

# Chapter 14

## Intellectual Disabilities

### 14.1 Overview

Intellectual disability, formerly mental retardation, is defined fairly consistently across most psychiatric (e.g., DSM, ICD), special education (e.g., IDEA) and organization-based (e.g., AAIDD) systems of classification. The definition generally shares three common core features: (1) deficits in intellectual functioning such as reasoning, problem solving, judgment, and abstract thinking; (2) deficits in adaptive behavior (conceptual, social, and practical) such as communication, daily living skills, and self-care; and (3) occurrence during the developmental period (i.e., before age 18). Each of the major taxonomies (e.g., IDEA, DSM, ICD) also have at the core of their definition and classification approach the requirement for a “dual deficit” in IQ and adaptive behavior. Psychologists working in the schools, where the preponderance of ID classification are offered, must work within the constraints of their respective state codes. State codes are generally aligned with the definition found within IDEA.

### 14.2 Definition

#### *IDEA*

On Tuesday, October 5, 2010, President Obama signed into law S. 2781 (“Rosa’s Law”) which replaced the term “mental retardation” in Federal statutes including IDEA with the term “intellectual disability.” Rosa’s law was named after a child with Down syndrome from the state of Maryland. The family of Rosa and Senator Barbara Mikulski worked together to ensure that the word “mental retardation” was expunged from the federal code and replaced with the term intellectual disability.

According to the Federal Regulations under IDEA the definition of ID is as follows:

“Intellectual disability (ID) means significantly subaverage general intellectual functioning, existing concurrently with deficits in adaptive behavior and manifested during the developmental period, that adversely affects a child’s educational performance.” [34 CFR §300.8(c)(6)]

*Source:* CFR, Title 34, Chapter III, Part 300, §300.8 (Child with a disability), (c)(6)

State special education definitions are aligned with the federal definition but each state has autonomy to define the term and its approach to eligibility. Bergeron, Floyd, and Shands (2008) examined state level guidelines for identification of mental retardation and found considerable variation in definition including the terms cognitive impairment, cognitive disability, cognitive delay and severely limited intellectual capacity. Bergeron et al. (2008) indicated a general consensus surrounding the IQ cut score at approximately two standard deviations below the mean with some states (about 40 %) accounting for measurement error by specifying an IQ range (e.g., 70–75) or permitting consideration of confidence intervals.

#### *AAIDD*

The American Association on Intellectual and Developmental Disabilities (AAID), considered the authoritative source on intellectual disability, offers as similar definition (Schalock et al. 2010):

*Intellectual disability is characterized by significant limitations both in intellectual functioning and in adaptive behavior as expressed in conceptual, social, and practical adaptive skills. This disability originates before age 18 (p1).*

The AAIDD criterion specifies an IQ score that is approximately two standard deviations below the mean and considers the instrument’s standard error of measurement and strengths and limitations. Importantly, the AAIDD indicates that a valid assessment of ID requires the consideration of cultural and linguistic diversity along with individual differences in communication, sensory, motor and behavioral factors. The significant limitation in adaptive behavior, noted in the above definition, is characterized by performance of approximately two standard deviations below the mean on either (A) an overall score on a standardized measure of conceptual, social, and practical skills; or (B) one of the following adaptive skills areas: conceptual, social or practical.

### *DSM 5 Definition*

The newly revised DSM offers a definition of ID.

Intellectual Disability (Intellectual Developmental Disorder 319) is a disorder with onset during the developmental period that includes both intellectual and adaptive functioning deficits in conceptual, social, and practical domains. The following three criteria must be met:

- (A) Deficits in intellectual function, such as reasoning, problem solving, planning, abstract thinking, judgment, academic learning, and learning from experience, confirmed by both clinical assessment and individualized, standardized intelligence testing.
- (B) Deficits in adaptive functioning that result in failure to meet developmental and sociocultural standards for personal independence and social responsibility. Without ongoing support, the adaptive deficits limit functioning in one or more activities of daily life, such as communication, social participation, and independent living, across multiple environments, such as home, school, work, and community.
- (C) Onset of intellectual and adaptive deficits during the developmental period.

*Source:* Adapted from the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (Copyright 2013). [American Psychiatric Association](#).

#### **14.2.1 Etiology**

The causes of ID are myriad. Some genetic causes include Down syndrome, fragile X syndrome, and phenylketonuria (PKU). Prenatal and perinatal factors also play a role including fetal alcohol effects, prenatal infection by rubella, anoxia at birth, extreme prematurity, and other complications during pregnancy (see Martin & Dombrowski, 2008). Additional environmental exposures during the developmental period may also cause ID including exposure to infectious diseases such as whooping cough, measles, and meningitis or exposure to toxicants such as lead or poison.

#### **14.2.2 Characteristics of Intellectual Disabilities**

It is noted that head trauma or injury that results in a profile similar to ID is not in itself ID, but rather should be considered a Traumatic Brain Injury (TBI; see Chap. 16). It is similarly noteworthy that physical appearance is a misleading qualifier for the classification of ID. The prototypical child with ID does not have the characteristics of Down Syndrome. In fact, approximately 70 % of individuals with ID are in the

mild ID range, whereas individuals with Down Syndrome have more moderate delays (Schalock et al. 2010). Some characteristics of ID include delays or difficulty, relative to other children the same age, in the following areas:

- Gross motor skills including sitting up, crawling, and walking.
- Communication skills including learning to talk or speak.
- Memory difficulties.
- Social pragmatic skills including difficulty with understanding social rules and seeing the consequences of actions.
- Executive functioning including problem-solving, cause-and-effect relationships, and prediction.

### **14.3 Identification of ID**

Multiple methods of assessment and sources of data should be referenced when classifying ID. This may include a review of medical, educational, and early developmental history; interviews of caregivers; observations in the school setting; functional assessments; and norm-referenced measures of IQ, academic achievement (where possible), behavior and adaptive behavior.

## **14.4 General Guidance Regarding Psychoeducational Assessment**

### ***14.4.1 Dual Deficit in IQ and Adaptive Behavior***

At the core of any approach to the evaluation of ID is what is known as a dual deficit approach. This requires the assessment of both intellectual functioning and adaptive behavior on psychometrically sound, nationally normed measures. These instruments should have a mean of 100 and a standard deviation of 15. When a child scores two standard deviations below the mean (approximately a 70 or lower), and when considering the standard error of measure (SEM) on both these instruments, then the child is considered to have an ID. The dual deficit approach should be supplemented, as necessary, by informal and functional measures of adaptive behavior.

### ***14.4.2 Tests of Intelligence***

Tests of cognitive ability such as the Wechsler scales and the Stanford–Binet have been the commonly accepted instruments suggested by diagnostic taxonomies and organizational guidelines such as the AAIDD. The AAIDD recommends against a screening instrument or a short form of an IQ test. Although the Wechsler Scales

and the Stanford–Binet are frequently used IQ tests there are additional IQ instruments that may also be viable alternatives. When making a classification decision, the standard error of measurement should be considered in cases that are slightly above the 70 cut score. Please keep in mind that clinical judgment should always supplant rigid cut score application where permitted by state regulations. This is particularly the case with IQ tests which are prone to measurement error, the Flynn Effect, regression effects, and test differences (i.e., a test with numerous manipulatives may be inappropriate for a child with significant fine motor deficits). (Flynn, 1984, 1987; Kranzler & Floyd, 2013).

The application of a rigid cut score is frowned upon by clinicians with specific expertise in ID (e.g., AAIDD), by diagnostic systems (e.g., DSM-5), by ethical codes (e.g., APA, NASP) and test standards (APA, AERA, and NCME, 1999). The identification of ID should be complemented by multiple methods and sources of information including in depth background and developmental history, medical history, interviews of multiple caregivers including parents and teachers, standardized test scores, understanding of cultural differences, and sound clinical judgment. The foundation for the classification decision is the requirement to document a dual deficit in IQ and adaptive behavior. But the clinician should consider sensory/motor issues and cultural, social, ethnic and language differences. In some cases, a nonverbal test of cognitive ability may be appropriate (e.g., TONI or UNIT).

Other considerations include the use of a recently normed test (i.e., within the last 10 years) to avoid issues with the Flynn Effect. The IQ test should also have high reliability (internal consistency  $\geq .95$ ; test–retest  $\geq .90$ ). Kranzler and Floyd (2013) discuss two additional issues that must be considered when selecting an IQ test. They discuss the importance of paying attention to inadequate subtest floors and to subtest requirements that might interfere with accurate measurement of psychometric g. Inadequate floors occur when a child obtains a raw score of one (1) on an instrument and the standard score is within (i.e., higher than a 70) two standard deviations of the mean. This may be a problem for selected subtests from most of the IQ tests noted above, but it is not a problem when attempting to derive a full scale IQ score (i.e., psychometric g). Kranzler and Floyd (2013), Braden and Elliot (2003), and Phillips (1994) caution about selecting an instrument with too many manipulatives due to the common co-occurrence of sensory and motor disabilities in children and adolescents with ID. As an example, a child suspected of having ID but who has cerebral palsy and concomitant fine motor skills difficulties might benefit from administration of an IQ test that avoids manipulatives such as blocks or copying symbols quickly under timed conditions (Kranzler & Floyd, 2013).

### ***14.4.3 Adaptive Behavior***

Adaptive behavior is assessed using psychometrically sound adaptive behavior scales as well as clinical judgment. Several adaptive behavior assessment instruments are available to the field although two of the more commonly used instruments

include the Vineland-II and the ADAS-II. Psychologists may wish to consider the following instruments for the purpose of adaptive behavior assessment:

- Adaptive Behavior Scale-School, Second Edition
- Adaptive Behavior Evaluations Scale-Revised, Second Edition
- Scales of Independent Behavior-Revised
- Adaptive Behavior Assessment System, Second Edition
- Vineland Adaptive Behavior Scales, Second Edition

When identifying adaptive behavior via a norm-referenced measure, psychologists should attempt to ascertain ratings and information from several knowledgeable respondents including parents and teachers. One of the confounding issues in the evaluation of children with ID may be found when interviewing parents. Parents sometimes mistake the occasional demonstration of a behavior with typically occurring behavior. Professionals need to focus on typically performing (i.e., actually demonstrating consistently) the behavior rather than on the parent's belief or statement that the child can do the behavior.

Along with norm-referenced measures of adaptive behavior, the clinician may wish to informally investigate adaptive behavior via interviews, accumulation of background and developmental history, and inspection of medical, educational, and psychological records in the following areas:

- Conceptual abilities (e.g., communication, language, problem solving, judgment, reading and writing, understanding of money, and concepts of time).
- Social abilities (e.g., interpersonal skills, social problem solving, understanding of nuance and idioms, social responsibility, rule compliance and naïveté).
- Practical abilities (e.g., personal care, hygiene, toileting, getting dressed, feeding oneself, understanding of travel directions, and health care safety).

The DSM-5 offers a comprehensive chart detailing specific adaptive abilities according to levels of severity (Mild, Moderate, Severe and Profound), across several stages of development, and among the three adaptive behavior domain areas (conceptual, social, and practical). When considering a classification of ID under special education regulations, the clinician may reference the DSM-5 to assist with decision-making but keep in mind that it is the IDEA/state criteria that drives classification in the schools.

Severity level	Conceptual domain	Social domain	Practical domain
Mild	<p>For preschool children, there may be no obvious conceptual differences. For school-age children and adults, there are difficulties in learning academic skills involving reading, writing, arithmetic, time, or money, with support needed in one or more areas to meet age-related expectations. In adults, abstract thinking, executive functioning (i.e., planning, strategizing, priority setting, and cognitive flexibility), and short-term memory, as well as functional use of academic skills (e.g., reading, money management), are impaired. There is a somewhat concrete approach to problems and solutions compared with age-mates.</p>	<p>Compared with typically developing age-mates, the individual is immature in social interactions. For example, there may be difficulty in accurately perceiving peers' social cues. Communication, conversation, and language are more concrete or immature than expected for age. There may be difficulties regulating emotion and behavior in age-appropriate fashion; these difficulties are noticed by peers in social situations. There is limited understanding of risk in social situations; social judgment is immature for age, and the person is at risk of being manipulated by others (gullibility).</p>	<p>The individual may function age-appropriately in personal care. Individuals need some support with complex daily tasks in comparison to peers. In adulthood, supports typically involve grocery shopping, transportation, home and child-care organizing, nutritious food preparation, and banking and money management. Recreational skills resemble those of age-mates, although judgment related to wellbeing and organization around recreation requires support. In adulthood, competitive employment is often seen in jobs that do not emphasize conceptual skills. Individuals generally need support to make health care decisions and legal decisions, and learn to perform a skilled vocation competently. Support is typically needed to raise a family.</p>
Moderate	<p>All through development, the individual's conceptual skills lag markedly behind those of peers. For preschoolers, language and pre-academic skills develop slowly. For school-age children, progress in reading, writing, mathematics, and understanding of time and money occurs slowly across the school years and is markedly limited compared with that of peers. For adults, academic skill development is typically at an elementary level, and support is required for all use of academic skills in work and personal life. Ongoing assistance on a daily basis is needed to complete conceptual tasks of day-to-day life, and others may take over these responsibilities fully for the individual.</p>	<p>The individual shows marked differences from peers in social and communicative behavior across development. Spoken language is typically a primary tool for social communication but is much less complex than that of peers. Capacity for relationships is evident in ties to family and friends, and the individual may have successful friendships across life and sometimes romantic relationships in adulthood. However, individuals may not perceive or interpret social cues accurately. Social judgment and decision-making abilities are limited, and caretakers must assist the person with life decisions. Friendships with typically developing peers are often affected by communication or social limitations. Significant social and communicative support is needed in work settings for success.</p>	<p>The individual can care for personal needs involving eating, dressing, elimination, and hygiene as an adult, although an extended period of teaching and time is needed for the individual to become independent in these areas, and reminders may be needed. Similarly, participation in all household tasks can be achieved by adulthood, although an extended period of teaching is needed, and ongoing supports will typically occur for adult-level performance. Independent employment in jobs that require limited conceptual and communication skills can be achieved, but considerable support from coworkers, supervisors, and others is needed to manage social expectations, job complexities, and ancillary responsibilities such as scheduling, transportation, health benefits, and money management. A variety of recreational skills can be developed. These typically require additional supports and learning opportunities over an extended period of time. Maladaptive behavior is present in a significant minority and causes social problems.</p>

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Severity level	Conceptual domain	Social domain	Practical domain
Severe	<p>Attainment of conceptual skills is limited. The individual generally has little understanding of written language or of concepts involving numbers, quantity, time, and money. Caretakers provide extensive supports for problem solving throughout life.</p>	<p>Spoken language is quite limited in terms of vocabulary and grammar. Speech may be supplemented through augmentative means. Speech and communication are focused on the here and now within everyday events. Language is used for social communication more than for explication. Individuals understand simple speech and gestural communication. Relationships with family members and familiar others are a source of pleasure and help.</p>	<p>The individual requires support for all activities of daily living, including meals, dressing, bathing, and elimination. The individual requires supervision at all times. The individual cannot make responsible decisions regarding well-being of self or others. In adulthood, participation in tasks at home, recreation, and work requires ongoing support and assistance. Skill acquisition in all domains involves long-term teaching and ongoing support. Maladaptive behavior, including self-injury, is present in a significant minority.</p>
Profound	<p>Conceptual skills generally involve the physical world rather than symbolic processes. The individual may use objects in goal-directed fashion for self-care, work, and recreation. Certain visuospatial skills, such as matching and sorting based on physical characteristics, may be acquired. However, co-occurring motor and sensory impairments may prevent functional use of objects.</p>	<p>The individual has very limited understanding of symbolic communication in speech or gesture. He or she may understand some simple instructions or gestures. The individual expresses his or her own desires and emotions largely through nonverbal, nonsymbolic communication. The individual enjoys relationships with well-known family members, caretakers, and familiar others, and initiates and responds to social interactions through gestural and emotional cues. Co-occurring sensory and physical impairments may prevent many social activities.</p>	<p>The individual is dependent on others for all aspects of daily physical care, health, and safety, although he or she may be able to participate in some of these activities as well. Individuals without severe physical impairments may assist with some daily work tasks at home, like carrying dishes to the table. Simple actions with objects may be the basis of participation in some vocational activities with high levels of ongoing support. Recreational activities may involve, for example, enjoyment in listening to music, watching movies, going out for walks, or participating in water activities, all with the support of others. Co-occurring physical and sensory impairments are frequent barriers to participation (beyond watching) in home, recreational, and vocational activities. Maladaptive behavior is present in a significant minority.</p>

Source: American Psychiatric Association. (2013). DSM-5. Pages 34–36.

## 14.5 Conclusion

The classification of ID in the schools is accomplished via a comprehensive psycho-educational evaluation but predicated upon a dual deficit in cognitive ability and adaptive behavior. Each state has its own definition, label and identification procedures, but these features are fairly consistent with the federal guidelines with a few minor exceptions.

## Appendix: Sample Report

### *Intellectual Disability*

#### **Psychological Report Confidential**

Name: Keith Smith	Date of Report: May 15, 2016
Date of Birth: 5/22/2007	Chronological Age: 8 years 11 months
Grade: 2	School: Smith Public School
Name of Examiner: Stefan C. Dombrowski, Ph.D.	

Parent Name and Address: Cher Haley  
1234 Briar Cliff Lane  
Philadelphia, PA, 19138

Phone: 609-585-1234

#### **Reason for Referral**

Keith faces continued difficulties with all aspects of the academic curriculum including reading, writing and mathematics. He is primarily non-verbal in his communication was referred for a comprehensive reevaluation to gain insight into his academic, behavioral, adaptive, and social progress in the classroom. The multidisciplinary team wonders whether Keith will be found eligible for a classification of intellectual disability and what recommendations might benefit Keith.

#### **Assessment Methods and Sources of Data**

*Stanford–Binet Intelligence Scales—Fifth Edition (SB5)*  
*Woodcock–Johnson Tests of Achievement, Fourth Edition (WJ-IV)*  
*Bender Visual Motor Gestalt, Second Edition (Bender-2)*

*Behavior Assessment System for Children, Second Edition (BASC-2)*

- Ms. Jennifer Lincoln (Second Grade Teacher)

*Vineland Adaptive Behavior Scales, Second Edition (Vineland-II)*

- Ms. Jennifer Lincoln (Second Grade Teacher)

- Ms. Jessie Miller (Special Education Teacher)

*Teacher Interview*

- Ms. Jennifer Lincoln (Second Grade Teacher)

- Ms. Jessie Miller (Special Education Teacher)

*Parent Interview*

- Cher Haley (Mother)

*Student Interview*

- Keith Smith

Classroom Observations

Review of Academic Grade Reports

Review of School Records

**Background Information and Developmental History**

Keith Smith is an 8 year, 11 month-old child in the second grade at the Smith Public School (SPS). Keith experiences moderate delays in cognitive ability, functional academics, and functional communication. These delays are sufficiently severe that Keith will qualify for a classification of intellectual disability (formerly mental retardation). This classification reflects a revision to the diagnosis from January 2014 where a classification of mental retardation was deferred in favor of a classification of learning disabilities and speech language delay. In 2014, Keith experienced cognitive delays and functional communication deficits, but his academic skills were in the below/low average range. He also just entered kindergarten and other indicators at that time (e.g., standardized achievement test scores; parental input; socialization skills) suggested that the classification of intellectual disability be deferred. At the present time, Keith's moderate delays in cognitive ability, functional academics, and functional communication are sufficiently severe that a classification of intellectual disability is now clinically indicated.

*Prenatal, Perinatal, and Early Developmental History:* Ms. Haley noted that Keith was born prematurely at 32 weeks weighing 5 lb. He spent 1 week in the NICU but experienced little to no medical concerns. Ms. Haley also reported suffering from the flu during her first trimester with Keith. Keith experienced delays in walking and talking. He did not say his first word until 13 months of age and walked at 15 months. Ms. Haley reports that all other developmental milestones were attained within normal limits.

*Medical:* Ms. Haley that Keith is in good health and has no medical concerns. She indicated that his hearing and vision are intact. Keith has never experienced a head injury or major infection.

*Cognitive, Academic, and Language Functioning:* Keith faces significant struggles with his academic progress. He can only recognize a few letters of the alphabet and struggles with counting up through 100. Keith's language ability is low. He struggles with verbal expression. Keith's prior performance on a measure of cognitive ability was in the delayed range (RIAS Composite IQ=50; 0.04 percentile; Verbal IQ=44; <0.01 percentile; Nonverbal IQ=74; 4th percentile). Keith's performance on the WJ-III Achievement was also in the delayed range across all academic areas. His language ability is low for his age and he struggles with verbal expression. Ms. Haley noted that Kevin's math ability is improving.

*Social-Emotional and Behavioral Functioning:* Both Ms. Haley and Ms. Lincoln noted that Keith struggles socially. He frequently misinterprets social cues and gets teased in class. He also struggles with following classroom rules because he sometimes is unaware of his lack of compliance. Keith demonstrates a strength in his ability to emulate other students' behavior and adapt to situations. He struggles with expressing himself at an age expected manner and is often difficult to understand when he speaks.

*Strengths:* Ms. Haley indicated that Keith's strengths include his helpfulness, his sociability, and his concern for others. Kevin is able to emulate other children in school.

*Summary:* Keith continues to experience significant deficits in the academic and communication arena. He struggles with all academic subjects and faces considerable difficulties with expressing himself orally and in writing.

## **Cognitive and Academic Functioning**

### ***Stanford–Binet Intelligence Scales—Fifth Edition (SB5)***

Keith was administered the Stanford–Binet Intelligence Scales—Fifth Edition (SB5). The SB5 is an individually administered measure of intellectual functioning normed for individuals between the ages of 2 and 85+ years. The SB contains several individual tests of intellectual problem solving and reasoning ability that are combined to form a Verbal Intelligence Quotient (VIQ) and a Nonverbal Intelligence Quotient (NVIQ). These two indexes of intellectual functioning are then combined to form an overall Full Scale Intelligence Quotient (FSIQ). By combining the VIQ and the NVIQ into the FSIQ, a strong, reliable assessment of general intelligence (*g*) is obtained. The FSIQ measures the two most important aspects of general intelligence according to recent theories and research findings: reasoning or fluid abilities and verbal or crystallized abilities.

The SB5 contains five factor indexes for each the VIQ and NVIQ: Fluid Reasoning, Knowledge, Quantitative Reasoning, Visual Spatial, and Working Memory. Fluid reasoning represents an individual's ability to solve verbal and non-verbal problems and reason inductively and deductively. Knowledge represents the

accumulated fund of general information acquired at home, school, work, or in life. Quantitative reasoning reflects facility with numbers and numerical problem solving, whether with word problems or figural relationships. Quantitative reasoning emphasizes problem solving more than mathematical knowledge. Visual-spatial processing reflects the ability to see patterns, relationships, spatial orientation, and the connection among diverse pieces of a visual display. Working memory is a measure of short-term memory processing of information whether verbal or visual, emphasizing the brief manipulation of diverse information.

Each of these indexes is expressed as an age-corrected standard score that is scaled to a mean of 100 and a standard deviation of 15. These scores are normally distributed and can be converted to a variety of other metrics if desired.

The SB5 provides three intelligence score composites and five factor indices with a mean of 100 and a Standard deviation of 15. Scores between 90 and 110 are considered average.

	Standard score	Percentile	Conf. interval (95 %)	Descriptive classification
Full scale IQ (FSIQ)	48	0.03	44–56	Delayed
Nonverbal IQ (NVIQ)	62	1	58–70	Below Avg
Verbal IQ (VIQ)	49	0.03	45–59	Below Avg
<i>Factor index scores</i>				
Fluid reasoning (FR)	63	1	57–70	Below Avg
Knowledge (KN)	50	0.05	45–55	Delayed
Quantitative reasoning (QR)	68	2	63–72	Below Avg
Visual spatial (VS)	57	0.14	52–63	Delayed
Working memory (WM)	45	0.02	40–50	Delayed

The above table may be referenced to obtain Keith's performance in each of these areas while the following is a description of each of the factor index scores. Fluid reasoning represents an individual's ability to solve verbal and nonverbal problems and reason inductively and deductively. Knowledge represents the accumulated fund of general information acquired at home, school, work, or in life. Quantitative reasoning reflects facility with numbers and numerical problem solving, whether with word problems or figural relationships. Quantitative reasoning emphasizes problem solving more than mathematical knowledge. Visual-spatial processing reflects the ability to see patterns, relationships, spatial orientation, and the connection among diverse pieces of a visual display. Working memory is a measure of short-term memory processing of information whether verbal or visual, emphasizing the brief manipulation of diverse information.

The SB5 includes ten subtest scores with a mean of 10 and a Standard deviation of 3. Scores between 8 and 12 are considered average. Keith's individual subtest scores were as follows:

Nonverbal tests		Verbal tests	
Fluid reasoning	3	Fluid reasoning	2
Knowledge	2	Knowledge	3
Quant. reasoning	4	Quant. reasoning	3
Visual spatial	1	Visual spatial	2
Working memory	2	Working memory	1

As noted above, Keith's scores were all in the below average to delayed range. Primary interpretative emphasis should be placed upon the full scale scores with secondary placed upon index level scores. It is generally not indicated to interpret at the level of the subtest.

On testing with the SB5, Keith earned a Full Scale IQ of 48. On the SB5, this level of performance falls within the range of scores designated as delayed and exceeded the performance of 0.03 % of individuals at Keith's age. His Verbal IQ (Standard Score=49; 0.03rd percentile) was in the delayed range and exceeded 0.03 % of individuals Keith's age. Keith's Nonverbal IQ (Standard Score=62; 1st percentile) was in the delayed range, exceeding 1 % of individuals Keith's age.

### ***Woodcock–Johnson Tests of Achievement-IV (WJ-IV)***

The WJ-IV is an achievement test used to measure basic reading, writing, oral language, and mathematics skills. The Reading subtest includes letter and word identification, vocabulary, and comprehension skills. The Writing subtest includes spelling, writing fluency, and simple sentence writing. The Mathematics subtest includes calculation, practical problems, and knowledge of mathematical concepts and vocabulary. Keith obtained the following scores in each of the areas of measurement:

	Standard score	Descriptive percentile	Classification
<i>Broad reading</i>	44	<0.1	Delayed
Letter-word ID	66	1	Delayed
Sentence reading fluency	58	0.3	Delayed
Passage comprehension	37	<0.1	Delayed
Sentence writing fluency	60	0.4	Delayed
Spelling	51	<0.1	Delayed
<i>Broad mathematics</i>	44	<0.1	Delayed
Math facts fluency	57	0.2	Delayed
Applied Problems	64	1	Delayed
Calculation	30	<0.4	Delayed

Standardized achievement test results revealed considerable deficits across all academic domains. Keith will require an intensive, restrictive environment that will focus on functional academic skills.

***Bender Visual-Motor Gestalt Test, Second Edition (Bender-II)***

The Bender-II measures visual-motor integration skills, or the ability to see and copy figures accurately. A quantitative and qualitative analysis of Keith's drawings suggests that his visual-motor integration abilities (e.g., fine motor skills for paper and pencil tasks) are below average (Copy Standard Score = 70; 2nd percentile).

***Behavior Assessment System for Children, Second Edition (BASC-2)***

The Behavior Assessment System for Children, Second Edition (BASC-2) is an integrated system designed to facilitate the differential diagnosis and classification of a variety of emotional and behavioral conditions in children. It possesses validity scales and several clinical scales, which reflect different dimensions of a child's personality. *T*-scores between 40 and 60 are considered average. Scores greater than 70 ( $T > 70$ ) are in the Clinically Significant range and suggest a high level of difficulty. Scores in the At-Risk range (*T*-Score 60–69) identify either a significant problem that may not be severe enough to require formal treatment or a potential of developing a problem that needs careful monitoring. On the Adaptive Scales, scores 30 and below are considered clinically significant while scores between 31 and 39 are considered at-risk.

Clinical scales	Ms. Lincoln	
	<i>T</i> -Score	Percentile
Hyperactivity	67*	93
Aggression	72**	98
Conduct problems	62*	86
Anxiety	48	47
Depression	74**	98
Somatization	84**	99
Attention problems	62*	86
Learning problems	80**	98
Atypicality	69*	94
Withdrawal	66*	93
Adaptability	41	21
Social skills	52	53
Leadership	39*	19
Study skills	30**	3
Functional communication	21**	2
Externalizing problems	68*	93
Internalizing problems	73**	98
Behavioral symptoms index	73**	98
Adaptive skills	35*	7
School problems	73**	98

\*At-risk

\*\*Clinically significant

BASC-2 ratings suggested a clinically significant elevation on the behavioral symptoms, internalizing problems, and school composites with an at risk score on the adaptive skills composite. Specific scales in the clinically significant range include aggression, depression, somatization, learning problems, study skills, and functional communication. BASC-2 results also revealed scores in the at-risk range on the attention, hyperactivity, conduct problems, leadership, atypicality, and withdrawal clinical scales.

### ***Vineland II Adaptive Behavior Scales***

The Vineland measures a student's performance of the daily activities necessary for taking care of oneself, socializing, and getting along with others. Ms. Jessie Miller and Jenny Lincoln completed the teacher rating form that assesses Keith's functioning in the areas of Communication (receptive, expressive, and written), Daily Living Skills (personal, academic, school community), and Socialization (Interpersonal relationships, Play and leisure time, coping skills).

Following are the results on the Vineland-II:

Domain	Ms. Miller		Ms. Lincoln	
	Std. Scr	Percentile	Std. Scr	Percentile
Communication	65	1	67	1
Daily Living Skills	80	9	84	14
Socialization	76	5	86	18
Adaptive behavior composite	72	3	77	6

Results indicate that Keith experiences delays in the area of communication (Receptive and expressive). His socialization skills are in the below average/low average range while his Daily Living Skills (e.g., Academic, School Community, Personal) are low average. Keith's Adaptive Behavior Composite scores of 72 (3rd percentile; Ms. Miller) and 77 (6th percentile; Ms. Lincoln) are below average.

### **Interview Results**

*Parent Interview (May 6, 2016):* Ms. Cher Haley, Keith's mother, was interviewed on May 6, 2016 to ascertain impressions of Keith's progress at school. Ms. Haley noted a positive change in Keith's math ability. She explained that there is much more structure in math and as long as Keith knows what he is dealing with, then he knows what to do. Ms. Haley explained that Keith still struggles, but he has also improved. Ms. Haley indicated that Keith's memory issues stand out. "To be able to remember what word is what is very difficult for him," she noted. His writing is also low. Ms. Haley asked, "if [Keith] has a learning issue that causes him difficulty with remembering words, then how can we expect him to write it?" She continued, "he needs someone assisting him and guiding him so that he can express himself." Ms. Haley indicated

that he is doing okay socially, but he tends to get teased by other children since he is beginning to stand out in terms of academics and considering that he is bigger than other children. Ms. Haley noted that it is difficult for him to keep up with other children. He always attempts to participate and raise his hand, but generally does not know the answer. Ms. Haley continued, “it is not that he’s having a hard time, it is that the other children are shunning him.” She stated that other children tend to call him “dumb” or “stupid.” Socially, when outside of school settings he gets along fine. In a school setting he tends to get teased. Behaviorally he’s okay. Ms. Haley indicated, “I noticed that his frustration from his learning difference tends to make him angry. He tends to want help. If he’s not given the answer, he tends to shut down.” She also explained that if Keith has something to look forward to, he will persist without getting upset. Ms. Haley stated that Keith needs more structure than what he is presently receiving. When he does work and it is incorrect, he needs to be corrected; otherwise, he’ll actually think it is correct. When he does get things correct on his own then he needs to be praised. She concluded by stating that she does not believe Keith is “mentally retarded.” She is concerned that if Keith is placed into a program for children with intellectual disabilities then this will be harmful to Keith’s progress. Ms. Haley explained that “Keith may just shut down” if placed in such a program because he will realize that there is something wrong with him.

*Student Interview (April 27, 2016):* Keith was interviewed to ascertain impressions of his progress at SPS. When asked whether he enjoys SPS Keith stated “yes.” When asked what he likes about SPS, Keith stated that he likes homework, reading and recess. Keith was asked what he does best at school and he stated, “listening to the teachers.” Keith also stated that he enjoys playing outside. Keith indicated that he does not get into trouble at school. He mentioned that his strengths include math and homework. Keith explained that his needs include homework. Throughout the student interview, Keith was difficult to understand and had difficulty with answering questions posed to him. It was quite apparent that Keith faces considerable communication delays and struggles with answering questions that are abstract.

*Teacher Interview (May 4, 2016):* Ms. Jenny Lincoln, Keith’s second grade teacher, was interviewed regarding Keith’s academic, behavioral, emotional, adaptive, and social functioning. Ms. Lincoln first discussed Keith’s issue with communication noting that he struggles with both expressing and understanding language. She mentioned that Keith struggles to understand the distinction between friendly and unfriendly intent. She noted that Keith often misinterprets social cues. Ms. Lincoln noted that Keith is both oversensitive and undersensitive to social stimuli. She mentioned that other children sometimes try to provoke Keith. Ms. Lincoln explained that Keith is aware of his own deficit and employs strategies to try to hide them. Some of these strategies can be functional in one way (e.g., get him out of work; have him be a leader at something in school) but maladaptive in another (e.g., alienate him from other children). For instance, Ms. Lincoln commented that Keith attempts to frequently be first in line and will bump into and push other children. Ms. Lincoln noted that Keith tries to engage socially with other children, but other children often have difficulty understanding what he is saying. Ms. Lincoln explained that Keith is a friendly child and knows how to approach a group of children, but struggles with

sustaining social contact with them. Ms. Lincoln explained that Keith is very good at emulating other children's behavior, which allows him to blend in with them to some degree. Regarding academics, Ms. Lincoln explained that Keith cannot read or write. She noted that sometimes he struggles with letter recognition and he cannot blend sounds. Ms. Lincoln indicated that Keith knows his one and two digit numbers and can count by fives and tens. Ms. Lincoln explained that Keith is skilled at trying to appear like his peers. She also mentioned that Keith is a friendly child who likes to draw and do art. Ms. Lincoln explained that Keith requires support for difficulties with academics, social progress, and speech.

*Teacher Interview (May 6, 2016):* Ms. Jessie Miller, Keith's special education teacher, was interviewed regarding Keith's academic, behavioral, emotional, adaptive, and social functioning. Ms. Miller noted that Keith really struggles in school. She explained, "he spends most of his day really trying hard to access the curriculum." Ms. Miller indicated that Keith's teachers also try really hard to assist him. Ms. Miller indicated that Keith's ability to retain and express language is low. Keith is still writing with imaginative spelling which is reminiscent of beginning of kindergarten level. Still, Ms. Miller explained that Keith has worked extremely hard to get where he is. She continued, he gets exhausted even to accomplish this. Ms. Miller noted that Keith can only match about 30 % of the letters to their beginning sounds. He can recognize, mostly, his letters but still gets confused on the "b," the "q," and the "t." He can count to 100 with teacher cues, though he might skip numbers along the way. Ms. Miller indicated that his ability to count to 100 is not consistent. He's about 80 % accurate with that. Ms. Miller stated that keeping track of verbal instructions is difficult for Keith. Ms. Miller was next asked about Keith's social progress. She explained that Keith has a very difficult time reading social situations. For example, Keith does not recognize his role in incidents with other children. He always wants to be first in line, and he'll push other kids and not recognize that this behavior makes children angry. Ms. Miller explained that children are resentful of him pushing to get to the front of the line. Another child will push back and Keith does not recognize why the other child pushed him back. Ms. Miller noted that Keith really wants to connect with other children, but tends to do so in an assertive and aggressive way. Ms. Miller indicated that Keith is a fairly assertive child and getting him to recognize reciprocal (give and take) interaction has been a struggle for him. He is able to emulate other children's behaviors to look fairly typical for his age. This is strength. Ms. Miller indicated that Keith's primary focus is on blending in with other children. She also noted that he is becoming extremely aware of the fact that he is different. As a result, when extra support is offered to him, he does not want it. Ms. Miller explained that this may be a signal to him that he is different. Ms. Miller explained that Keith's needs include comprehension of everyday routines (e.g., classroom; social) and academics across all areas. Ms. Miller indicated that Keith's pace of growth is very slow, and his receptive and expressive language skills are very low. Keith's strengths include his capacity to emulate other children his age, and his strong social motivation which inspires his ability to emulate and engage with other children socially.

### **Observations**

*Classroom Observation (May 4, 2016):* Keith was observed for 15 min during Ms. Lincoln's class. The class was engaged in a reading workshop activity. Throughout the 15 min observation, Keith did not appear to read a comic book he had selected. Keith talked with another student in his group. He playfully tapped another student. On several occasions, Keith attempted to talk with students in his group, but what he attempted to communicate with them was unintelligible. Toward the end of the class, when Ms. Lincoln rang the chime to signal a need to be quiet, Keith told other children to be quiet thereby violating Ms. Lincoln's directive to be quiet. Impressions of the observation were that Keith was not involved in the reading activity.

*Observation during Assessment:* Keith eagerly engaged in the assessment process and seemed to enjoy the one-on-one attention he received. He struggled with all tasks but persisted despite his difficulty. The present test results are a valid representation of Keith's abilities.

### **Conceptualization and Classification**

Multiple data sources and methods of assessment inform the conceptualization of Kevin's cognitive, academic, social-emotional, and behavioral functioning include whether he qualifies for special education support. Details in support of these findings are offered below.

*Cognitive and Academic Functioning:* Keith's present performance on a measure of cognitive ability was in the delayed range (SB5 FSIQ=48; 0.03 percentile; VIQ=49, 0.03 percentile; NIQ=62, 1st percentile). This is consistent with his prior performance (January, 2014) in the delayed range on a measure of cognitive ability (SB5 FSIQ=50; 0.04 percentile; Verbal IQ=44; <0.01 percentile; Nonverbal IQ=74; 4th percentile). Keith's performance on the WJ-IV Achievement was also in the delayed range across all academic areas. When previously assessed in 2014, Keith experienced cognitive delays and functional communication deficits, but his academic skills were in the below/low average range. He also just entered kindergarten and other indicators at that time (e.g., standardized achievement test scores; parental input; socialization skills) suggested that the classification of intellectual disability should be deferred. Keith's present performance in the delayed range on measures of cognitive ability and two adaptive behavior areas (e.g., functional academics and communication) suggest that Keith will qualify, with a reasonable degree of clinical certainty, for a classification of intellectual disability (formerly mental retardation). This classification reflects a revision to the diagnosis from January 2009 where a classification of mental retardation was deferred in favor of a classification of learning disabilities and speech language delay. Keith's present performance in the moderately delayed range on a measure of cognitive ability and academic achievement suggests a need for intensive supports in a more restrictive environment.

*Social, Emotional, and Adaptive Functioning:* Keith faces considerable difficulty in his communication with other children and adults in the classroom. He also tends to misperceive social stimuli. This results in social skills difficulties. Still, Keith displays areas of strength in his social-emotional and behavioral functioning. He has a capacity to emulate other children's behavior, which helps him to blend in with them. However, when Keith attempts to engage in reciprocal interaction, other children struggle to understand what he is saying. Although Keith can be charming and will often smile at or tease other children in an endearing way, he can be overly assertive, if not aggressive, in his interaction with them. For instance, in his attempt to be first in line, Keith will push others out of his way. This tends to alienate Keith from other children. Keith also struggles with reading and interpreting social cues. And, although he may successfully enter into a conversation or social interaction with other children in the classroom, he struggles to maintain that interaction. Keith will require more intensive social and communication intervention.

*Strengths:* Background information and interview results indicate that Keith is a friendly child who is good at emulating the behavior of other children which helps him meld in with them. He also has developed strategies that help him hide his academic difficulties. This includes acting like other children when they are engaged in classwork such as pretending to read a book or work on written work. He also understands how to enter into a group of children to engage with them socially. These are all very adaptive social skills.

*Summary:* Keith experiences delays in cognitive ability, functional academics, and functional communication. These delays are sufficiently severe that Keith will qualify for a classification of intellectual disability.

### **Summary and Recommendations**

Keith faces significant delays in two functional areas: communication and academics. Because of these significant delays, in combination with Keith's delayed performance on a measure of cognitive ability, Keith will require a restrictive environment that can focus on functional academic, communication, socialization, and daily living skills. Keith demonstrates a relative strength in his ability to emulate, and blend in with, other children. However, Keith still faces struggles in the social arena and will require guidance and support for reciprocal interaction and other basic socialization skills. Part of this struggle is related to his inability to communicate at an age-expected level. The other part of this difficulty appears related to Keith's moderate intellectual disability where he struggles with reading and interpreting social cues and situations. Keith displays a strength in his ability to emulate other children's behavior which helps him blend in with them. He experiences delayed communication abilities.

Considering multiple data sources and methods of assessment, Keith will benefit from a more intensive program in a different setting that focuses on functional academic, communication, daily living skills, and social skills. Keith will also benefit from exposure to age-typical peers. The IEP team will convene to discuss additional, specific goals and objectives that will benefit Keith. Meanwhile, the following are a few generalized recommendations for Keith.

1. *Functional Curriculum*: Keith will benefit from greater exposure to a functional academic curriculum that will assist him learn basic reading, writing and mathematics concepts.
2. *Social Skills Support*: Keith will benefit from guidance and support regarding entering into and sustaining social interaction. He will also benefit from appropriate social problem solving skills where he can learn to better read and interpret social cues. Modeling, coaching, and behavioral rehearsal will benefit Keith in the acquisition of appropriate social skills. Peer mediated interventions along with cuing and prompting of acquired social skills will enhance skill performance. Training and practice in diverse settings at school and home will help to generalize and maintain skill acquisition.
3. *Communication*: Keith struggles with oral expression and communicating at an age-expected level. He will benefit from continued support from the speech language pathologist for his communication deficits.

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