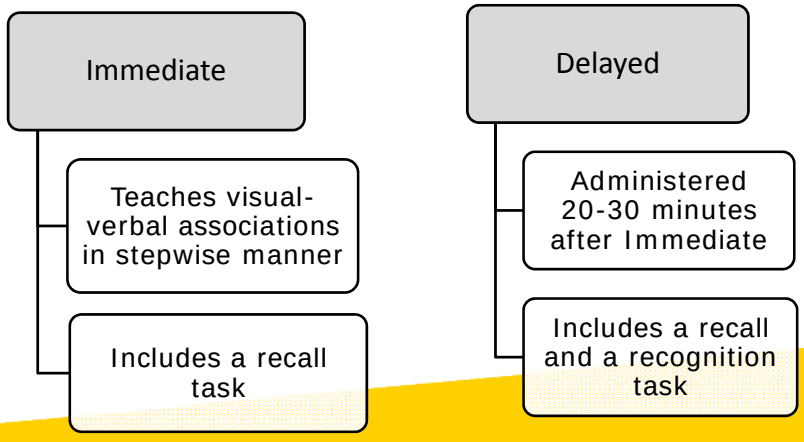
Child views a symbol and selects the associated word from among response options.

Expands PSW analysis for SLD identification or to provide further information about paired associate learning (visual-verbal associative memory) if the need is present.

ALWAYS LEARNING PEARSON

## Symbol Translation

Child learns associations between symbols and words and is then asked to translate symbol strings.




ALWAYS LEARNING PEARSON

 Copyright © 2015. Pearson, Inc., or its affiliates. All rights reserved.

## Symbol Translation

**Learn Symbol Word Associations and then translate symbol strings into phrases or sentences.**

**Immediate Recall**
**Delayed Recall**
**Recognition**

ALWAYS LEARNING PEARSON

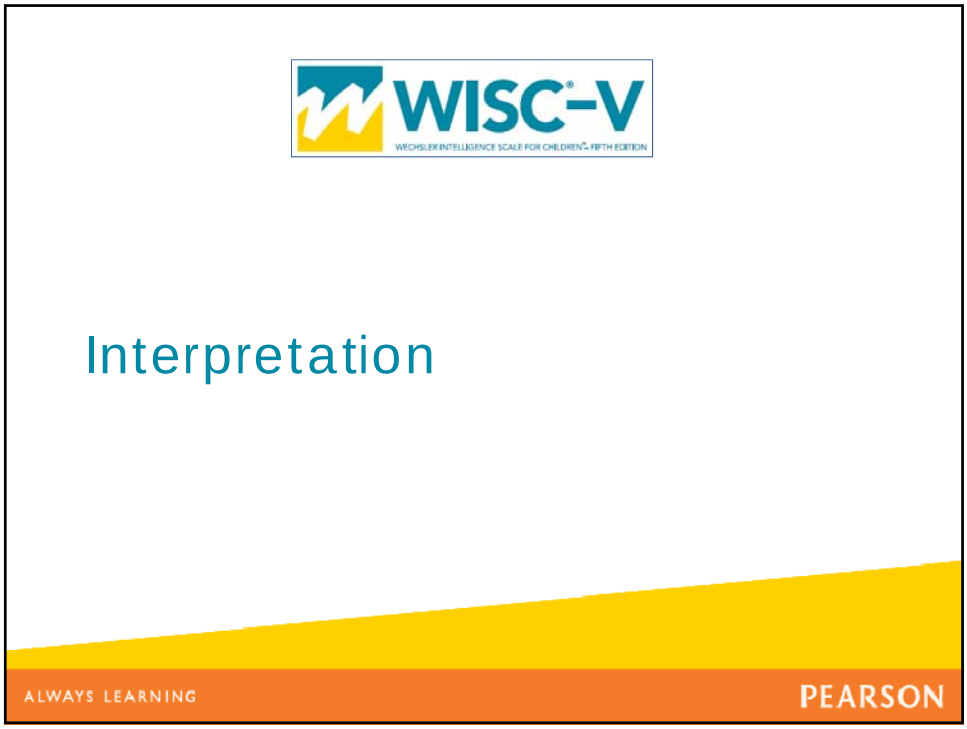
## Symbol Translation

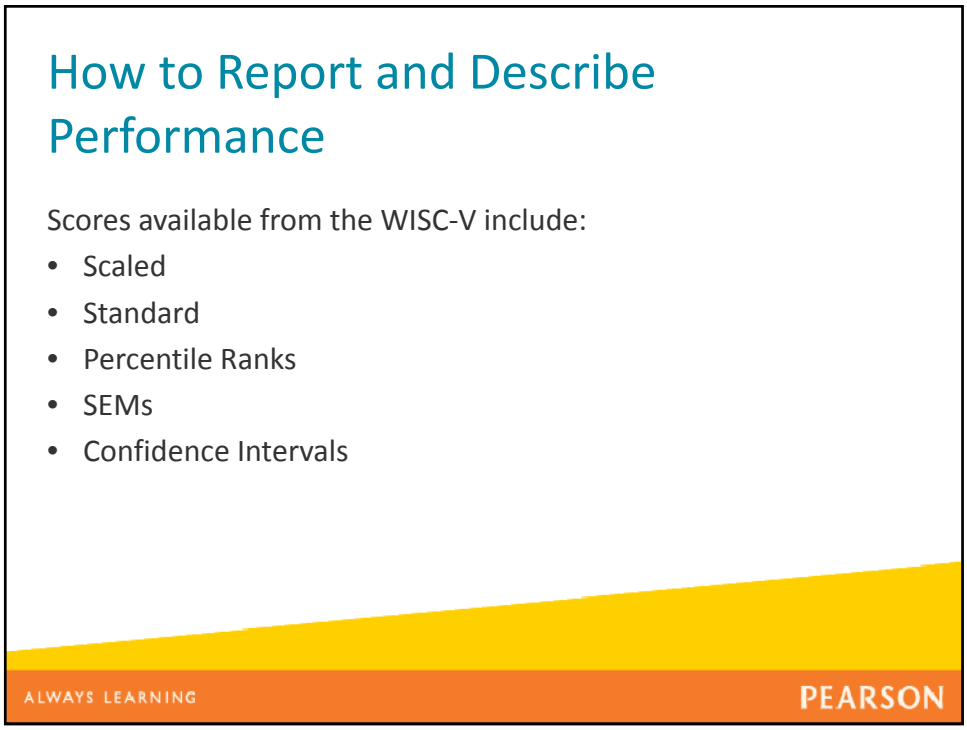
### Recognition Sample

**Child views a symbol and selects the associated word from among response options.**

ALWAYS LEARNING PEARSON

 Copyright © 2015. Pearson, Inc., or its affiliates. All rights reserved.




 Copyright © 2015. Pearson, Inc., or its affiliates. All rights reserved.

## Interpretative Considerations

- Multiple cognitive processes
- Number of processes invoked related to task difficulty
- WISC-V primary and complementary measures are specifically designed to measure complex cognitive processes while ancillary measures are designed to measure processes related to learning difficulties.


ALWAYS LEARNING PEARSON

## Basic Steps to Interpretation

Report and Describe FSIQ

Report and Describe Primary Index Scores (VCI, VSI, FRI, WMI, PSI)

Evaluate Index-Level and Subtest Level Ss and Ws

Conduct Ancillary Analysis and Complementary Analyses

ALWAYS LEARNING PEARSON

 Copyright © 2015. Pearson, Inc., or its affiliates. All rights reserved.

## Full Scale IQ

**Full Scale**

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

- Most reliable score – good predictor of important life outcomes.
- Derived from a sum of 7 subtest scaled scores.
- Considered the score that is most representative of global intellectual functioning (g).
- Traditionally, FSIQ has been the first score to be considered in profile interpretation.

ALWAYS LEARNING PEARSON

## Primary Index Scales

**Primary Index Scales**

| Verbal Comprehension | Visual Spatial | Fluid Reasoning | Working Memory | Processing Speed |
|---|---|---|---|---|
| Similarities | Block Design | Matrix Reasoning | Digit Span | Coding |
| Vocabulary | Visual Puzzles | Figure Weights | Picture Span | Symbol Search |

The primary index scores, along with the FSIQ, are recommended for a comprehensive description and evaluation of intellectual ability.

ALWAYS LEARNING PEARSON

 Copyright © 2015. Pearson, Inc., or its affiliates. All rights reserved.

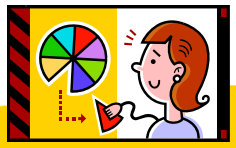
## What is represented by the VCI?


- Ability to access and apply their acquired word knowledge
- The application of knowledge involves:
  - verbal concept formation
  - reasoning
  - expression

ALWAYS LEARNING PEARSON

## What is represented by the VSI?

- Ability to evaluate visual details and understand visual spatial relationships to construct geometric designs from a model.
- Constructional ability requires:
  - visual spatial reasoning
  - integration and synthesis of part-whole relationships
  - attentiveness to visual detail
  - visual-motor integration



ALWAYS LEARNING PEARSON

 Copyright © 2015. Pearson, Inc., or its affiliates. All rights reserved.

## What is represented by the FRI?

Ability to:

1. detect important elements among visual objects
2. to understand their underlying conceptual relationship
3. then apply that knowledge in order to identify another object that best represents the concept

ALWAYS LEARNING PEARSON

## What is represented by the WMI?

- Measure of verbal and visual working memory and the ability to resist proactive interference.
- Working memory involves attention, concentration, mental control, and reasoning.
- Ability to:
  - register
  - maintain (e.g., temporary storage capacity),
  - manipulate visual and auditory information in conscious awareness

**5-8-2-7**

**7-2-8-5**

ALWAYS LEARNING PEARSON

 Copyright © 2015. Pearson, Inc., or its affiliates. All rights reserved.

## What is represented by the PSI?

- Speed and accuracy of visual identification
- Decision-making
- Decision implementation

- Performance on PSI is related to:
  - visual discrimination
  - visual scanning
  - short-term visual memory
  - visuo-motor coordination
  - concentration

ALWAYS LEARNING PEARSON

## Descriptive Classification

NEW!

| Composite Score Range | Traditional Descriptive Classification ("Old") | WISC–V Descriptive Classification |
|---|---|---|
| 130 and above | Very Superior | Extremely High |
| 120–129 | Superior | Very High |
| 110–119 | High Average | High Average |
| 90–109 | Average | Average |
| 80–89 | Low Average | Low Average |
| 70–79 | Borderline | Very Low |
| 69 and below | Extremely Low | Extremely Low |

ALWAYS LEARNING PEARSON

 Copyright © 2015. Pearson, Inc., or its affiliates. All rights reserved.

## Before Testing . . .

WISC®-V
WECHSLER INTELLIGENCE SCALE FOR CHILDREN®- FIFTH EDITION

Child's Name: Student A

Examiner's Name: Examiner A

| Calculation of Child's Age | Year | Month | Day |
|---|---|---|---|
| Test Date | ~~2014~~ 2013 | ~~12~~ 23 | ~~12~~ 42 |
| Birth Date | 2005 | 12 | 16 |
| Test Age | 8 | 11 | 26 |

ALWAYS LEARNING PEARSON

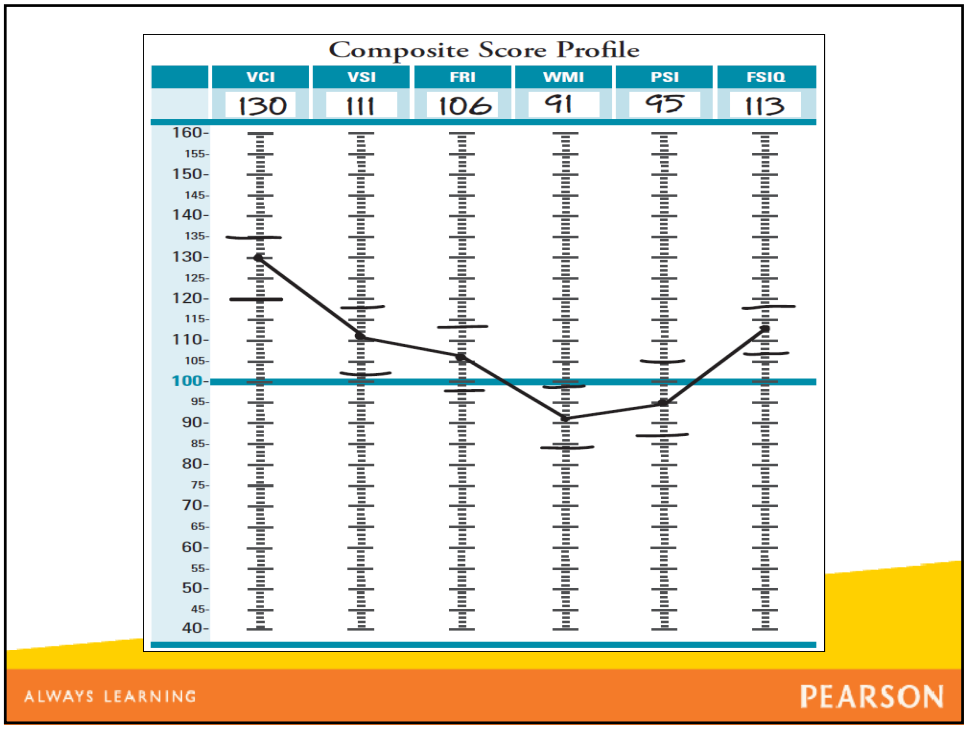
## Generating Standard Scores for Primary Indexes

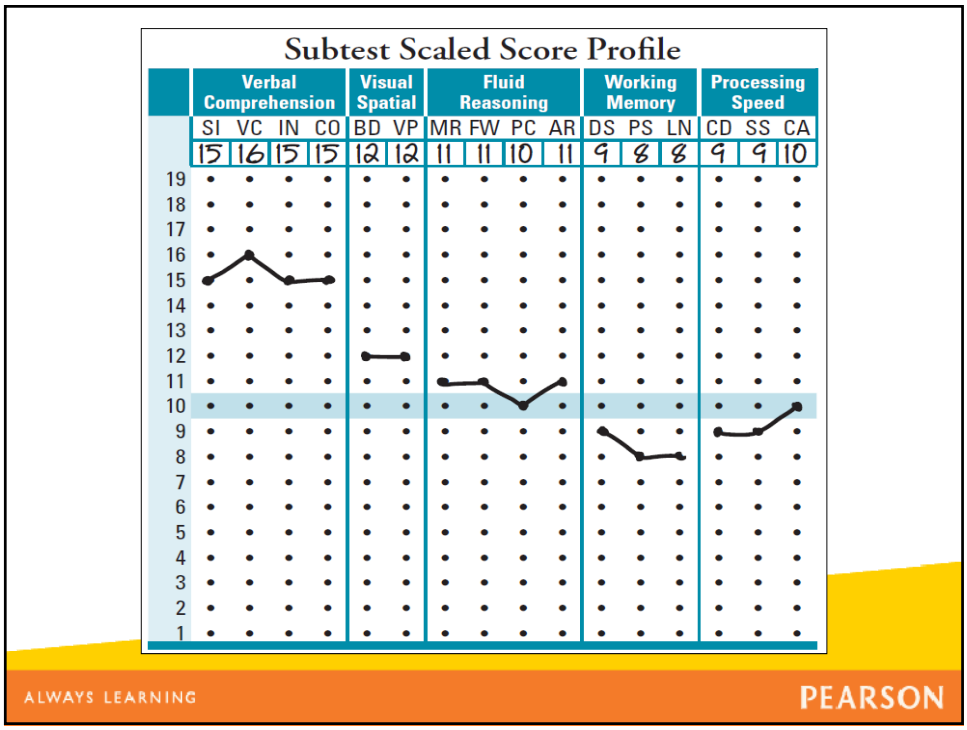
1. **Use Norms and Conversion Tables**
   **Administration and Scoring Manual**

2. **Use Scoring Software**
   **Q-Global**

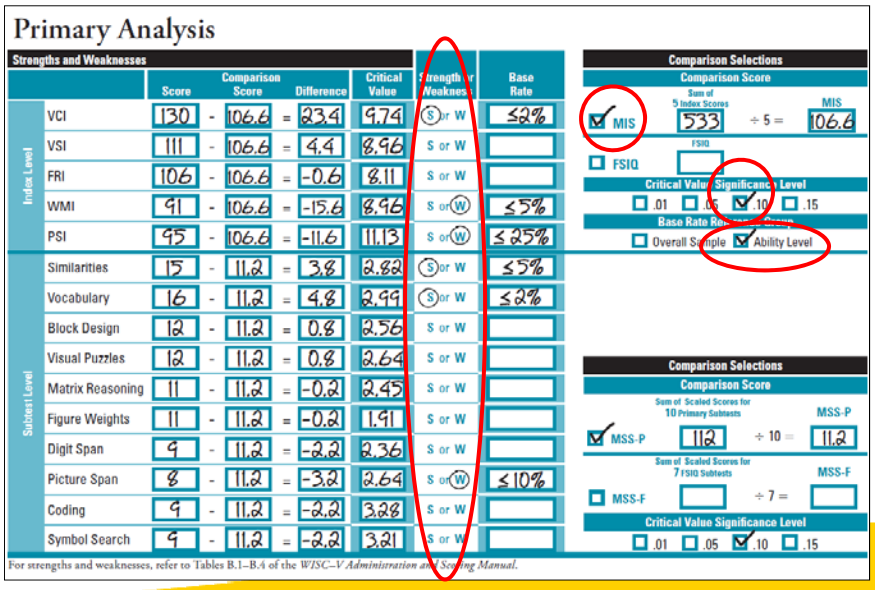
ALWAYS LEARNING PEARSON

 Copyright © 2015. Pearson, Inc., or its affiliates. All rights reserved.




 Copyright © 2015. Pearson, Inc., or its affiliates. All rights reserved.



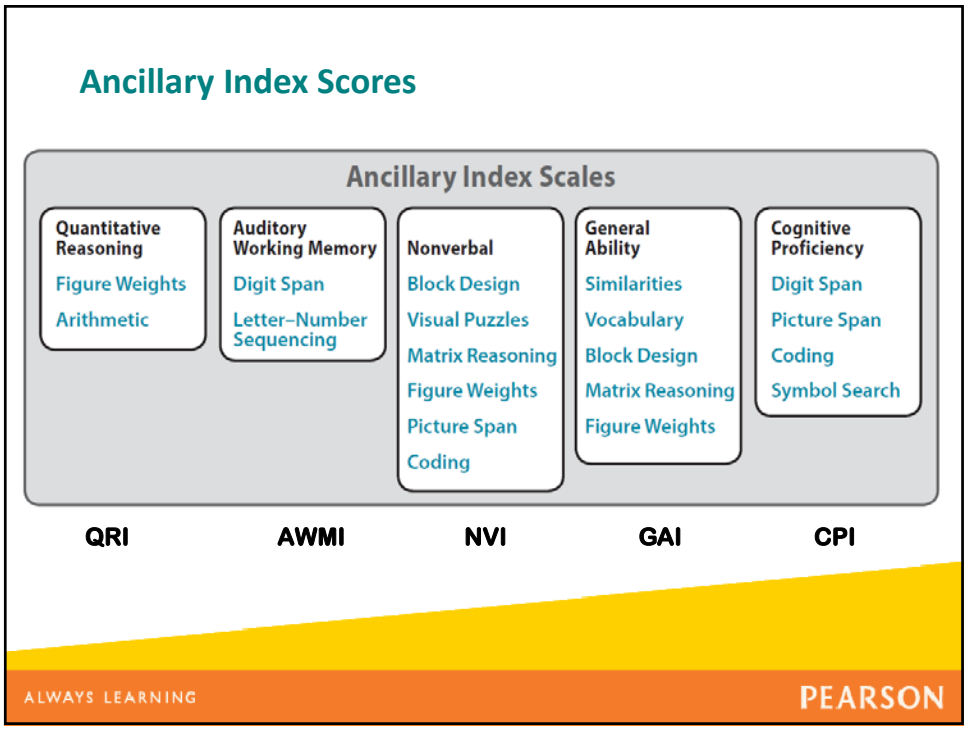

ALWAYS LEARNING PEARSON

## Comparing Scores

- Hypothesis Driven
- Index level – Are there particular cognitive strengths and weaknesses related to the specific referral question(s) (e.g., slow processing speed, low verbal skills, etc…)
- Subtest level-is there consistency of an observed deficit within a domain or across the entire battery
- Within subtest level, is there a specific cognitive difficulty impacting test performance
- Variability occurs frequently in clinical and non-clinical populations, the presence of significant variability may actually rule out a specific diagnosis (e.g., ID).

ALWAYS LEARNING PEARSON

 Copyright © 2015. Pearson, Inc., or its affiliates. All rights reserved.


 Copyright © 2015. Pearson, Inc., or its affiliates. All rights reserved.

## Using GAI and CPI

Consider deriving and interpreting the GAI and the CPI in a number of clinical situations, not limited to, but including the following:

ALWAYS LEARNING PEARSON

## Compare WMI and PSI to Other Indexes

a significant and unusual discrepancy exists between either of the comparisons below:

| | |
|---|---|
| WMI and MIS or FSIQ | WMI and VSI |
| PSI and MIS or FSIQ | PSI and VSI |
| WMI and VCI | WMI and FRI |
| PSI and VCI | PSI and FRI |

ALWAYS LEARNING PEARSON

 Copyright © 2015. Pearson, Inc., or its affiliates. All rights reserved.

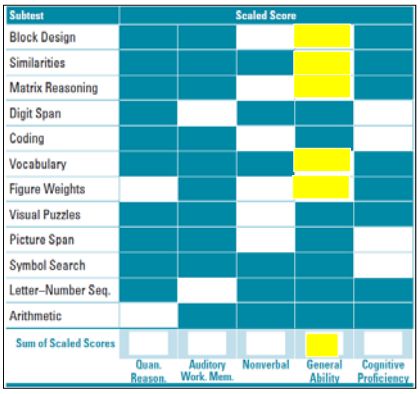
## GAI and CPI

Additionally, consider using GAI and CPI if a significant and unusual discrepancy exists between

- WMI and PSI, or
- the subtests that contribute to either the WMI or to the PSI, or
- a Working Memory or Processing Speed subtest and the MSS-P or MSS-F.

ALWAYS LEARNING PEARSON

## General Ability Index

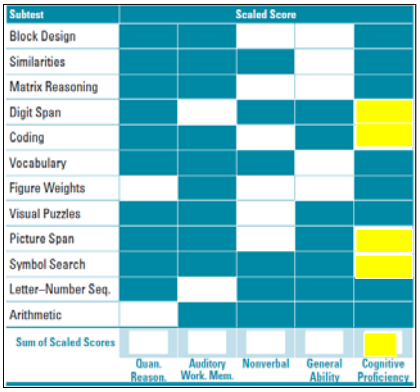



The GAI provides an estimate of general intellectual ability that is less reliant on working memory and processing speed than the FSIQ.

ALWAYS LEARNING PEARSON

 Copyright © 2015. Pearson, Inc., or its affiliates. All rights reserved.

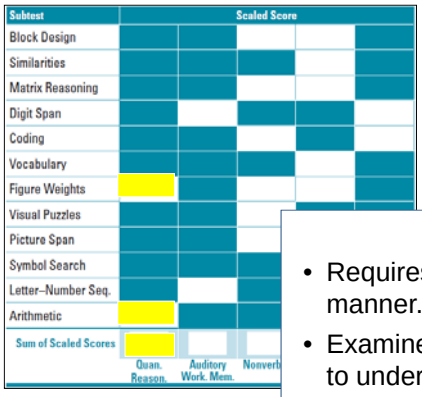
## Cognitive Proficiency Index




The CPI provides an estimate of the efficiency with which information is processed in the service of learning, problem solving, and higher order reasoning.

ALWAYS LEARNING PEARSON

## Quantitative Reasoning




AR

- Requires computational ability and quantitative knowledge.
- Loads on FRI, WMI, and VCI.

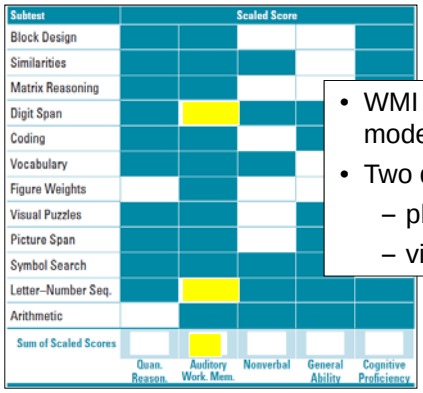
FW

- Requires math in a more limited, abstract manner.
- Examinee uses quantitative concept of equality to understand relationship among objects.
- Then, examinee applies concepts of matching, addition, and/or multiplication to identify correct response.

ALWAYS LEARNING PEARSON

 Copyright © 2015. Pearson, Inc., or its affiliates. All rights reserved.

## Auditory Working Memory

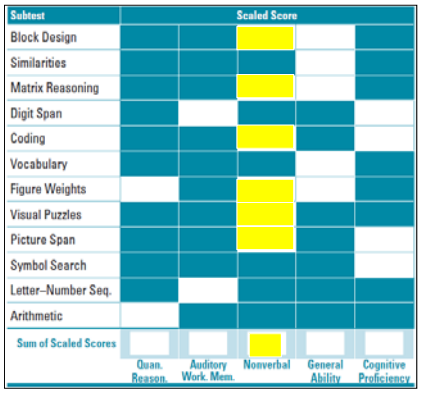



- WMI is based on the multi-component model.
- Two domain-specific storage systems:
  - phonological loop, and
  - visual-spatial sketchpad.

The AWMI is a purer measure of auditory working memory.

ALWAYS LEARNING PEARSON

## Nonverbal Index

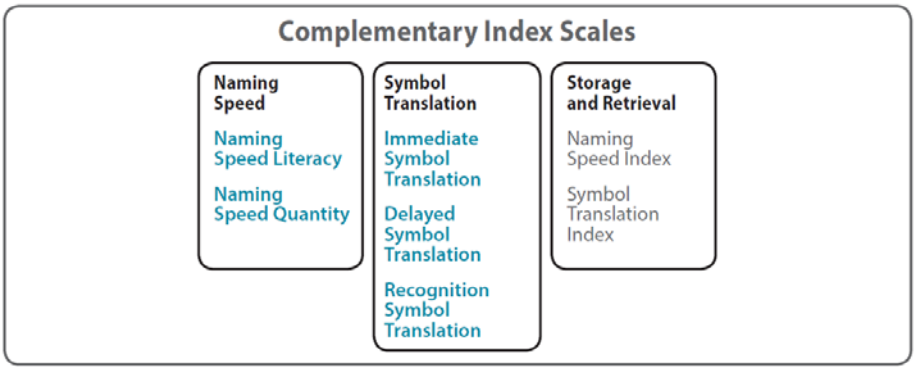



- Useful when examinee has obvious verbal difficulties
  - ELL
  - RELD, ELD
  - ASD with Language Impairment
- The processing speed component can affect results just like FSIQ.
- More emphasis on reasoning using visual-spatial processes than FSIQ.

ALWAYS LEARNING PEARSON

 Copyright © 2015. Pearson, Inc., or its affiliates. All rights reserved.

## Complementary Index Scales




Complementary scales were designed to enhance the assessment of children with learning difficulties.

ALWAYS LEARNING PEARSON

## Naming Speed Index

- The NSI provides a broad estimate of automaticity of basic naming ability drawn from a variety of tasks.
- These tasks were developed to enhance the assessment of children with suspected learning disabilities and are not designed as measures of intellectual ability.

| High NSI Scores | Low NSI Scores |
|---|---|
| High degree of<br>• naming automaticity, and<br>• rapid efficient verbal retrieval abilities. | • Visual-processing deficits.<br>• Information retrieval difficulties.<br>• Weak language skills.<br>• Low naming skills.<br>• Generally slow cognitive functioning. |

ALWAYS LEARNING PEARSON

 Copyright © 2015. Pearson, Inc., or its affiliates. All rights reserved.

## Symbol Translation Index

The STI provides a broad estimate of visual-verbal associative memory drawn from a variety of conditions.

| High STI Scores | Low STI Scores |
|---|---|
| Well-developed encoding and retrieval of newly learned visual-verbal associations after short and long delays. | • Visual or verbal processing deficits.<br>• Inattention.<br>• Distractibility.<br>• Poor information encoding.<br>• Difficulties accessing information from memory.<br>• Rapid forgetting.<br>• General memory impairment. |

ALWAYS LEARNING PEARSON

## Storage and Retrieval Index

The SRI provides a broad estimate of long-term storage and retrieval accuracy and fluency.

| High SRI Scores | Low SRI Scores |
|---|---|
| Well-developed capacity for new learning and rapid access to existing verbal knowledge stores. | • Difficulty encoding and/or retrieving information from long-term memory.<br>• Difficulty acquiring new information.<br>• Slow processing speed.<br>• Visual and/or language processing deficits.<br>• Inattentiveness. |

ALWAYS LEARNING PEARSON

 Copyright © 2015. Pearson, Inc., or its affiliates. All rights reserved.

Complementary Subtests and Indexes

**Total Raw Score to Standard Score Conversion**

| Subtest | Raw Score | Standard Score | |
|---|---|---|---|
| Naming Speed Literacy | 149 | 112 | |
| Naming Speed Quantity | 31 | 100 | |
| Immediate Symbol Translation | 60 | | 95 |
| Delayed Symbol Translation | 45 | | 97 |
| Recognition Symbol Translation | 24 | | 95 |
| Sum of Standard Scores | | 212 (Naming Speed) | 287 (Symbol Trans.) |

For raw score to standard score conversions, refer to Table C.6 in the *WISC–V Administration and Scoring Manual Supplement.*

**Sum of Standard Scores to Index Score Conversion**

| Scale | Sum of Standard Scores | | Index Score | Percentile Rank | Confidence Interval 90% or 95% |
|---|---|---|---|---|---|
| Naming Speed | 212 | NSI | 106 [1] | 66 | 97–114 |
| Symbol Trans. | 287 | STI | 94 [2] | 34 | 88–101 |
| Storage & Ret. | 200 [3] | SRI | 99 | 47 | 92–106 |

NSI 106 [1] + STI 94 [2] = 200 [3] Storage & Ret. Sum of Standard Scores

For index score conversions, refer to Tables C.7–C.9 of the *WISC–V Administration and Scoring Manual Supplement.*

ALWAYS LEARNING PEARSON

**Pairwise Difference Comparisons**

| | Comparison | Score 1 | | Score 2 | | Difference | Critical Value | Significant Difference | Base Rate |
|---|---|---|---|---|---|---|---|---|---|
| Composite Level | GAI – FSIQ | GAI 120 | - | FSIQ 113 | = | 7 | 3.00 | (Y) or N | 8.0 |
| | GAI – CPI | GAI 120 | - | CPI 91 | = | 29 | 8.52 | (Y) or N | 8.0 |
| | WMI – AWMI | WMI 91 | - | AWMI 92 | = | -1 | 5.73 | Y or (N) | |
| | NSI – STI | NSI 106 | - | STI 94 | = | 12 | 10.99 | (Y) or N | 24.1 |
| Subtest Level | NSL – NSQ | NSL 112 | - | NSQ 100 | = | 12 | 15.56 | Y or (N) | |
| | IST – DST | IST 95 | - | DST 97 | = | -2 | 13.48 | Y or (N) | |
| | IST – RST | IST 95 | - | RST 95 | = | 0 | 14.56 | Y or (N) | |
| | DST – RST | DST 97 | - | RST 95 | = | 2 | 14.56 | Y or (N) | |
| | FW – AR | FW 11 | - | AR 11 | = | 0 | 1.95 | Y or (N) | |
| | DS – LN | DS 9 | - | LN 8 | = | 1 | 2.35 | Y or (N) | |

**Comparison Selections**
Critical Value Significance Level: ☐ .01 ☐ .05 ☑ .10 ☐ .15
Base Rate Reference Group: ☐ Overall Sample ☑ Ability Level

**Comparison Selections**
Critical Value Significance Level: ☐ .01 ☐ .05 ☑ .10 ☐ .15

For pairwise difference comparisons, refer to Tables B.7 and B.8 of the *WISC–V Administration and Scoring Manual* and Tables C.10–C.13 of the *WISC–V Administration and Scoring Manual Supplement.*

ALWAYS LEARNING PEARSON

 Copyright © 2015. Pearson, Inc., or its affiliates. All rights reserved.

WISC®-V

## Complete Process Analysis Page

ALWAYS LEARNING PEARSON

WISC®-V
WECHSLER INTELLIGENCE SCALE FOR CHILDREN®-FIFTH EDITION

Child's Name: Student A Age: 8:11
Sex: ☑ F ☐ M Handedness: ☑ R ☐ L ID: 12345
Examiner's Name: Examiner A
Testing Site: ABCD Elementary School

### Process Analysis

Total Raw Score to Scaled/Standard Process Score Conversion

| Process Score | Raw Score | Scaled Score | Process Score | Raw Score | Scaled/Standard Score |
|---|---|---|---|---|---|
| Block Design No Time Bonus (BDn) | 30 | 12 | Cancellation Random (CAr) | 26 | 11 |
| Block Design Partial Score (BDp) | 51 | 14 | Cancellation Structured (CAs) | 28 | 10 |
| Digit Span Forward (DSf) | 8 | 10 | Naming Speed Color–Object (NSco) | Age 8 | Age 8 |
| Digit Span Backward (DSb) | 8 | 10 | Naming Speed Size–Color–Object (NSsco) | 108 | 111 |
| Digit Span Sequencing (DSs) | 5 | 8 | Naming Speed Letter–Number (NSln) | 41 | 117 |

For raw score to scaled/standard score conversions, refer to Tables C.6 and C.14 in the *WISC–V Administration and Scoring Manual Supplement*.

**Pairwise Difference Comparisons**

| Comparison | Score 1 | | Score 2 | | Difference | Critical Value | Significant Difference | Base Rate |
|---|---|---|---|---|---|---|---|---|
| BD – BDn | BD 12 | - | BDn 12 | = | 0 | 2.84 | Y or N | |
| BD – BDp | BD 12 | - | BDp 14 | = | -2 | 2.60 | Y or N | |
| DSf – DSb | DSf 10 | - | DSb 10 | = | 0 | 3.08 | Y or N | |
| DSf – DSs | DSf 10 | - | DSs 8 | = | 2 | 3.04 | Y or N | |
| DSb – DSs | DSb 10 | - | DSs 8 | = | 2 | 3.06 | Y or N | |
| LN – DSs | LN 8 | - | DSs 8 | = | 0 | 2.82 | Y or N | |
| CAr – CAs | CAr 11 | - | CAs 10 | = | 1 | 3.00 | Y or N | |
| NSco – NSsco | NSco Age 8 | - | NSsco Age 8 | = | | | Y or N | |
| NSsco – NSln | NSsco 111 | - | NSln 117 | = | -6 | 15.56 | Y or N | |

**Comparison Selections**
Critical Value Significance Level
☐ .01 ☐ .05 ☑ .10 ☐ .15

**Base Rate Reference Group**
☐ Overall Sample ☑ Ability Level

For pairwise difference comparisons, refer to Tables C.10, C.13, C.15 and C.16 of the *WISC–V Administration and Scoring Manual Supplement*.

ALWAYS LEARNING PEARSON

 Copyright © 2015. Pearson, Inc., or its affiliates. All rights reserved.

Raw Score to Base Rate Conversion

| Process Score | Raw Score | Base Rate |
|---|---|---|
| Longest Digit Span Forward (LDSf) | 6 | 38.0 |
| Longest Digit Span Backward (LDSb) | 4 | 34.0 |
| Longest Digit Span Sequence (LDSs) | 4 | 79.0 |
| Longest Picture Span Stimulus (LPSs) | 3 | 95.5 |
| Longest Picture Span Response (LPSr) | 6 | 98.5 |
| Longest Letter–Number Sequence (LLNs) | 3 | 95.5 |
| Block Design Dimension Errors (BDde) | 2 | ≤5% |
| Block Design Rotation Errors (BDre) | 1 | ≤5% |
| Coding Rotation Errors (CDre) | 0 | |
| Symbol Search Set Errors (SSse) | 0 | |
| Symbol Search Rotation Errors (SSre) | 1 | ≤5% |
| Naming Speed Literacy Errors (NSLe) | 2 | >25% |
| Naming Speed Color–Object Errors (NScoe) | Age 6 | Age 6 |
| Naming Speed Size–Color–Object Errors (NSscoe) | 2 | ≤25% |
| Naming Speed Letter–Number Errors (NSlne) | 0 | Ages 7–8 |
| Naming Speed Quantity Errors (NSQe) | 1 | ≤10% |

For base rates, refer to Tables C.17 and C.18 in the *WISC–V Administration and Scoring Manual Supplement*.

Base Rate Reference Group: ☐ Overall Sample ☑ Age Group

Discrepancy Comparisons

| Process Score | Raw Score 1 | | Raw Score 2 | | Difference | Base Rate |
|---|---|---|---|---|---|---|
| LDSf–LDSb | 6 | - | 4 | = | 2 | 60.5 |
| LDSf–LDSs | 6 | - | 4 | = | 2 | 30.0 |
| LDSb–LDSs | 4 | - | 4 | = | 0 | 30.5 |

For base rates, refer to Tables C.19–C.21 of the *WISC–V Administration and Scoring Manual Supplement*.

Naming Speed Literacy Error Score Calculation

**Age 6**

| NScoe Raw Score | | NSscoe Raw Score | | NSLe Raw Score |
|---|---|---|---|---|
| | + | | = | |

**Ages 7–8**

| NSscoe Raw Score | | NSlne Raw Score | | NSLe Raw Score |
|---|---|---|---|---|
| 2 | + | 0 | = | 2 |

**Ages 9–16**

For ages 9–16, the NSLe is the same score as the NSlne

ALWAYS LEARNING PEARSON


# PROCESS ANALYSIS

Perform (Optional)

Q-interactive

ALWAYS LEARNING PEARSON

 Copyright © 2015. Pearson, Inc., or its affiliates. All rights reserved.

## WISC-V Process Scores

- Digit Span
  - DSf and LDSf
  - DSb and LDSb
  - DSs and LDSs
- Block Design
  - BDn
  - BDp
  - BDde
  - BDre
- Picture Span
  - LPSs
  - LPSr

- **Cancellation**
  - **CAr vs. CAs**
- **Naming Speed Process Scores**
  - **NSco**
  - **NSsco**
  - **NSln**
- **Naming Speed Error Scores**
  - **NSLe**
  - **NSQe**

Also review contrast scores, as appropriate.

ALWAYS LEARNING PEARSON

## WISC-V Process Scores

- **Rotation and Set Error Scores**
  - **Rotations on BD, CD, SS**
  - **Set errors on SS**
- **Process Observations**
  - **Don't Know (DK)**
  - **No Response (NR)**
  - **Item Repetition (IR)**
  - **Requested Repetition (RR)**
  - **Self-corrections (SC)**
  - **Subvocalization (SV)**

ALWAYS LEARNING PEARSON

 Copyright © 2015. Pearson, Inc., or its affiliates. All rights reserved.

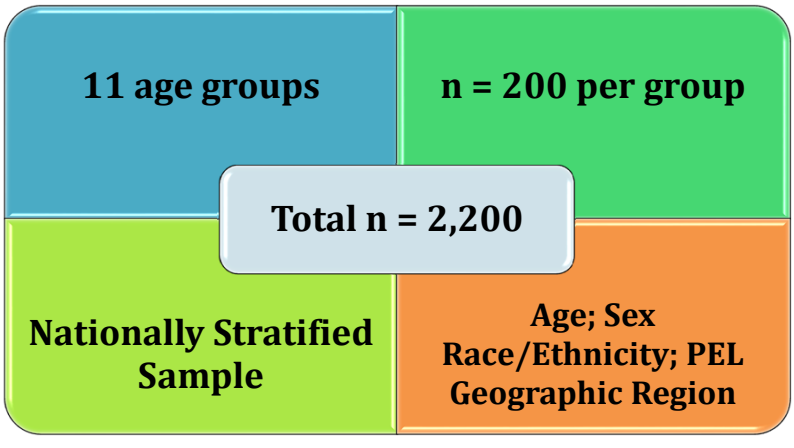
WISC-V

## Technical Properties

- Normative Sample
- Reliability
- Validity
- Clinical Studies

ALWAYS LEARNING PEARSON

## WISC-V Normative Sample




ALWAYS LEARNING PEARSON

 Copyright © 2015. Pearson, Inc., or its affiliates. All rights reserved.

## WISC-V Normative Sample and US Population

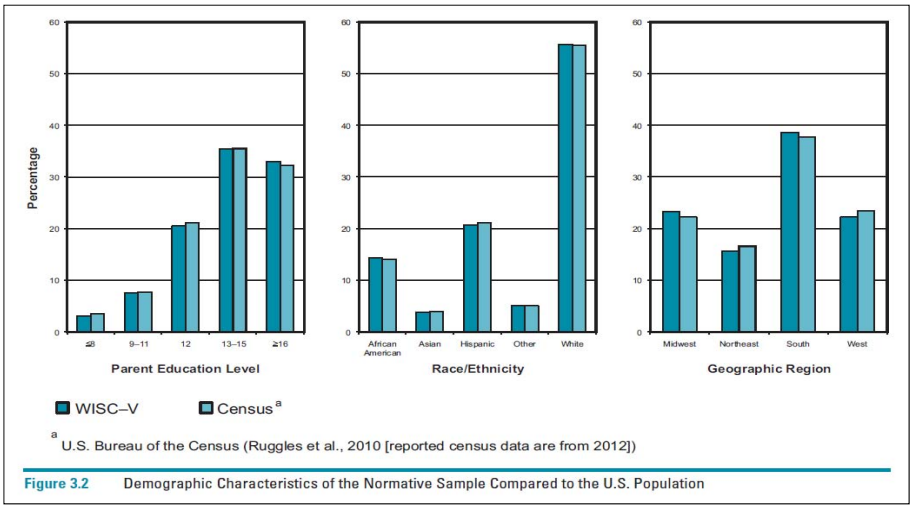



Figure 3.2 Demographic Characteristics of the Normative Sample Compared to the U.S. Population

ALWAYS LEARNING PEARSON

## Reliability

The reliability of a test score refers to its accuracy, consistency, and stability across situations.

Reliability should always be considered when interpreting obtained test scores and differences between a child's test scores on multiple occasions.

ALWAYS LEARNING PEARSON

 Copyright © 2015. Pearson, Inc., or its affiliates. All rights reserved.

## Evidence of Internal Consistency
### Primary and Ancillary Composite Scores

| Average Reliability Coefficient | |
|---|---|
| Composite | Overall Average ($r_{xx}$[a]) |
| VCI | .92 |
| VSI | .92 |
| FRI | .93 |
| WMI | .92 |
| PSI | .88 |
| FSIQ | .96 |
| QRI | .95 |
| AWMI | .93 |
| NVI | .95 |
| GAI | .96 |
| CPI | .93 |

ALWAYS LEARNING PEARSON

## Evidence of Test-Retest Stability
### Primary and Ancillary Composite Scores

| Composite | First Testing | Second Testing | $r_{12}$a |
|---|---|---|---|
| VCI | 98.5 | 101.6 | .91 |
| VSI | 98.6 | 105.3 | .84 |
| FRI | 98.7 | 103.6 | .68 |
| WMI | 98.5 | 100.9 | .79 |
| PSI | 100.3 | 108.2 | .81 |
| FSIQ | 98.3 | 104.3 | .91 |
| QRI | 99.2 | 102.4 | .76 |
| AWMI | 98.7 | 100.9 | .85 |
| NVI | 98.5 | 105.5 | .86 |
| GAI | 98.0 | 103.6 | .89 |
| CPI | 99.3 | 105.5 | .84 |

ALWAYS LEARNING PEARSON

 Copyright © 2015. Pearson, Inc., or its affiliates. All rights reserved.

## Evidence of Test-Retest Stability – Complementary Composite Scores

| Composite | First Testing | Second Testing | $r_{12}$a |
|---|---|---|---|
| NSI | 98.7 | 101.0 | .83 |
| STI | 97.7 | 106.5 | .85 |
| SRI | 98.1 | 104.9 | .87 |

ALWAYS LEARNING PEARSON

## Validity

- Validity is the single most important aspect of test development and evaluation (AERA, APA, NCME, 1999; Sattler, 2008a).
- Traditionally, researchers and test developers have referred to three major types of validity: content, criterion-related, and construct validity.

ALWAYS LEARNING PEARSON

 Copyright © 2015. Pearson, Inc., or its affiliates. All rights reserved.

## Evidence of Validity

### Confirmatory Factor Analysis

**CFI = .99**
**RMSEA = .05**

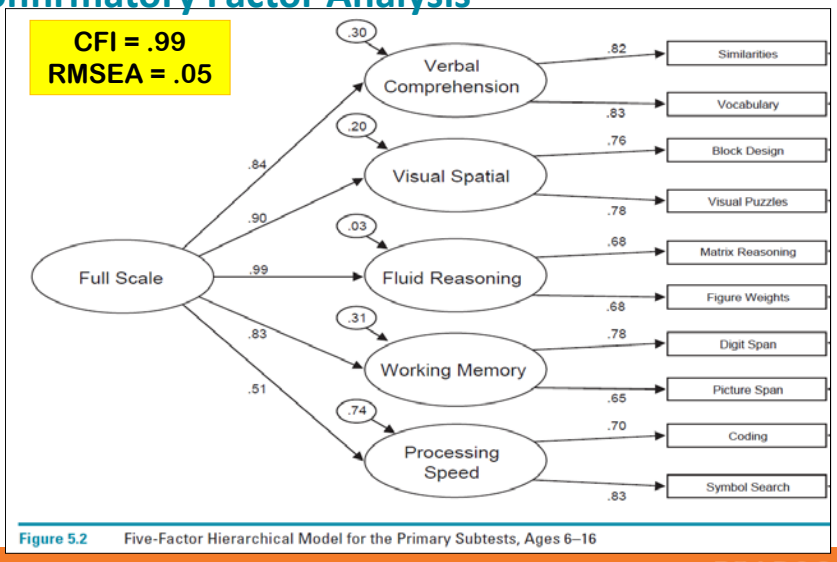



Figure 5.2 Five-Factor Hierarchical Model for the Primary Subtests, Ages 6–16

ALWAYS LEARNING PEARSON

## Relations with Other Measures

**Ability**

- WISC–IV
- WPPSI–IV
- WAIS–IV
- KABC–II

**Achievement**

- KTEA–3
- WIAT–III

**Adaptive Behavior**

- Vineland–II

**Behavior**

- BASC–2 Parent Rating Scales

ALWAYS LEARNING PEARSON

 Copyright © 2015. Pearson, Inc., or its affiliates. All rights reserved.

## Correlations With WISC-IV

| Composite | WISC-V Mean | WISC-IV Mean | Standard Difference |
|---|---|---|---|
| VCI | 102.7 | 104.3 | .12 |
| VSI-PRI | 102.8 | 107.3 | .33 |
| FRI-PRI | 104.3 | 107.3 | .22 |
| WMI | 101.7 | 103.0 | .10 |
| PSI | 103.7 | 102.3 | .09 |
| FSIQ | 104.4 | 106.0 | .14 |
| AWMI-WMI | 102.5 | 103.1 | .05 |
| GAI | 104.0 | 106.9 | .23 |
| CPI | 103.2 | 103.3 | .01 |

n = 242; ages 6-16

ALWAYS LEARNING PEARSON

## Correlations With WPPSI-IV

| Composite | WISC-V Mean | WPPSI-IV Mean | Standard Difference |
|---|---|---|---|
| VCI | 102.7 | 104.7 | .16 |
| VSI-PRI | 103.2 | 104.5 | .10 |
| FRI-PRI | 104.2 | 106.6 | .19 |
| WMI | 102.9 | 103.9 | .08 |
| PSI | 102.5 | 103.6 | .08 |
| FSIQ | 103.8 | 104.9 | .10 |
| AWMI-WMI | 102.0 | 103.9 | .15 |
| NVI | 103.7 | 104.9 | .10 |
| GAI | 104.1 | 105.9 | .16 |
| CPI | 103.1 | 104.3 | .10 |

n = 105; ages 6:0-7:7

ALWAYS LEARNING PEARSON

 Copyright © 2015. Pearson, Inc., or its affiliates. All rights reserved.

## Correlations With WAIS-IV

| Composite | WISC-V Mean | WAIS-IV Mean | Standard Difference |
|---|---|---|---|
| VCI | 102.2 | 103.2 | .07 |
| VSI-PRI | 102.7 | 101.6 | .08 |
| FRI-PRI | 101.6 | 101.6 | .00 |
| WMI | 102.7 | 100.4 | .17 |
| PSI | 104.6 | 102.0 | .20 |
| FSIQ | 103.2 | 102.3 | .07 |
| AWMI-WMI | 102.9 | 100.4 | .18 |
| GAI | 102.4 | 102.7 | .02 |
| CPI | 104.5 | 101.5 | .24 |

n = 112; age 16

ALWAYS LEARNING PEARSON

## Correlations With WIAT-III

| | WIAT-III | | | | | | |
|---|---|---|---|---|---|---|---|
| WISC-V Composite | Oral Lang. | Basic Read. | Read. Comp. & Fluency | Written Exp. | Math | Math Fluency | Total Achieve-ment |
| VCI | .78 | .53 | .65 | .60 | .53 | .36 | .74 |
| VSI | .44 | .24 | .30 | .39 | .44 | .28 | .46 |
| FRI | .33 | .30 | .25 | .33 | .45 | .31 | .40 |
| WMI | .56 | .54 | .40 | .47 | .46 | .39 | .63 |
| PSI | .22 | .19 | .36 | .33 | .41 | .51 | .34 |
| FSIQ | .74 | .61 | .65 | .68 | .71 | .58 | .81 |

n = 211; age 6-16

ALWAYS LEARNING PEARSON

 Copyright © 2015. Pearson, Inc., or its affiliates. All rights reserved.

## Correlations With KTEA-3

| | KTEA-3 | | | | |
|---|---|---|---|---|---|
| **WISC-V Composite** | Reading | Math | Written Language | Oral Language | Academic Skills Battery |
| VCI | .77 | .67 | .61 | .70 | .76 |
| VSI | .47 | .57 | .39 | .47 | .54 |
| FRI | .56 | .66 | .47 | .48 | .63 |
| WMI | .54 | .49 | .51 | .42 | .58 |
| PSI | .20 | .32 | .34 | .29 | .35 |
| FSIQ | .75 | .79 | .69 | .68 | .82 |

n = 207; age 6-16

ALWAYS LEARNING PEARSON

## Special Group Studies

- **Intellectually Gifted**
- **Intellectual Disability-Mild Severity**
- **Intellectual Disability-Moderate Severity**
- **Borderline Intellectual Functioning**
- **Specific Learning Disorders**
- **Attention-Deficit/ Hyperactivity Disorder**
- **Disruptive Behavior**
- **Traumatic Brain Injury**
- **English Language Learners**
- **Autism Spectrum Disorder**

ALWAYS LEARNING PEARSON

 Copyright © 2015. Pearson, Inc., or its affiliates. All rights reserved.

## Intellectually Gifted

| Composite | Clinical Mean | Control Mean | Mean Diff. | *p* value | Std. Diff. |
|---|---|---|---|---|---|
| VCI | 127.7 | 105.8 | -21.97 | <.01 | -1.74 |
| VSI | 121.2 | 105.2 | -15.98 | <.01 | -1.35 |
| FRI | 120.3 | 105.1 | -15.26 | <.01 | -1.26 |
| WMI | 117.9 | 104.0 | -13.86 | <.01 | -1.16 |
| PSI | 112.9 | 100.4 | -12.44 | <.01 | -.92 |
| FSIQ | 127.5 | 105.7 | -21.85 | <.01 | -2.05 |
| QRI | 122.1 | 104.1 | -18.04 | <.01 | -1.55 |
| AWMI | 123.0 | 105.9 | -17.13 | <.01 | -1.32 |
| NVI | 122.9 | 104.6 | -18.28 | <.01 | -1.64 |
| GAI | 127.1 | 106.3 | -20.83 | <.01 | -1.88 |
| CPI | 118.8 | 102.1 | -16.73 | <.01 | -1.43 |

n = 95; ages 6-16

ALWAYS LEARNING PEARSON

## Intellectual Disability – Mild

| Composite | Clinical Mean | Control Mean | Mean Diff. | *p* value | Std. Diff. |
|---|---|---|---|---|---|
| VCI | 66.0 | 96.1 | 30.14 | <.01 | 2.16 |
| VSI | 66.0 | 101.1 | 35.14 | <.01 | 2.82 |
| FRI | 67.0 | 99.3 | 32.34 | <.01 | 2.35 |
| WMI | 65.1 | 98.7 | 33.60 | <.01 | 2.64 |
| PSI | 71.6 | 97.3 | 25.78 | <.01 | 1.87 |
| FSIQ | 60.9 | 98.0 | 37.07 | <.01 | 2.92 |
| QRI | 64.2 | 98.1 | 33.86 | <.01 | 2.67 |
| AWMI | 62.2 | 99.2 | 36.96 | <.01 | 2.91 |
| NVI | 62.1 | 99.5 | 37.40 | <.01 | 3.02 |
| GAI | 63.5 | 97.9 | 34.46 | <.01 | 2.71 |
| CPI | 63.4 | 97.6 | 34.19 | <.01 | 2.66 |

n = 74; ages 6-16

ALWAYS LEARNING PEARSON

 Copyright © 2015. Pearson, Inc., or its affiliates. All rights reserved.

## Attention-Deficit Hyperactivity Disorder

| Composite | Clinical Mean | Control Mean | Mean Diff. | *p* value | Std. Diff. |
|---|---|---|---|---|---|
| VCI | 97.8 | 102.7 | -21.97 | .05 | .40 |
| VSI | 97.3 | 101.5 | -15.98 | .14 | .28 |
| FRI | 97.6 | 102.6 | -15.26 | .06 | .38 |
| WMI | 94.8 | 101.7 | -13.86 | <.01 | .54 |
| PSI | 94.2 | 99.9 | -12.44 | .03 | .43 |
| FSIQ | 95.6 | 102.2 | -21.85 | <.01 | .61 |
| QRI | 94.8 | 103.1 | -18.04 | <.01 | .62 |
| AWMI | 95.2 | 101.4 | -17.13 | <.01 | .50 |
| NVI | 94.4 | 101.7 | -18.28 | <.01 | .57 |
| GAI | 97.1 | 102.3 | -20.83 | .03 | .43 |
| CPI | 92.8 | 100.8 | -16.73 | <.01 | .65 |

n = 48; ages 6-16

ALWAYS LEARNING PEARSON

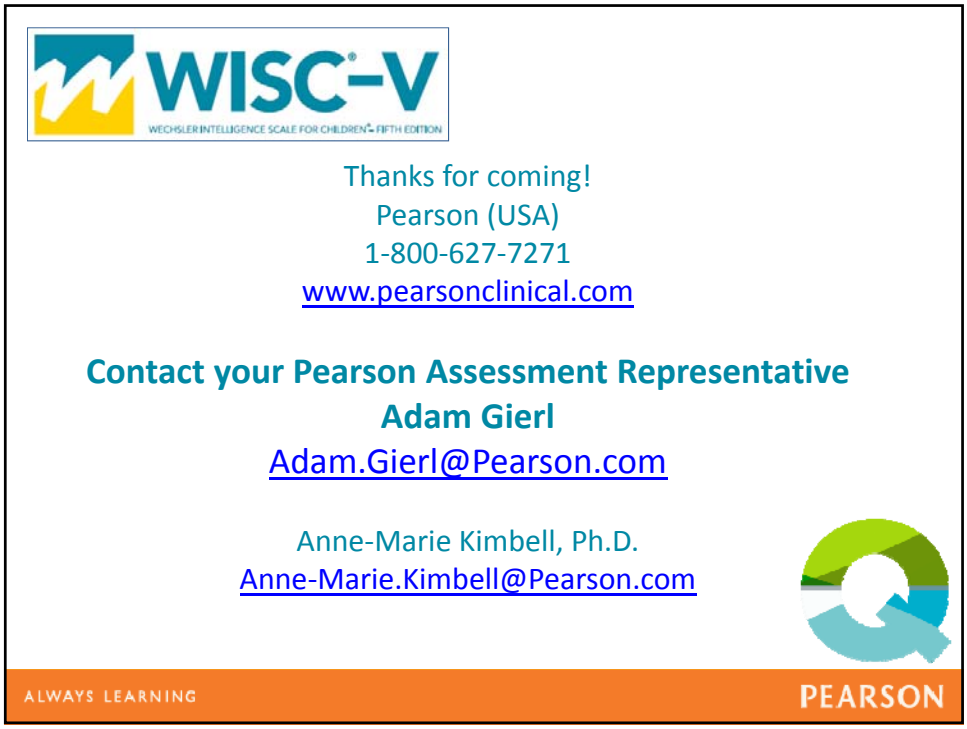
## Autism Spectrum Disorder

| Composite | Clinical Mean | Control Mean | Mean Diff. | *p* value | Std. Diff. |
|---|---|---|---|---|---|
| VCI | 80.4 | 104.1 | 23.68 | <.01 | 1.47 |
| VSI | 82.8 | 104.4 | 21.62 | <.01 | 1.18 |
| FRI | 84.3 | 101.6 | 17.30 | <.01 | .98 |
| WMI | 77.6 | 104.1 | 26.47 | <.01 | 1.57 |
| PSI | 75.8 | 96.9 | 21.12 | <.01 | 1.24 |
| FSIQ | 76.3 | 102.1 | 25.82 | <.01 | 1.52 |
| QRI | 78.9 | 102.5 | 23.67 | <.01 | 1.35 |
| AWMI | 72.3 | 102.4 | 30.14 | <.01 | 1.70 |
| NVI | 79.9 | 102.8 | 22.86 | <.01 | 1.33 |
| GAI | 81.8 | 102.9 | 21.18 | <.01 | 1.28 |
| CPI | 74.4 | 100.0 | 25.62 | <.01 | 1.59 |

n = 30; ages 6-16

ALWAYS LEARNING PEARSON

 Copyright © 2015. Pearson, Inc., or its affiliates. All rights reserved.




 Copyright © 2015. Pearson, Inc., or its affiliates. All rights reserved.