

# **Stanford-Binet Intelligence Scales, Fifth Edition, IQ and Factor Index Descriptive Report**

## **Full Scale IQ**

The Full Scale IQ (FSIQ) is derived from the sum of all the tasks in the SB5. It covers both the Verbal and Nonverbal domains of cognitive ability in a balanced design and taps the five underlying factor index scales of the SB5. The FSIQ provides a global summary of the examinee's current general level of intellectual functioning as measured by the SB5. The FSIQ is considered a reliable measure of *g*, or the general ability to reason, solve problems, and adapt to the cognitive demands of the environment. The FSIQ measures more than acquired knowledge from schooling; it also measures the sum of five major facets of intelligence: reasoning, stored information, memory, visualization, and the ability to solve novel problems. In research, global scores such as the FSIQ have been found to be the most effective predictors of long-term educational attainment, school-based achievement, and vocational advancement. When Nonverbal IQ (NVIQ) and Verbal IQ (VIQ) scores are not significantly different, the FSIQ typically will be the most prominent score in the SB5 interpretation.

## **Nonverbal IQ**

The SB5 Nonverbal IQ is based on the nonverbal subtests of the five factor index scales. It measures skills in solving abstract, picture-oriented problems; recalling facts and figures; solving quantitative problems shown in picture form; assembling designs; and recalling tapping sequences. The NVIQ measures the examinee's general ability to reason, solve problems, visualize, and recall information presented in pictorial, figural, and symbolic form, as opposed to information presented in the form of words and sentences (printed or spoken). The NVIQ does require a small degree of auditory skill for understanding brief examiner-spoken directions.

## **Verbal IQ**

The SB5 Verbal IQ provides a composite of all the cognitive skills required to solve the items in the five verbal subtests. The VIQ measures general ability to reason, solve problems, visualize, and recall important information presented in words and sentences (printed or spoken). Additionally, the VIQ reflects the examinee's ability to explain verbal responses clearly, present rationales for response choices, create stories, and explain spatial directions. The VIQ subtests require the examinee to understand the examiner's spoken directions and then clearly vocalize responses to questions. General verbal ability, measured by VIQ, is one of the most powerful predictors of academic success in Western cultures, because of the heavy reliance on reading and writing in formal school programs.

## **Abbreviated Battery IQ**

The Abbreviated Battery IQ (ABIQ) is based on two routing subtests—one nonverbal (Object Series/Matrices) and one verbal (Vocabulary). The ABIQ provides a quick estimate of two major cognitive factors: fluid reasoning and crystallized ability. Object Series/Matrices requires the examinee to identify patterns or series of objects and pictures, and to solve novel pictorial problems presented in the matrix-analogy format. The Vocabulary subtest requires examinees to use their verbal knowledge, acquired and stored in memory from years of exposure to printed and spoken English, in school, at home, or at work. The ABIQ can be used for assessments such as neuropsychological examinations, in which a battery of tests supplements the SB5, or for quick yet reliable assessments to verify the general cognitive status of an individual. The ABIQ measures the areas of Nonverbal Fluid Reasoning and Verbal Knowledge and includes two of the most important abilities predictive of academic and

vocational advancement.

## **Fluid Reasoning**

Fluid Reasoning (FR) is the ability to solve verbal and nonverbal problems using inductive or deductive reasoning. Classic activities such as Matrices require the individual to determine the underlying rules or relationships among pieces of information (such as visual objects) that are novel to him or her. The ability to reason inductively (as in the Matrices or Verbal Analogies activities) requires the examinee to reason from the part to the whole, from the specific to the general, or from the individual instance to the universal principle. In deductive reasoning activities, the examinee is given general information and is required to infer a conclusion, implication, or specific example. In the SB5, the Early Reasoning activity items require the examinee to inspect pictures depicting human activities and deduce the underlying problem or situation by telling a story.

### **FLUID REASONING**

#### **Cognitive Areas**

- Inductive and deductive reasoning
- General sequential reasoning
- Oral production and visual memory fluency

#### **Primary Nonverbal Abilities**

- Attention to visual cues
- Concentration for long periods
- Visualization of abstract stimuli
- Recognition of patterns
- Synthesis of information
- Mental verbal mediation
- Search strategies
- Tracking of visual sequences
- Visual discrimination
- Visual scanning
- Mental review of potential answers

#### **Secondary Nonverbal Abilities**

- Visualization of meaningful stimuli
- Inspection of objects by touch
- Freedom from visual neglect
- Toleration of ambiguity
- Patience with difficult tasks
- Trial-and-error strategies
- Cognitive flexibility
- Recognition and evaluation of pictures

#### **Primary Verbal Abilities**

- Rapid retrieval of words and explanations
- Attention to verbal cues

- Production of creative answers
- Mental review of potential answers
- Verbal fluency

#### Secondary Verbal Abilities

- Visualization of meaningful stimuli
- Concentration for long periods
- Freedom from distractibility
- Toleration of ambiguity
- Wide auditory attention span
- Relating of verbal parts to the whole
- Abstraction of verbal concepts
- Trial-and-error strategies
- Synthesis of information
- Cognitive flexibility
- Recognition and evaluation of pictures

#### **Knowledge**

Knowledge (KN) is a person's accumulated fund of general information acquired at home, school, or work. In research, this factor has been called *crystallized ability*, because it involves learned material, such as vocabulary, that has been acquired and stored in long-term memory. Therefore, the first two factor indexes represent the widely verified fluid and crystallized (knowledge) dimensions of intelligence.

#### KNOWLEDGE

##### Cognitive Areas

- Lexical knowledge
- General information
- Oral production and fluency
- Language development

##### Primary Nonverbal Abilities

- Visualization of meaningful stimuli
- Freedom from visual neglect
- Toleration of ambiguity
- Search strategies
- Visual discrimination

##### Secondary Nonverbal Abilities

- Attention to visual cues
- Freedom from distractibility
- Systematic visual scanning
- Fund of general information
- Trial-and-error strategies
- Synthesis of information

- Cognitive flexibility
- Recognition and evaluation of pictures
- Production of conventional answers

#### Primary Verbal Abilities

- Relating of verbal parts to the whole
- Fund of general information
- Rapid retrieval of words and explanations

#### Secondary Verbal Abilities

- Attention to verbal cues
- Wide auditory attention span
- Knowledge of culturally relevant facts
- Synthesis of information
- Production of conventional answers

### **Quantitative Reasoning**

Quantitative Reasoning (QR) is an individual's facility with numbers and numerical problem solving, whether with word problems or with pictured relationships. Activities in the SB5 emphasize applied problem solving more than specific mathematical knowledge acquired through school learning.

#### QUANTITATIVE REASONING

##### Cognitive Areas

- Quantitative reasoning
- Mathematical knowledge

##### Primary Nonverbal Abilities

- Concentration for long periods
- Production of conventional answers

##### Secondary Nonverbal Abilities

- Attention to visual cues
- Precision of movement
- Systematic visual scanning
- Mental review of potential answers
- Visual discrimination
- Tracking of visual sequences
- Recognition of patterns
- Trial-and-error strategies
- Synthesis of information
- Cognitive flexibility
- Mental verbal mediation
- Patience with difficult tasks
- Recognition and evaluation of pictures
- Production of conventional answers

### Primary Verbal Abilities

- Concentration for long periods
- Production of conventional answers

### Secondary Verbal Abilities

- Attention to verbal cues
- Patience with difficult tasks
- Wide auditory attention span
- Mental review of potential answers
- Trial-and-error strategies
- Abstract verbal concepts
- Synthesis of information
- Cognitive flexibility
- Recognition and evaluation of pictures
- Production of creative answers

### **Visual-Spatial Processing**

Visual-Spatial Processing (VS) measures an individual's ability to see patterns, relationships, spatial orientations, or the gestalt among diverse pieces of a visual display. Activities in the SB5 include Form Board and Form Patterns, where pieces are moved to complete the whole puzzle, and a collection of position and direction items.

### VISUAL-SPATIAL PROCESSING

#### Cognitive Areas

- Visualization
- Spatial relations
- Closure speed

#### Primary Nonverbal Abilities

- Visualization of meaningful stimuli
- Inspection of objects by touch
- Freedom from visual neglect
- Precision of movement
- Planning
- Trial-and-error strategies
- Reproduction of models
- Visualization of whole from parts
- Recognition and evaluation of pictures
- Production of creative answers

#### Secondary Nonverbal Abilities

- Attention to visual cues
- Impulse control
- Concentration for long periods

- Patience with difficult tasks
- Precision of movement
- Systematic visual scanning
- Search strategies
- Visual discrimination
- Mental verbal mediation
- Cognitive flexibility

#### Primary Verbal Abilities

- Attention to verbal cues
- Recognition and evaluation of pictures

#### Secondary Verbal Abilities

- Visualization of meaningful stimuli
- Concentration for long periods
- Toleration of ambiguity
- Wide auditory attention span
- Search strategies
- Relating of verbal parts to the whole
- Verbal fluency
- Planning
- Visualization of whole from parts
- Production of creative answers
- Rapid retrieval of words and explanations

### **Working Memory**

Working Memory (WM) is a class of memory processes in which diverse information stored in short-term memory is inspected, sorted, or transformed. For example, in the SB5 Last Word items, the examinee listens to a series of sentences and then sorts out the last word in each sentence for recall. The concept of Working Memory is derived from theory and research that have demonstrated the importance of working memory in school learning, vocational performance, and general problem-solving tasks.

### **WORKING MEMORY**

#### Cognitive Areas

- Visual memory
- Memory span
- Serial perceptual integration

#### Primary Nonverbal Abilities

- Impulse control
- Freedom from distractibility
- Patience with difficult tasks
- Speed of movement
- Precision of movement
- Tracking of visual sequences

- Retention span

#### Secondary Nonverbal Abilities

- Attention to visual cues
- Concentration for long periods
- Freedom from visual neglect
- Visual discrimination
- Mental verbal mediation

#### Primary Verbal Abilities

- Impulse control
- Freedom from distractibility
- Patience with difficult tasks
- Wide auditory attention span
- Retention span

#### Secondary Verbal Abilities

- Attention to verbal cues
- Concentration for long periods
- Relating of verbal parts to the whole
- Rapid retrieval of words and explanations