

## Ch. 10: Wechsler Scales

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## Sample Question

- Some of the fastest ships can travel at 30 miles per hour. On such a ship, how many days will it take to make the trip between New York and Paris, a trip of 3600 miles?

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## Cognitive / Info Processing 1

- What is required to correctly answer a single item on an IQ test?
- Verbal comprehension: understand the instructions you hear or read
- Short term memory: remember the instructions
- Long term memory: retrieve answer or procedure
- Working memory: juggle information, do calculations, etc.
- Judgement / Reasoning : decide between competing answers
- Attention / Concentration: remain focused on task

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## Cognitive / Info Processing 2

- Verbal skills: give reply with voice
- Motor skills: respond with hand
- View response of examiner: praise? criticism?
- Meta cognition: judge performance, adjust strategy accordingly
- Cognitive science believes many of these to be independent processes subsumed by independent brain systems

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## Performance Scale

- Declarative (“knowing that”)
  - What is the distance between NYC and Paris?
  - Dependent on Language
  - Trainable? subject to education / culture?
- Procedural (“knowing how”)
  - Arrange blocks to form a pattern
  - Long Division: divide 347 by 19
- Most early IQ tests focused more on Declarative than Procedural

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## Wechsler Scales

- WAIS-4 : Adult Intelligence Scale (2008)
  - Evolved from Wechsler-Bellevue Intelligence Scale (1937)
  - Designed for Adults
  - Point scale rather than Age scale
  - Added *Performance* items (to fill void left by SB's reliance on language/verbal skills)
  - Focused on multiple abilities rather than “g”
- WISC-4 : Intelligence Scales for Children
- WPPSI-3 : Preschool and Primary Scale

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## David Wechsler

- “[...] Spearman’s theory of general intelligence (g) was too narrow. [It is] an effect rather than a cause [...] Non-intellective factors, such as personality, contribute to the development of each person’s intelligence.”
- “Intelligence is the aggregate or global capacity of the individual to act purposefully, to think rationally and to deal effectively with his environment”
- Developer of major IQ assessment tests
- Deviation IQ (DQ) score replaced IQ=MA/CA

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## WAIS: Block Design



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## WAIS: Digit Span

68910

6	8	9	1	0

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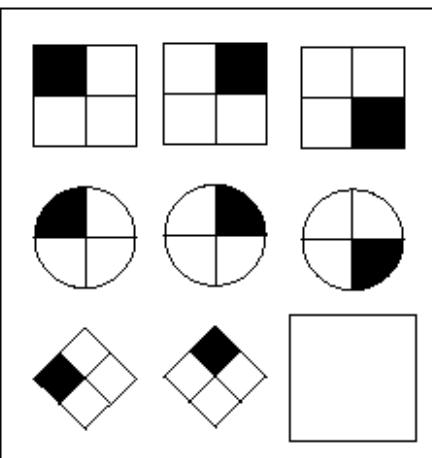
## WAIS: Comprehension

- “Why is food often sold in sealed containers?”
  - 1 point : to keep it clean
  - 1 point : to keep it fresh
  - 1 points : to make it easy to transport

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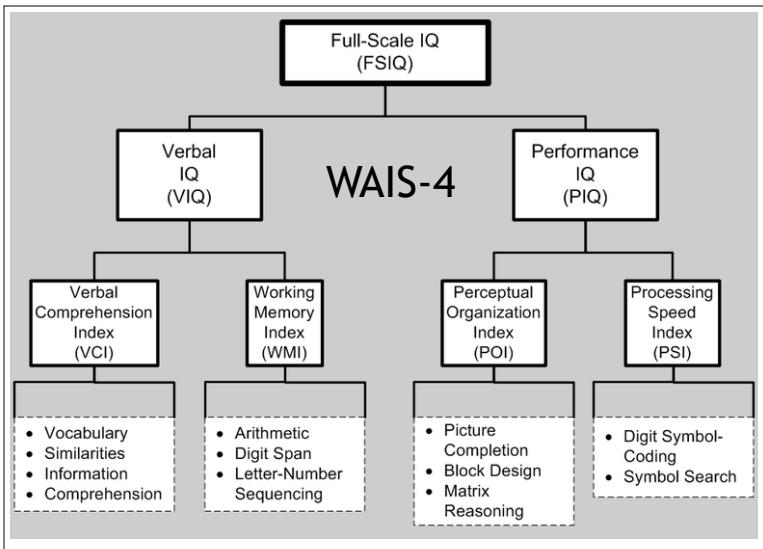
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## WAIS: Matrix Reasoning



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# WAIS-4 Verbal Subtests

## VERBAL

Vocabulary : provide word definitions

Similarities : abstract thinking

Information : range of knowledge

Comprehension\*: judgement

Arithmetic: concentration, working memory

Digit Span: immediate memory

Letter-Number Sequencing: working memory

\* not included in any sub index

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# WAIS-4 Performance Subtests

## PERFORMANCE

Picture Completion: identify missing details

Block Design : visuospatial reasoning

Matrix reasoning: inductive reasoning

Digit-symbol Coding: WM and motor functioning

Symbol Search: information processing speed

Picture Arrangement\*: planning

Object Assembly\*: whole/part gestalt relationship

\* not included in any sub index

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# WAIS-4 Verbal IQ Index

## VERBAL COMPREHENSION

Vocabulary

Similarities

Information

## WORKING MEMORY

Arithmetic

Digit span

Letter-number sequencing

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# WAIS-4 Performance IQ Index

## PERCEPTUAL ORGANIZATION

Picture completion

Block design

Matrix reasoning

## PROCESSING SPEED

Digit-symbol coding

Symbol search

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# WAIS-4

- Which of these tests are completely “pure” measures of an ability?
  - Verbal / language issues?
  - Cultural bias?
  - Motivation?
  - Expectancy effects?
  - Strategy : speed vs. accuracy?

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# WAIS Psychometrics-Reliability

- 11 subtests, 4 index scores
- Full-Scale IQ (FSIQ)  $r = .98$ 
  - Verbal IQ (VIQ)  $r = .97$
  - Performance IQ (PIQ)  $r = .94$
- FSIQ: SEM = 2.29, means 95% of the time a measured scores is +/- 4.6 of actual score
- Very good normative sample (n=2450 gender, ethnicity, region, education level)
- Widely researched in many fields (portions of the WAIS are used as neuropsychological tests)

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## WAIS Psychometrics-Validity

- Correlations of .93 with WISC
- What should the Criterion be?

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## WAIS Subtest Pattern Analysis

- Can we analyze patterns on subtest scores to make inferences about a person's functioning?
- A person scores highly on a subtest not known to be affected by education (Similarities), but low on a subtest affected by motivation, anxiety and speed(Digit-symbol coding) and low on Information.
- Conclude this person has potential, but has trouble learning or performing in normal situations.
- Issue - test-retest reliabilities are low (.6 to .9) for individual subtests.
- Research supporting Pattern Analysis is weak

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## WISC-IV and WPPSI-III

- WISC - Wechsler Intelligence Scale for Children:
- A version of the WAIS, specially adapted and revised to be more appropriate for children aged 6 thru 16
- WPPSI-III - Wechsler Preschool and Primary Scale of Intelligence:
- for children 2-6 years old

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## Multiple Intelligences

- Both the SB5 and WAIS-4 test multiple dimensions of intelligence, but this is not the same thing as multiple intelligences
- Which of Gardner's 8 intelligences are actually measured by the SB5 or WAIS-4?

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## Gardner's 8 Intelligences

- logical-mathematical (\*)
- verbal-linguistic (\*)
- spatial (\*)
- musical
- bodily-kinesthetic
- naturalist
- interpersonal
- intrapersonal

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