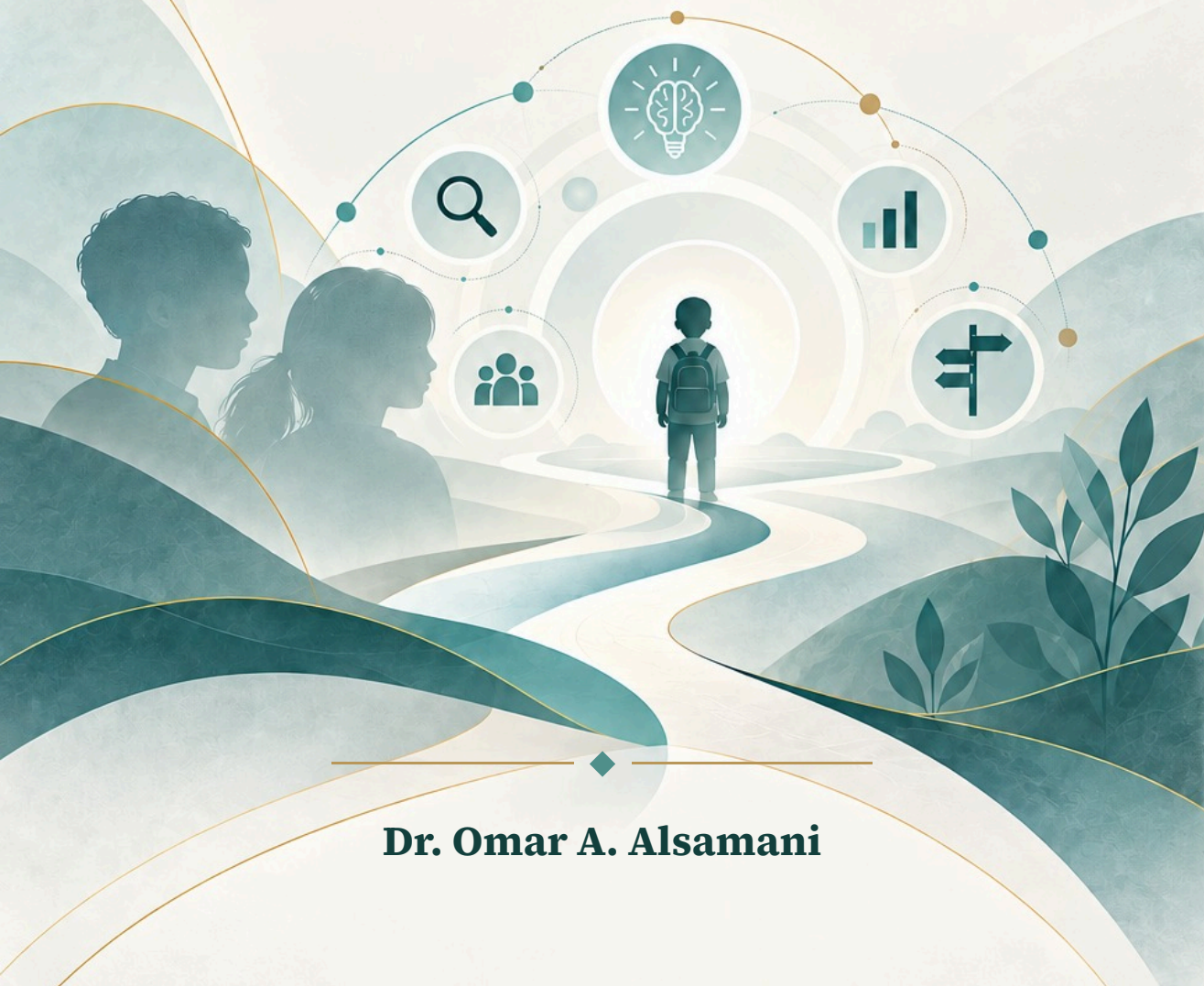


Diagnosis and Identification of Exceptional Learners

Learners with disabilities, the gifted
and the twice-exceptional



Dr. Omar A. Alsamani

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7

Chapter 7

Intellectual disability

An IQ score cannot carry the weight of diagnosis on its own. Intellectual disability is a judgment that rests on three pillars: a clear deficit in intellectual ability, deficits in the skills of everyday life, and onset of both during the developmental period. In this chapter we trace how each pillar is measured and how the evidence for all three is brought together, and we explain why the number 70 is not a hard dividing line.

Scene from the first grade

Halfway through the school year, Nawaf still cannot count to ten without a mistake, and he does not recognize most of the letters. He speaks in short sentences of two or three words and needs help opening his lunch box and closing his backpack. At recess he plays with the kindergarten children rather than with his classmates. When the teacher explains the rules of a new game, he looks at her with a smile and then does whatever the children around him are doing.

His mother says he “was a little late with everything”: he walked at eighteen months and began talking after the age of three. She asks the teacher, “Will he catch up with his classmates if we work hard with him?”

The mother's question is a fair one, but answering it requires more than the teacher's observations. Nawaf's delay may reflect an intellectual disability, but it may equally be a language delay, a hearing impairment, or the effect of limited opportunities. In this chapter we set out the path by which the team distinguishes among these possibilities.

Chapter objectives

After studying this chapter, the reader should be able to:

- 1 Determine, for a presented case, the extent to which the three pillars of diagnosis are met, and classify examples of adaptive deficits into the conceptual, social and practical domains.
- 2 Determine the severity level for a presented case from its adaptive behavior data, and compare this with the approach of the International Classification of Diseases (ICD-11).
- 3 Select a screening tool, an intelligence test or an adaptive behavior scale for a presented case, and justify the choice in terms of the student's age, the test's floor, the recency of its norms and the status of its Arabic version.
- 4 Apply the eligibility criteria of the Saudi regulations to a presented case, and show where they agree with the DSM and where they depart from it.
- 5 Judge whether the evidence suffices for a diagnosis in a new case with scores near the thresholds, taking measurement error and the age of the norms into account, and give reasons for the judgment.
- 6 Distinguish intellectual disability from similar and co-occurring conditions, and determine when to recommend medical and genetic referral.

Introduction

Intellectual disability is among the categories most prone to having the judgment reduced to a single number, the IQ score, even though a sound diagnosis requires three criteria to be met together: a clear deficit in intellectual ability, deficits in adaptive behavior, and onset during the developmental period. The judgment has far-reaching consequences for a student's educational and social path, and errors are costly in both directions: the label may be attached to a student whose performance is better explained by weak hearing, language or opportunities, or it may be withheld from a student who needs the support it opens up. Sound judgment also requires that the IQ threshold be read in light of the confidence interval, as an approximate and flexible range.

We open the chapter by defining intellectual disability and its causes (Section 7.1), then present the three diagnostic criteria (Section 7.2), severity levels and support needs (Section 7.3), and early warning signs (Section 7.4). We then turn to the decision pathway and the place of genetic testing within it (Section 7.5), instrument profiles and the Arabic tools available (Section 7.6), and apply all of this to four cases (Section 7.7). From there we move to differential diagnosis (Section 7.8) and co-occurrence (Section 7.9), and we close with eligibility criteria in the Saudi context (Section 7.10).

7.1

What is intellectual disability?

Intellectual disability is a developmental condition marked by a clear deficit in intellectual ability, that is, in reasoning, problem solving, planning, abstract thinking and learning from experience, accompanied by a clear deficit in adaptive behavior, that is, in the skills a person needs in everyday life, with onset during the developmental period. A broad review estimates its prevalence at about 1% of the population (Maulik et al., 2011).

Its name has changed over the decades. It was once called “mental retardation,” a term later replaced by “intellectual disability” in most manuals and legislation, both because the older term had become stigmatizing and because the newer one fits a view of disability as an interaction between the individual and the environment. The eleventh revision of the International Classification of Diseases (**ICD-11**) calls it “disorders of intellectual development” (**Disorders of intellectual development**) (World Health Organization [WHO], 2024). In Saudi documents, the Regulations for Special Education Institutes and Programs use the term “mental retardation” (Ministry of Education [Al-Ma'arif], 1422 AH [Arabic]), while the Special Education Organizational Guide uses “mental impairment” (Ministry of Education, 1436 AH [Arabic]). A teacher may therefore come across any of these names in student files; they all refer to the same thing.

What causes it?

Intellectual disability has many causes. The cause used to remain unknown in a large share of cases, especially mild ones, but that share has shrunk as modern genetic testing has spread (see 7.5). Known causes include:

- **Genetic and chromosomal causes:** such as Down syndrome, fragile X syndrome (**Fragile X**), and recessive genetic disorders, including metabolic disorders such as phenylketonuria (**PKU**), whose effects can be prevented through early newborn screening and diet.
- **Prenatal causes:** such as fetal exposure to alcohol, to certain infections, or to severe malnutrition.
- **Perinatal and postnatal causes:** such as severe oxygen deprivation, extreme prematurity, brain infections, head injuries, lead poisoning and severe environmental deprivation.

? Common misconceptions

- **“Intellectual disability means the child cannot learn.”** Most children with intellectual disability, the majority of whom are at the mild level, learn to read, write and use functional arithmetic, and acquire vocational skills, but at a slower pace and with instruction that is more explicit and more repetitive.
- **“The IQ score determines everything.”** Two children with the same IQ score may differ widely in their independence and social skills. That is why severity is determined by adaptive behavior, as we will see.
- **“Intellectual disability does not change.”** Intellectual ability is relatively stable, but functioning improves considerably with appropriate support, and a person may need less support over time.
- **“Knowing the cause is of no use to the school.”** The cause does not change the diagnostic criteria, but it may reveal health risks that require monitoring, indicate the likelihood of recurrence in the family, and in some metabolic disorders point to a specific treatment.

7.2 Diagnostic criteria

The Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition, Text Revision (**DSM-5-TR**), and the American Association on Intellectual and Developmental Disabilities (**AAIDD**), in the twelfth edition of its manual, agree on three criteria that must all be met (American Psychiatric Association [APA], 2022; Schalock et al., 2021):

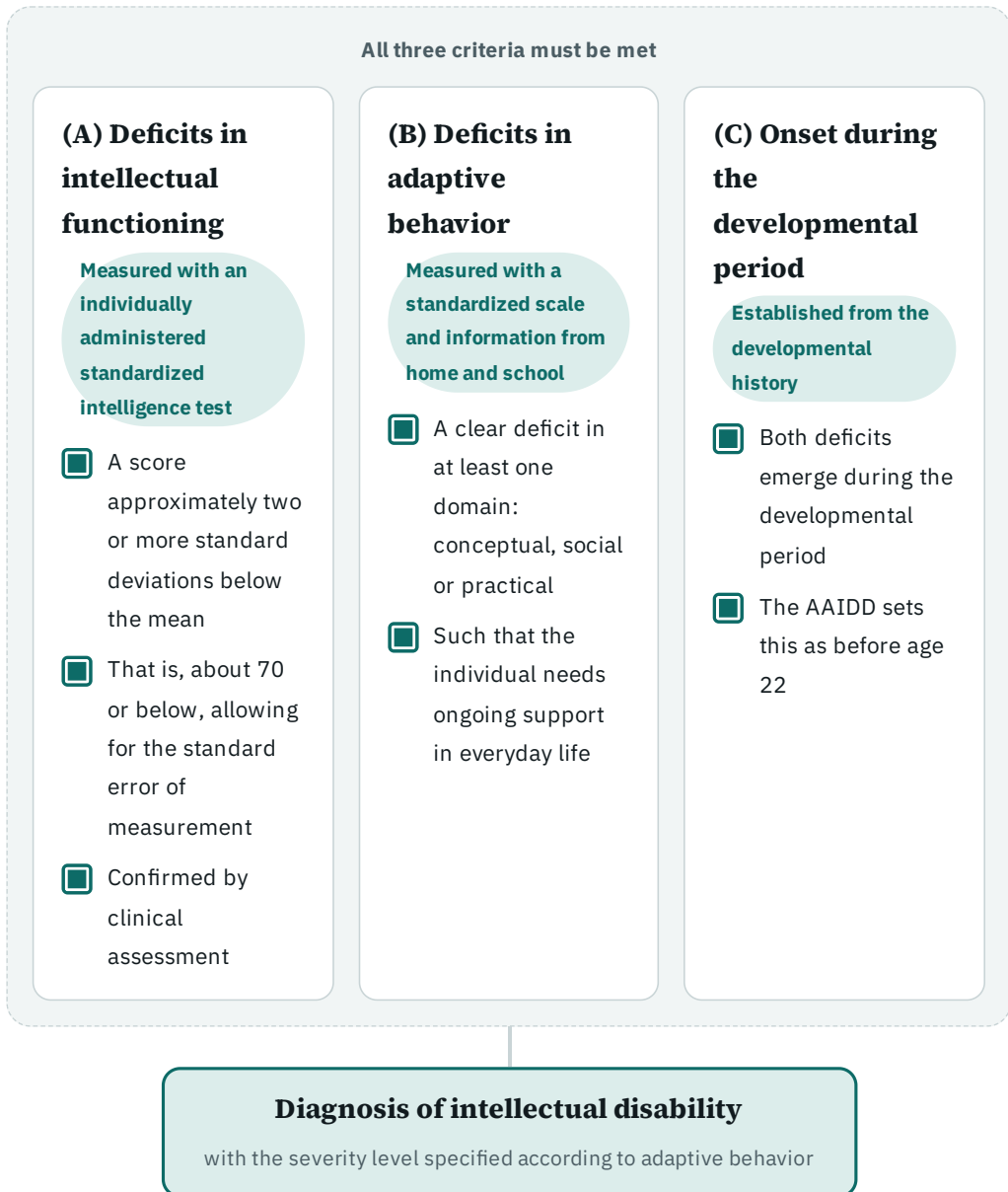


Figure 7.1: The three criteria for diagnosing intellectual disability. If any criterion is absent, the diagnosis cannot be made, whatever the IQ score.

Criterion A: Intellectual ability

This criterion is measured with an individually administered standardized intelligence test of high reliability (Chapter 3 presents these tests in detail). A deficit means that the **Full Scale IQ (Full Scale IQ, FSIQ)** falls about two standard deviations below the mean, that is, around 70 on a test with a mean of 100 and a standard deviation of 15. Yet both manuals stress that this number is **not a hard cutoff**. Every score carries some measurement error and is therefore read within the confidence interval that surrounds it (see 2.5). A score of 72, for example, may have a confidence interval extending from 65 to 79. For this reason, a person whose score falls between 70 and 75 may be diagnosed if the adaptive deficits are very clear.

The test must also suit the student: in its language, in the recency of its norms, and in how it accommodates any other disabilities. A low score on a verbal test taken by a child who has not mastered the language of the test does not measure intellectual ability. Outdated norms in particular inflate scores near the threshold, a point we return to in Maryam's case (7.7).

Criterion B: Adaptive behavior

This is the criterion that keeps diagnosis from turning into a verdict on a number. The question it asks is whether the student can manage everyday life as the community expects of someone that age. It is measured in three domains: conceptual (such as language, reading, arithmetic, money and time), social (such as getting along with others and understanding the rules of interaction), and practical (such as self-care, getting around and safety):

Table 7.1: Examples of adaptive behavior deficits in the three domains.

Area	Examples of deficits in an elementary school student
Conceptual	Does not know the value of simple coins and notes, cannot tell time, cannot follow three-step instructions, and does not plan for what is needed in the next lesson.
Social	Does not understand the rules of group games, believes everything he is told and is therefore easily exploited, does not read classmates' feelings, and behaves with strangers as he does with family.
Practical	Needs help with dressing or personal hygiene, cannot find the way to the classroom without someone accompanying him, and does not behave safely when crossing the street.

A clear deficit in one of the three domains is enough, because a deficit in any of them hinders independent living. Adaptive behavior is measured with a standardized scale, and information should preferably be gathered from more than one source, such as the family and the teacher.

Criterion C: Onset during the developmental period

This criterion distinguishes intellectual disability from a decline in abilities after development is complete, as in brain injury in adults or dementia. What is required is that the deficits appear during childhood or adolescence, not that they were diagnosed at the time. An adult who was never assessed as a child can be diagnosed if the developmental history shows that the deficits were present from childhood. In its twelfth edition, the AAIDD raised the age of onset from 18 to before 22, on the grounds that brain development continues into the early twenties (Schalock et al., 2021). The DSM, for its part, simply states “during the developmental period” without specifying an age (APA, 2022).

 Global developmental delay

In the first five years of life, intelligence is hard to measure reliably. The DSM therefore provides a provisional diagnosis, **global developmental delay (Global developmental delay)**, for a child under five who shows delays in two or more developmental domains and cannot be fully assessed. The child is reassessed later (Shevell et al., 2003). Some of these children outgrow their delay, in which case the later diagnosis is something other than intellectual disability.

7.3 Severity levels and support needs

One of the most notable changes introduced in the fifth edition of the DSM is that severity is now determined by adaptive behavior. Earlier manuals divided severity according to IQ ranges; today the question is how much support the person needs in everyday life. The DSM uses the phrase “severity levels” for intellectual disability and “support levels” for autism spectrum disorder. The former describes the depth of adaptive deficits in each domain; the latter describes how much support the symptoms call for.

Table 7.2: Severity levels of intellectual disability by adaptive behavior domain (adapted from APA, 2022).

Level	Conceptual domain	Social domain	Practical domain
Mild	Difficulty learning reading, writing, arithmetic, time and money; needs support to meet age-related expectations	Less mature than peers in social interaction; finds subtle social situations hard to grasp; may be exploited	Manages self-care; needs support with complex tasks such as shopping, transportation and managing money

Level	Conceptual domain	Social domain	Practical domain
Average	Academic skills progress slowly and remain at a basic level that requires support for everyday use	Spoken language is much simpler than that of peers; may form relationships but needs support in reading social situations	Learns self-care after extended teaching; needs ongoing support with most independent tasks
Severe	Limited understanding of written language, numbers and time; needs substantial support with problem solving	Language is limited in vocabulary and grammar and centers on the here and now	Needs support with all activities of daily living and constant supervision
Profound	Deals with physical objects more than symbols; co-occurring sensory and motor problems may hinder performance	Very limited understanding of symbolic communication; usually expresses himself or herself through nonverbal means	Depends on others for all aspects of physical care, health and safety

The mild level accounts for the majority of cases. The AAIDD calls for moving beyond classification by severity to determining **support needs intensity** in each area of life, using tools designed for this purpose, such as the Supports Intensity Scale–Children's Version (**SIS-C**) (Thompson et al., 2016). The more important educational question goes beyond “What is his level?” to “What support does he need, where, and how much?”

≡ Comparison with ICD-11

The ICD agrees with the DSM on the three pillars but differs from it in three respects that bear on decisions (WHO, 2024):

- **Severity on both dimensions:** severity is determined by intellectual ability and adaptive behavior together. The mild level corresponds to performance roughly two to three standard deviations below the mean, and the moderate level to three to four. Severe and profound both lie more than four standard deviations below the mean and are distinguished by adaptive behavior alone, because standardized tests do not discriminate within this range.
- **Behavioral indicators:** when suitable standardized tests are unavailable or cannot be administered, clinical judgment draws on detailed behavioral indicators for each level and age, set out in the ICD's descriptive guidelines.
- **The “provisional” category (Provisional):** used for a child under four, or when a valid assessment is not possible because of a sensory or motor impairment or severe behavior. It corresponds to global developmental delay in the DSM, though with a different age limit.

7.4 Early warning signs

Severe intellectual disability usually becomes apparent in the first year of life and is detected early, especially when it is associated with a known syndrome. Mild intellectual disability, by contrast, may go undetected until school entry, when difficulty with academic learning emerges. Indicators that call for a developmental evaluation include:

- A clear delay spanning several developmental domains at once: motor skills, language, play and self-care.

- Play resembling that of much younger children, such as exploring objects by mouthing or throwing them at an age when pretend play is expected.
- Difficulty learning new skills, needing a great deal of repetition to learn a simple skill, and forgetting it quickly.
- At school: difficulty that extends to nearly all subjects, together with difficulties in independence and social skills.
- **Loss of previously acquired skills:** this sign is different from delay and calls for urgent medical referral before any educational evaluation.

A young child does not need a diagnosis in order to benefit from services. In the Kingdom, the Special Education Organizational Guide defines those eligible for early intervention services as children no older than six who show a delay “of two standard deviations below the mean in two or more domains” or of 25%, and it adds children “at risk” who have been exposed to at least three environmental risk factors (Ministry of Education, 1436 AH [Arabic]). The Law on the Rights of Persons with Disabilities provides for designing and implementing early intervention programs and for making modern assessment and diagnostic tools available (Law on the Rights of Persons with Disabilities, 1445 AH [Arabic], Art. 8). A developmental screening tool in early childhood is thus a gateway to services before it is a gateway to a label.

 For the teacher: a difference worth noticing

A student with learning disabilities usually struggles in one specific area and seems bright in others: he understands a story when it is read to him, solves problems orally, and behaves maturely with classmates. A student suspected of having an intellectual disability, by contrast, shows difficulties across several areas at once: academic, social and practical. This difference alone is not enough for a diagnosis, but it can guide your observations.

7.5

The decision pathway and genetic evaluation

1 Initial indicators

Delays in multiple developmental domains, or pervasive academic difficulty together with limited independence.



2 Hearing and vision screening: a prerequisite for any tool

No developmental scale or intelligence test is administered until hearing and vision have been confirmed as intact or corrected, because impairments in either lower scores and can mimic intellectual disability.



3 Developmental screening and history

A developmental screening tool for young children, such as the Ages and Stages Questionnaires (ASQ-3), and a review of the medical, developmental and family history and of newborn screening results.



Delay in more than one domain: referral

4 Comprehensive evaluation

An individual intelligence test suited to the student's age and language, an adaptive behavior scale from two informants, a developmental history interview, a language evaluation, and medical referral for first-tier genetic testing.



5 Matching against the criteria

Is intellectual ability clearly low, taking the confidence interval and the age of the norms into account? Is adaptive behavior low in at least one domain? Did onset occur during the developmental period? Have other explanations been ruled out?



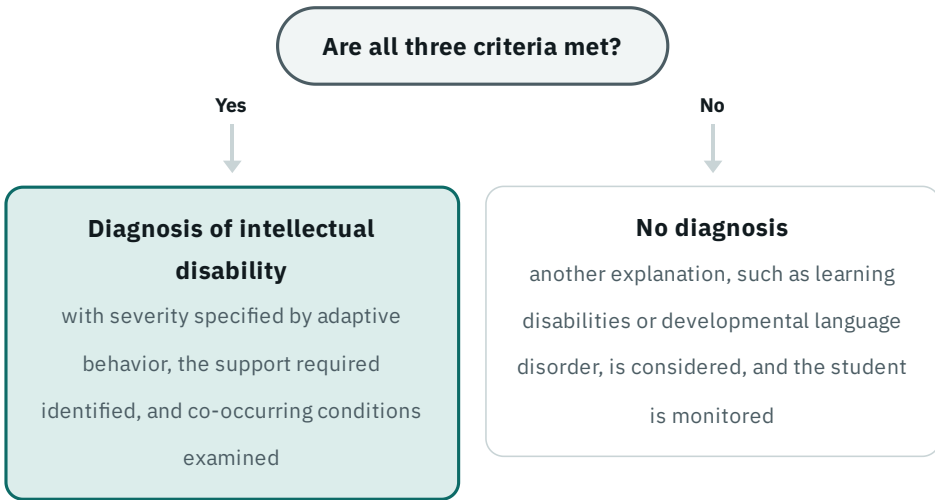


Figure 7.2: The decision pathway for diagnosing intellectual disability. Sensory screening precedes every tool. A student under five may receive a provisional diagnosis of global developmental delay and is then reassessed.

Genetic testing: a recommended first-tier referral

“Medical and genetic evaluation as needed” was once a common phrase in diagnostic reports. The current recommendation, however, is that genetic testing be offered to every child with unexplained intellectual disability or global developmental delay. A consensus statement identified **chromosomal microarray (Chromosomal microarray)** as a first-tier test for individuals with developmental disabilities or congenital anomalies, in place of conventional karyotyping (Miller et al., 2010). The American College of Medical Genetics and Genomics later recommended that **exome sequencing (Exome sequencing)** or genome sequencing be considered as a first- or second-tier test for children with intellectual disability or developmental delay (Manickam et al., 2021).

The decision rests with the developmental pediatrician or the geneticist. The educational team's role is nonetheless clear: to recommend the referral in its report as a step endorsed by medical guidelines, and to document whatever in the family and developmental history supports it, such as parental consanguinity, relatives with similar conditions, and any loss of acquired

skills. The test result does not change the diagnostic criteria; intellectual disability is diagnosed on the three criteria even when its cause is unknown. But the result may reveal health risks that need monitoring, and it answers a question that weighs heavily on families: will this happen again in our other children?

📍 **In the Saudi context: consanguineous marriage and national screening**

Consanguineous marriage is common in the Kingdom. A study of 3,212 Saudi families found that 57.7% were based on consanguineous marriage, 28.4% of them between first cousins, with variation across regions (el-Hazmi et al., 1995). A later study of a national sample of 11,554 mothers found a similar rate of 56% (El Mouzan et al., 2008). Consanguinity raises the likelihood of recessive genetic disorders, many of which cause intellectual disability.

Three relevant programs operate in the Kingdom. The **National Newborn Screening Program** began in 1426 AH (2005 CE), covering sixteen metabolic and endocrine diseases, later expanded to seventeen. Its early years detected roughly one positive case per thousand births, and the program's manual attributed this high rate to the fact that these diseases are recessive genetic conditions whose frequency rises with consanguineous marriage (Ministry of Health, 2016 [Arabic]). **Premarital screening** has been mandatory since 2004, but it is limited to sickle cell disease and beta thalassemia, and acting on its results remains voluntary (Memish & Saeedi, 2011). The Law on the Rights of Persons with Disabilities guarantees screening and diagnostic services and programs for the early detection of disability (Law on the Rights of Persons with Disabilities, 1445 AH [Arabic], Art. 9).

The lesson for the evaluator is that premarital screening does not cover the hundreds of recessive disorders that can cause intellectual disability, and that a normal newborn screen does not rule out a genetic cause. Parental consanguinity is information that strengthens the case for genetic referral; the answer comes from the test itself.

A question for reflection: In a developmental history interview, how can you ask the family about parental consanguinity and about similar conditions among relatives without the question being heard as blame?

7.6 Instrument profiles

Here we focus on what is specific to using intelligence tests and adaptive behavior scales in intellectual disability (Chapter 3 presents them in general terms), and we add a developmental screening tool for young children. Each profile follows the same template: the idea behind the tool, what it actually looks like, a scene from administration, a table of its technical information, how to interpret its results, and its limitations. The psychometric figures in the tables are approximations drawn from the publishers' manuals, so readers should consult the manual itself before any professional use.

Developmental screening

Identifies young children who need a comprehensive developmental evaluation.

ASQ-3

Intellectual ability

An individual intelligence test whose range extends to very low scores.

SB5 · WISC-V

Adaptive behavior

Standardized scales completed by the family and the teacher.

Vineland-3 · ABAS-3 · DABS

ASQ-3 Ages and Stages Questionnaires, Third Edition

Developmental screening

The idea

A screening tool completed by parents, designed to be administered periodically during health care visits or in early childhood programs to identify children whose development may be delayed in one or more domains (Squires & Bricker, 2009).

What it looks like

Twenty-one questionnaires, each for a specific age interval. The questionnaires cover intervals from 2 to 60 months, but their range of use is somewhat wider, from 1 to 66 months, because each questionnaire has an age window within which it can be given before and after its target age. Each questionnaire contains thirty questions about behaviors the child can perform, six in each of five domains: communication, gross motor, fine motor, problem solving and personal-social. Parents answer each question with “yes,” “sometimes” or “not yet,” and many questions ask them to try the skill with the child before answering.

A scene from administration

At a primary health care center, the nurse gives the mother of a 30-month-old the questionnaire for the appropriate interval and asks her to try some of the tasks with him at home during the week, using simple household items, before answering. When the mother returns the questionnaire, the nurse totals the score for each domain and compares it with that domain's two cutoffs. The communication score falls below the lower cutoff, the problem-solving score lies in the monitoring zone, and the other domains are on track. The nurse avoids describing the child as “delayed” and explains to the mother that the questionnaire calls for a closer look: she refers the child first for a hearing test, then for a developmental and language evaluation, and gives the mother home activities for the domain that needs monitoring.

Table 7.3: ASQ-3 at a glance.

Purpose	General developmental screening that precedes diagnosis and points toward it
Ages	Questionnaire intervals from 2 to 60 months; usable from 1 to 66 months
Edition and year	Third, 2009
Publisher	Paul H. Brookes
Qualification level	Completed by parents; scored and interpreted by a professional trained in early childhood or health care; no psychological assessment license required
Time	10 to 15 minutes to complete, and a few minutes to score
Score types	A raw score for each domain, from 0 to 60
Cutoff scores	A lower cutoff for each domain set at two standard deviations below the norm sample mean, and a monitoring zone between one and two standard deviations
Reliability	The manual reports test–retest reliability and interrater agreement of approximately .90
Classification accuracy	The manual reports sensitivity and specificity averaging about .85, varying across age intervals
Year of norm collection	In the years before publication, with a US sample of more than fifteen thousand children
Arabic version	We know of no published standardized Arabic version at the time of writing. Translation alone does not carry US cutoff scores over to children in a different setting

How are the results interpreted?

Each domain score is compared with two cutoffs: a score above the upper cutoff indicates development on track, a score between the two indicates a need for monitoring and home activities, and a score below the lower cutoff indicates a need for further evaluation. The questionnaire yields no total score; it is the pattern across domains that is interpreted.

Limitations

The tool depends on the accuracy of the parents' observations and their understanding of the questions. A delay in a single domain does not mean intellectual disability; it may reflect only a language or motor delay, or an undetected hearing loss. Tool website

SB5 Stanford-Binet Intelligence Scales, Fifth Edition

Intellectual ability

The idea: why is it preferred for this population?

The Stanford-Binet extends down to very young ages, starting at two years, and contains many easy items at its lower end. This matters in intellectual disability, because a test whose items start out difficult produces what is called a **floor effect (Floor effect)**: the student fails every available item, so the examiner cannot tell where the student's ability actually lies, and the subtest scores all look alike (see 2.5.3).

What it looks like

The examiner begins with two short subtests called **routing subtests (Routing subtests)**, one verbal and one nonverbal. Their results determine the level at which the examiner starts the remaining subtests. The scale then measures five factors, fluid reasoning, knowledge, quantitative reasoning,

visual-spatial processing and working memory, each in a verbal and a nonverbal domain, for a total of ten subtests. The materials consist of easel-mounted item books, blocks, toy pieces and pictures (Roid, 2003).

A scene from administration

The specialist sits with Nawaf in a quiet room one morning, having first confirmed the results of his hearing and vision screening. She begins with the nonverbal routing subtest. Nawaf answers the first items, then starts making errors, and she stops at the discontinue rule specified in the manual. His scores on the two routing subtests set the starting level for the remaining subtests, so he begins at the earliest levels, usually given to children younger than he is. This is what allows the scale to map his profile rather than hit its floor. The specialist notices that he loses attention after about twenty minutes, so she gives him a short break and records this in her behavioral observations, since it is part of interpreting the score.

Table 7.4: SB5 at a glance.

Purpose	Individual assessment of intellectual ability for diagnosis and planning
Ages	2 to 85+ years
Edition and year	Fifth, 2003
Publisher	Riverside at the time of publication; check the current distributor
Qualification level	Publishers restrict it to those with advanced training in administering and interpreting individual intelligence tests; check the publisher's current designation for the level
Time	About an hour for the full battery, less for the abbreviated form

Score types	Full Scale IQ, Verbal and Nonverbal IQs, and five factor indexes (mean 100, SD 15), with the Full Scale IQ ranging from 40 to 160; scaled scores for the ten subtests (mean 10, SD 3)
Cutoff scores	The scale itself has no diagnostic cutoff; decisions rest on DSM criteria and local regulations
Reliability	The manual reports an internal consistency coefficient of about .98 for the Full Scale IQ and a standard error of measurement of about two and a half points
Classification accuracy	The manual presents studies of special groups, including intellectual disability, but does not report sensitivity and specificity at a particular cutoff, as screening tools do
Year of norm collection	Around 2001–2002, with a US sample of 4,800 individuals
Arabic version	At least two Gulf versions exist: one prepared by Mahmoud Abu Al-Nil and colleagues, and one prepared by Safwat Farag with Arab norms; a study in the Northern Borders region compared the two (Mohammed, 2016 [Arabic]). We found no published data on their norm samples or the year those norms were collected

How are the results interpreted?

The Full Scale IQ is read first, together with its confidence interval, and then the agreement between the Verbal and Nonverbal IQs is examined. Close agreement points toward a general intellectual deficit, whereas a large difference favoring the nonverbal side calls for checking language and hearing before reaching a judgment. If most scaled scores sit at the very bottom of their range, the overall number confirms the deficit but cannot distinguish among its levels, and severity is then based on adaptive behavior (see Al-Anoud's case in 7.7).

Its limits

Its original norms are more than twenty years old, and this matters more near the threshold of 70 than anywhere else (see the box after Maryam's case). The years in which the Arabic versions were standardized are not precisely known.

The Wechsler Intelligence Scale for Children, Fifth Edition (**WISC-V**), is also used with this population, for ages 6 years to 16 years 11 months; its US norms were collected around 2013–2014 (Wechsler, 2014). Its lowest Full Scale IQ is also 40, but its floor is higher on some subtests, so it may be less precise with moderate and severe intellectual disability. We found no published Saudi standardization of its fourth or fifth editions; the closest we found is a Saudi standardization of its older revised edition (Al-Nafi et al., 2000 [Arabic], as cited in Ejbara, 2024).

Vineland-3 Vineland Adaptive Behavior Scales, Third Edition

Adaptive behavior

The idea

The Vineland Adaptive Behavior Scales, Third Edition (Vineland-3; Sparrow et al., 2016), measure what a person typically does in everyday life, not what he or she can do in a testing situation. The source is therefore always someone who knows the person well, and the question is: does the person perform this skill independently and regularly when it is needed?

What it looks like

The scales come in three forms: a semi-structured interview with a parent or caregiver, a form completed by a parent, and a form completed by a teacher. Each has a comprehensive version and a shorter domain-level version. Items are distributed across three main domains, **Communication**, **Daily Living Skills** and **Socialization**, along with an optional Motor Skills domain

administered to young children up to about age nine and an optional Maladaptive Behavior scale. Each item is scored 2 if the person usually performs the behavior, 1 if the person performs it sometimes or partially, and 0 if the person does not perform it.

A scene from administration

The specialist sits with the mother of a nine-year-old girl. Rather than reading the items to her one by one, he opens with a broad question: “Tell me about your daughter’s morning on a school day, from the time she wakes up until she leaves the house.” From the mother’s description he scores many items without asking about them directly. When she says her daughter “gets dressed on her own,” he asks, “Does she choose clothes that suit the weather? Does she need someone to remind her?” because the answer separates a 2 from a 1. He follows the start and discontinue rules in the manual, so he does not ask about skills far beyond the girl’s level. The interview takes about an hour. At the end he asks, “Is there a skill she can do but doesn’t get the chance to?” and notes the answer next to the score.

Table 7.5: Vineland-3 at a glance.

Purpose	Measuring adaptive behavior for diagnosis and educational planning
Ages	Birth to 90 years for the interview and parent form; 3 to 21 years for the teacher form
Edition and year	Third, 2016
Publisher	Pearson
Qualification level	The interview requires an examiner trained in semi-structured interviewing; check the qualification level specified by the publisher
Time	Between half an hour and an hour for the comprehensive form, less for the abbreviated form

Score types	An Adaptive Behavior Composite and domain scores (mean 100, SD 15); subdomain scores (mean 15, SD 3)
Cutoff scores	The scale itself has no cutoff; the profile is compared against the two-standard-deviation criterion, allowing for the margin of error
Reliability	The manual reports internal consistency coefficients for the composite in the .90s
Classification accuracy	The manual presents comparisons with clinical groups, including intellectual disability, without sensitivity and specificity at a particular cutoff
Year of norm collection	In the years before publication, with a US sample
Arabic version	An Arabic database lists a title, “Vineland Adaptive Behavior Scale: Saudi Norms,” but we were unable to verify its author, year or sample, or the edition on which it was based. We know of no published Arabic standardization of the third edition

How are the results interpreted?

The Vineland domains **do not map directly** onto the three DSM domains. Socialization is closest to the social domain, Daily Living Skills is closest to the practical domain, and Communication covers part of the conceptual domain. Money and time skills, which are conceptual in the DSM, fall under Daily Living Skills in the Vineland. Linking the two systems is therefore a clinical judgment that the examiner must make and state explicitly in the report.

Limitations

A score is only as accurate as the respondent and his or her understanding of the questions. The interview requires a skilled examiner, because leading questions can raise or lower the score. The US norms also assume

opportunities and expectations that may not be available to the child in his or her own setting (see the box below).

ABAS-3 Adaptive Behavior Assessment System, Third Edition

Adaptive behavior

The idea

The Adaptive Behavior Assessment System, Third Edition (ABAS-3; Harrison & Oakland, 2015), measures adaptive behavior through forms completed by people who know the child well. Its advantage for diagnosis is that it yields **the same three domains** used by the DSM and the AAIDD: conceptual, social and practical.

What it looks like

Five forms: for parents (birth to 5 years, and 5 to 21), for teachers or daycare providers (2 to 5, and 5 to 21), and for adults (16 to 89). The respondent rates each skill according to whether the child performs it when it is needed, always, sometimes, or never, or is not able to perform it. Items are grouped into eleven skill areas, including communication, functional academics, self-care, and health and safety, then into the three domains, and finally into a general composite.

A scene from administration

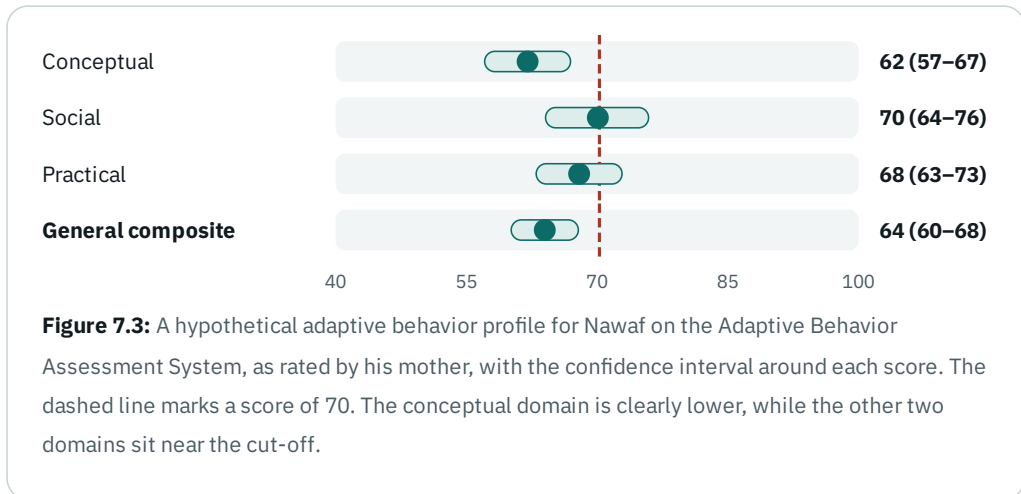
The specialist sends the parent form to Umm Nawaf with a short note explaining that the questions concern what Nawaf usually does in his day, and that “is not able” differs from “is not asked to.” She gives his teacher the teacher form. When both forms come back, she reviews the omitted items, since the manual sets a maximum number for each skill area beyond which the area cannot be scored. She then calls the mother to ask about two items she answered by guessing.

Table 7.6: ABAS-3 at a glance.

Purpose	Measuring adaptive behavior for diagnosis and planning, across the three DSM domains
Ages	Birth to 89 years, depending on the form
Edition and year	Third, 2015
Publisher	WPS
Qualification level	Completed by a parent or teacher; scored and interpreted by a qualified professional; check the qualification level specified by the publisher
Time	About 15 to 20 minutes to complete the form
Score types	A General Adaptive Composite and scores for the three domains (mean 100, SD 15); scaled scores for the skill areas (mean 10, SD 3)
Cutoff scores	The scale itself has no cutoff; the profile is compared against the two-standard-deviation criterion, allowing for the margin of error
Reliability	The manual reports internal consistency coefficients for the general composite in the high .90s
Classification accuracy	The manual presents comparisons with clinical groups, without sensitivity and specificity at a particular cut-off
Year of norm collection	In the years before publication, with a US sample
Arabic version	The teacher form was adapted into Arabic in Oman and studied with 410 children with intellectual disability; the study supported a single general factor and high reliability (Emam et al., 2020). We found no published Saudi standardization

How are the results interpreted?

Deficits are considered clear when the general composite, or the score for at least one domain, falls approximately two standard deviations below the mean, again taking measurement error into account (Tassé et al., 2012). For this reason, the student's full profile is read across all domains alongside the total score:



Its limits

Unlike an interview, the form does not let the respondent explain an answer, so guessing becomes common when the respondent does not know how the child behaves in a particular situation. A new teacher knows the student less well than the family does. And no Arabic norms for the general child population are known for the instrument (Table 7.7).

In both cases, it is preferable to combine more than one respondent, such as the mother and the teacher, because a child may do at home what he does not do at school, and vice versa. The discrepancy between the two sources is information in its own right, which the examiner interprets and keeps in the report.

✍ **For the specialist: A scale designed for decisions at the cut-off**

Most adaptive behavior scales are designed to describe performance across its full range, so their items are spread over all levels of difficulty.

The Diagnostic Adaptive Behavior Scale

(**Diagnostic Adaptive Behavior Scale, DABS**), developed by the American Association on Intellectual and Developmental Disabilities for ages 4 to 21, was instead built with item response theory (see 2.5.4) to reach its greatest precision in the critical region around two standard deviations below the mean, that is, where the diagnostic decision is made. It is administered through an interview with someone who knows the individual well, and yields scores for the conceptual, social, and practical domains and a total score. We know of no published standardized Arabic version at the time of writing. Its underlying idea is a general lesson in measurement: an instrument that measures everyone does not necessarily measure most precisely at the point where the decision is made.

⚠ **Adaptive behavior and culture**

What is expected of a child in everyday life varies across communities and families. A child in a family where children are spoon-fed until a late age may not eat independently simply because he has never been asked to. The examiner therefore always asks: Has the child had the opportunity to practice this skill? And is he expected to perform it in his environment?

Available Arabic instruments

Table 7.7 summarizes the Arabic versions of this chapter's instruments that we were able to find at the time of writing. What matters most in it is what we know about their norms: when they were collected, from whom, and with how

many participants.

Table 7.7: Known Arabic versions of instruments for diagnosing intellectual disability.

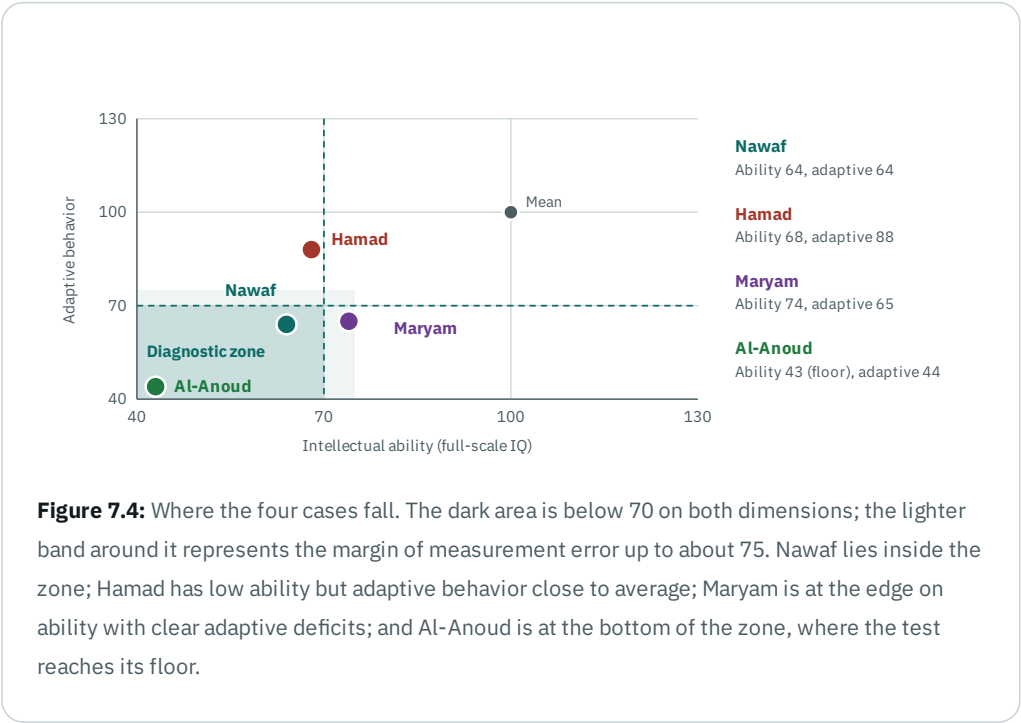
Instrument	What we found	What we do not know
Stanford-Binet, Fifth Edition	Two Gulf versions (Abu Al-Nil and colleagues; Farag), and a study comparing them in the Northern Borders Region (Mohammed, 2016 [Arabic])	Size of the normative sample and year of collection
Wechsler Intelligence Scale for Children	A Saudi standardization of the older revised edition for ages 6–16 (Al-Nafi et al., 2000 [Arabic], as cited in Ejbara, 2024)	A published Saudi standardization of the fourth and fifth editions
Wechsler Preschool and Primary Scale of Intelligence, Third Edition	A Saudi version administered to 788 children aged 4 years to 7 years 3 months in Jeddah between 2018 and 2022 (Ejbara, 2024)	Its generalizability to other regions of the Kingdom
Vineland scales	A title referring to Saudi norms in an Arabic database	Author, year, sample, and source edition
—	The teacher form in Oman, with 410 children with intellectual disability (Emam et al., 2020)	Saudi norms, and norms for the general child population
Ages and Stages Questionnaires; Diagnostic Adaptive Behavior Scale	Nothing published that we could find	—

Readers may come across, in some centers, an old Arabic adaptation of the adaptive behavior scale issued by the American Association on Mental Deficiency in the 1970s (**AAMD Adaptive Behavior Scale**). Three questions arise

before relying on it: When were its Arabic norms collected, and on what sample? Do its items fit a child's life today, now that the ways people handle money, get around, and communicate have changed so profoundly? And are its domains read in terms of the three contemporary domains or according to an outdated division? A scale whose norms have aged compares the child with a generation that no longer exists.

7.7 When is the judgment made? Four cases

We follow four hypothetical cases, and before examining each in detail we place them on a single map that brings together the two dimensions: intellectual ability and adaptive behavior.



Case 1: Nawaf, 6 years 8 months

All three criteria are clear

The story: He is the student in the opening scene. His teacher documented his difficulties for three weeks and gave him support in a small group, and he progressed very slowly. His developmental history shows delays in walking, talking, and toilet training, with no loss of previously acquired skills. His newborn screening results were normal.

Table 7.8: Evidence in Nawaf's case.

Source	Result	What it means
Hearing and vision screening (before any instrument)	Both normal	His senses do not explain his difficulties
SB5	Full-scale IQ 64 (59–70); verbal and nonverbal scores close to each other	A general intellectual deficit spanning both verbal and nonverbal abilities
ABAS-3, rated by the mother	General composite 64; conceptual 62	Clear adaptive deficits, most pronounced in the conceptual domain
Vineland-3, teacher form	Adaptive Behavior Composite 67; communication 63, daily living skills 70, socialization 69	The school sees the same picture. The lowest domain is communication, which corresponds, by clinical judgment, to part of the conceptual domain
Language assessment	Receptive and expressive language clearly below his age, and consistent with his intellectual level	No separate language disorder accounts for the picture on its own

A ✓

Ability 64

B ✓

Adaptive 64 and 67 from two sources

C ✓

Delay since infancy

Decision: Nawaf is diagnosed with intellectual disability at the mild level, because his adaptive deficits still allow him to manage basic self-care, while he needs support with academic and social skills. He also meets the eligibility requirements of the Special Education Organizational Guide (see 7.10). The team recommends identifying his support needs at school and referring him to a developmental pediatrician or a geneticist for first-tier genetic testing, a standard step in every case of unexplained intellectual disability.

And the answer to his mother's question: Nawaf will learn and make progress, and he may learn to read and acquire functional math. But his progress will be slower than that of his classmates, and he needs clearer, more repetitive instruction and goals designed for his level, which will serve him far better than redoubling “effort” in the same curriculum.

What evidence could change the decision? If Nawaf began to lose skills he had previously acquired, or if a reevaluation after years of intensive support showed adaptive behavior approaching the average range, the first scenario would call for an urgent medical referral and the second for a review of the diagnosis and its level.

Case 2: Hamad, 10 years

Adaptive deficits are absent

The story: Hamad moved with his family from another country two years ago. His first language is not Arabic, and he had not attended school regularly before the move. His achievement in every subject is very low, so his teacher referred him on suspicion of intellectual disability.

Table 7.9: Evidence in Hamad's case.

Source	Result	What it means
Hearing and vision screening	Both normal	His senses do not explain his difficulties
Verbal intelligence test in Arabic	Full-scale score 68	Low, but the test was given in a language he has not mastered
Nonverbal intelligence test	89	His visual reasoning is close to average
Vineland-3, interview with the father through an interpreter	Adaptive Behavior Composite 88	Takes care of himself, helps in his family's shop, and gets around the neighborhood on his own
Recess observation	Plays and negotiates fluently with children who speak his language	Age-appropriate social skills in his own language

A ?

Test not linguistically valid

B X

Adaptive 88

C

Not applicable

Decision: Hamad is not diagnosed with intellectual disability. His low score came from a test in a language he has not mastered, and his adaptive behavior in daily life is close to average. He needs an intensive Arabic-language program and compensation for the schooling he missed, with his progress monitored. If he still does not progress, the possibility of learning disabilities should be reconsidered.

The lesson

Criterion B is what saved Hamad from a misdiagnosis. That is precisely why it is required: a low score may be measuring language or opportunity, whereas everyday life reveals the actual capacity to adapt.

What evidence could change the decision? If his progress in Arabic and in achievement remained very slight after a sufficient period in the intensive program, or if information from the school and from his mother revealed deficits in daily life that the interview with his father had not uncovered, he would need to be reassessed with nonverbal instruments and multiple sources before intellectual disability could be ruled out for good.

Case 3: Maryam, 12 years A score above 70, and diagnosis is possible

The story: Maryam is in sixth grade and has received resource room support since second grade as a student with learning disabilities. Yet her progress is weak in every subject; she needs someone to remind her of each step in her day, she does not understand money or appointments, and more than once she has been exploited by classmates who talked her into handing over her pocket money.

Table 7.10: Evidence in Maryam's case.

Source	Result	What it means
Hearing and vision screening	Both normal	Her senses do not explain her difficulties

Source	Result	What it means
WISC-V	Full-scale IQ 74 (69–80); index scores close together, between 70 and 78	Generally low ability, with a confidence interval that extends below 70
ABAS-3, rated by the mother	General composite 65; conceptual 60, social 68	Clear adaptive deficits in more than one domain
ABAS-3, rated by the teacher	General composite 66	The same picture at school
Developmental history	Delays in language and self-help skills since early childhood	Onset during the developmental period
Intervention data	Very limited progress in all areas despite four years of support	The pattern does not resemble that of learning disabilities

A ✓

74 within the error margin

B ✓

Adaptive 65 from two sources

C ✓

Since early childhood

Decision: The team concludes that Maryam meets the criteria for intellectual disability at the mild level. Her score of 74 lies within the margin of measurement error, her confidence interval extends below 70, and her adaptive deficits are clear from two sources and have persisted since early childhood. Her earlier classification is thereby corrected, so that she receives support matched to her real needs, including direct instruction in self-protection and money management. Medical and genetic referral is recommended, as in Nawaf's case.

Had Maryam scored 74 with adaptive behavior close to average, she would not have been diagnosed. This is what it means to say that the cut-off is a professional judgment that gathers all the evidence around the

number.

What evidence could change the decision? If a careful interview with the mother revealed that her low ratings reflect the limited opportunities Maryam has at home, or if a test with more recent norms yielded a clearly higher score with wide index scatter resembling a learning disability pattern, the team would need to revisit the decision.

 For the specialist: The age of norms near the cut-off

In many countries, average performance on intelligence tests has risen from one generation to the next, and a meta-analysis estimated this gain at about two to three standard score points per decade (Trahan et al., 2014; see also 2.7). If this holds in the child's environment, each decade that passes after the norms were collected raises the child's score by a similar amount, because the child is being compared with a generation that performed less well than his or her own.

Let us apply this to Maryam. The U.S. norms for the Wechsler scale were collected around 2013–2014, so if Maryam were tested in 2026 the norms would be about twelve years old, implying a possible inflation of between two and a half and three and a half points. Her score of 74 might therefore correspond to about 71 on contemporary norms, which strengthens the decision rather than changing it. If, however, the 74 had been obtained on the Stanford-Binet, whose norms were collected around 2001, the norms would be nearly twenty-five years old and the possible inflation between five and seven points, so the score might correspond to 67 to 69. This difference carries practical weight, since it falls on the very line that separates eligibility under the Saudi regulations (see 7.10).

Even so, the number is not subtracted mechanically. The effect varies from country to country, it has slowed or reversed in some, and we know of no studies estimating it in the Kingdom. The collection years of Arabic standardizations are, for the most part, not precisely known. Accepted practice is for the examiner to state the year of the norms in the report, to take their age into account when interpreting a score near the cut-off, as the AAIDD manual recommends (Schalock et al., 2021), and to weigh this alongside the rest of the evidence.

Case 4: Al-Anoud, 15 years

The diagnosis stands; the question is severity and support

The story: Al-Anoud is in ninth grade (third year of intermediate school) in an intellectual disability program attached to a girls' school. She was diagnosed at age seven, when her full-scale score on the Arabic version of the Stanford-Binet was 56, and she was placed in the “educable” category. As she moves to secondary school, the team has requested a reevaluation. Her teacher says her progress has “stalled”: she reads about twenty familiar words, including her name and some signs, counts objects up to ten, and does not handle money. She speaks in short sentences that her family understands, dresses and eats on her own, needs reminders about personal hygiene, and does not leave the house alone. Her parents are first cousins, and she has a younger brother who is delayed in walking and talking. The family has never been referred for genetic testing.

Table 7.11: Evidence in Al-Anoud's case.

Source	Result	What it means
Hearing and vision screening (this year)	Both normal	Her senses do not explain her difficulties
Stanford-Binet, the same Arabic version	Full-scale score 43, with eight of the ten subtests at a scaled score of 1 or 2	A score close to the test's floor: it confirms a substantial intellectual deficit but does not distinguish among its levels
Vineland-3, interview with the mother	Adaptive Behavior Composite 44; communication 40, daily living skills 52, socialization 42	Substantial adaptive deficits, mildest in self-care

Source	Result	What it means
ABAS-3, rated by the teacher	General composite 46; conceptual 41, social 48, practical 53	The same picture at school
Developmental and family history	Delay since infancy, no loss of acquired skills, consanguineous parents, and a developmentally delayed younger brother	Onset during the developmental period, and strong indicators of a genetic cause
Genetic testing (after referral)	Chromosomal microarray normal; exome sequencing revealed a recessive genetic cause	The cause is known; the family is referred for genetic counseling, and the younger brother is evaluated

A ✓

Below 50 despite the floor

B ✓

Adaptive 44 and 46 from two sources

C ✓

Since infancy

Decision: The diagnosis stands, and its level is specified as **moderate**. Al-Anoud manages basic self-care after extended teaching, needs ongoing support with most independent tasks, and her spoken language is simple, which matches the DSM description of the moderate level (Table 7.2). ICD-11 agrees, since both her ability and her adaptive behavior fall between three and four standard deviations below the mean. The drop in her score from 56 to 43 does not mean that she has regressed. A standard score compares her with same-age peers, and the gap between her and them widens with age even as she continues to learn, while the test's floor compresses low scores together. The team recommends a transition plan for secondary school that focuses on functional academic skills (reading safety signs, using money with a

calculator), supervised community mobility skills, early vocational exploration, and determining the intensity of her support needs in each domain.

The lesson

When a test reaches its floor, the IQ stops being informative: it confirms the presence of a deficit but says nothing about its level or about the support required. Both severity and planning then shift to adaptive behavior. This is why ICD-11 provides behavioral indicators for use when tests fall short. The difference between a standard score that declines with age, which is expected, and a loss of acquired skills, which is a medical red flag, is one the team must ask about explicitly.

What evidence could change the decision? If it emerged that Al-Anoud had begun to lose skills she had acquired, or if the geneticist determined that the identified cause is a progressive disorder, the question would shift from specifying severity to urgent medical follow-up and a comprehensive reevaluation of her level and needs.

7.8 Differential diagnosis

Table 7.12: Differential diagnosis of intellectual disability.

Condition	Similarity	Distinguishing features
Learning disabilities	Low achievement and difficulty at school	Intellectual ability and adaptive behavior in or near the average range; the difficulty is confined to a specific academic area

Condition	Similarity	Distinguishing features
Borderline intellectual functioning	Low ability and difficulty learning	The individual does not meet the criteria for intellectual disability yet still needs support. The DSM lists it among “Other Conditions That May Be a Focus of Clinical Attention” without a numerical cut-off. The 71–84 range common in textbooks comes from the fourth edition of the manual (DSM-IV). Distinguishing it from mild intellectual disability requires careful assessment that considers ability and adaptive behavior together
—	Language delay and weak performance on verbal tests	Adaptive behavior and nonverbal ability are clearly better than language. A recent international consensus dropped the requirement of a discrepancy between language and nonverbal intelligence for this diagnosis, but it treated language disorder co-occurring with intellectual disability as a separate category (Bishop et al., 2017)
Autism spectrum disorder	Weak communication and social skills	Social deficits are more severe than would be expected for the intellectual level, together with restricted and repetitive patterns of behavior. The two disorders may co-occur in the same student (see 7.9)
Hearing or visual impairment	Weak performance on tests and in learning	The picture improves considerably when the student is assessed through a medium suited to his or her senses, which is why sensory screening precedes every instrument

Condition	Similarity	Distinguishing features
Acquired brain injury	Intellectual and adaptive deficits	A typical developmental history before the injury, and an uneven profile dominated by weaknesses in attention, memory, and processing speed. If the injury occurred during the developmental period and the criteria are met, intellectual disability may be diagnosed alongside it
Limited opportunity and language difference	Low scores and weak achievement	Adaptive behavior appropriate to the student's environment, and rapid progress with instruction, as in Hamad's case
Severe environmental deprivation	Delays across multiple areas	A history of neglect, and marked improvement when care improves

7.9

Co-occurrence

Differential diagnosis asks: which of the two conditions? Co-occurrence asks instead: is another condition present as well? In intellectual disability, co-occurrence is the rule rather than the exception. In a British national sample, 36% of children and adolescents with intellectual disability had a diagnosable psychiatric disorder, compared with 8% of their peers (Emerson & Hatton, 2007). The greatest risk here is what is known as **diagnostic overshadowing (Diagnostic overshadowing)**: attributing every new symptom to the intellectual disability itself, so that anxiety, depression, pain, or epileptic seizures go unnoticed (Reiss et al., 1982).

Table 7.13: Common co-occurring conditions in intellectual disability and what their assessment requires.

Co-occurring condition	What we know about its frequency	Assessment guidance
Autism spectrum disorder	In U.S. surveillance data for 2020, 37.9% of children with autism for whom ability data were available had intellectual disability (Maenner et al., 2023)	Autism is diagnosed alongside intellectual disability only when social communication is below what would be expected for the general developmental level (APA, 2022). Standardized observation tools, such as the Autism Diagnostic Observation Schedule, become less accurate as mental age drops substantially, so their results are read with caution in severe disability
—	Higher than in the general child population, with wide variation across studies depending on sample and instrument	Symptoms are compared with what is expected for mental age , not chronological age, since the DSM requires them to be excessive relative to it (APA, 2022). Rating scales are normed on the general child population, so their scores rise simply because developmental level is low
Epilepsy	About one fifth of people with intellectual disability, with the proportion rising with severity (Robertson et al., 2015)	Ask the family about seizures, their type, and medications, because unnoticed seizures and some sedating medications lower attention and test performance. Schedule the assessment away from seizure episodes
Sensory impairments	More common than in the general child population, especially in severe disability and certain syndromes	Hearing and vision screening is the second step in the pathway and is repeated periodically, because sensory impairments may emerge or change over time

Co-occurring condition	What we know about its frequency	Assessment guidance
Anxiety and depression	Higher than among peers	A student with limited language expresses them through behavior: withdrawal, sleep disturbance, or new aggressive behavior. Ask about change from the student's usual baseline, and rely on more than one source of information
Physical disability, such as cerebral palsy	Frequently co-occurs with intellectual disability	Timed and motor tests lower the score for motor rather than intellectual reasons, so choose tests that do not depend on movement, and report the effect of any accommodation on the validity of the norms

The practical rule is that after every diagnosis of intellectual disability the team asks two questions: Is there anything in the file that intellectual disability alone does not explain? And was that aspect measured with an instrument suited to the student's developmental level?

7.10

In the Saudi context: Eligibility criteria

In the Saudi context

Table 7.14 sets the criteria presented in this chapter against those of the U.S. Individuals with Disabilities Education Act (**IDEA**) and of two Saudi documents: the Regulations for Special Education Institutes and Programs (Ministry of Education [Al-Ma'arif], 1422 AH [Arabic]) and the Special Education Organizational Guide, the most recent published edition we could find (Ministry of Education, 1436 AH [Arabic]). The Saudi criteria are criteria of **eligibility for services** in education, and their function differs from that of medical diagnostic criteria.

Table 7.14: Criteria for intellectual disability in the DSM and ICD-11, in U.S. law, and in the Saudi regulations.

Element	DSM-5-TR and ICD-11	IDEA (United States)	Saudi regulations
Terminology	Intellectual disability; disorders of intellectual development	Intellectual disability	“Mental retardation” in the Regulations, and “mental handicap” in the Guide

Element	DSM-5-TR and ICD-11	IDEA (United States)	Saudi regulations
Intellectual ability cut-off	Approximately two standard deviations below the mean, taking measurement error into account, with no fixed number	Significantly subaverage general intellectual functioning, with no number in the federal text; states set their own criteria	Guide: no higher than 75 on the Wechsler, or 69 on the Stanford-Binet Fifth Edition, or the equivalent. Regulations: 55–75 on the Wechsler (52–73 on the Stanford-Binet) for the “educable” category, and 40–54 (36–51) for the “trainable” category
Adaptive behavior	Deficit in at least one of three domains, on a standardized measure	Deficits in adaptive behavior, without specifying the number of domains	Deficits in at least two of nine areas, “according to formal or informal adaptive behavior tests”
Onset	During the developmental period (before 22 according to AAIDD)	Manifested during the developmental period	“During the developmental stage,” with no specified age; the admission age in the Regulations is 6 to 15 years

Element	DSM-5-TR and ICD-11	IDEA (United States)	Saudi regulations
Educational impact	Not required for diagnosis	Required: must adversely affect educational performance	Implicit in the definition of a student with a disability: a deficit “to the extent that requires the provision of special education services”
Severity	By adaptive behavior (DSM-5-TR), and by both dimensions together (ICD-11)	Not specified	Regulations: by IQ range. We found no severity classification in the eligibility requirement of the Guide

Element	DSM-5-TR and ICD-11	IDEA (United States)	Saudi regulations
Who decides	A qualified professional under each country's regulations	A team of qualified professionals together with the parents	The assessment and diagnosis team, comprising the school principal, the vice principal for student affairs, the special education teacher, the general education teacher, the student counselor, specialists relevant to the category, the physician if available, and the parent or guardian. Instruments are administered and interpreted by “qualified specialists” using instruments “approved by the Ministry of Education”
Sources: APA (2022); WHO (2024); Schalock et al. (2021); Assistance to States for the Education of Children With Disabilities (2006, §300.8(c)(6)); Ministry of Education [Al-Ma'arif] (1422 AH [Arabic], Articles 1 and 6); Ministry of Education (1436 AH [Arabic]).			

This comparison prompts three observations. **The first** is that the two numbers in the Guide are not equivalent. A cut-off of 75 on the Wechsler lies about one and two-thirds standard deviations below the mean, whereas a cut-off of 69 on the Stanford-Binet Fifth Edition lies more than two standard deviations below it. In the older Regulations, the difference between 75 and 73 reflected the different standard deviation of earlier editions of the Stanford-Binet, which was 16 rather than 15. The fifth edition, however, has a standard deviation of 15, like the Wechsler, so this cannot explain the gap between 75 and 69, and we found no rationale for it in the Guide. Maryam, who scored 74 on the Wechsler, meets the intelligence requirement; had she obtained the same 74 on the Stanford-Binet, she would not, even though the two scores denote the same position relative to peers.

The second is that the nine adaptive behavior areas in the Guide (communication, self-care, home living, social skills, community use, self-direction, health and safety, functional academics, and leisure and work skills) are close to the ten areas in the 1992 AAIDD definition (Luckasson et al., 1992), which the association itself has since replaced with the three domains. Requiring two of nine areas differs from requiring one of three domains, and permitting “informal” instruments for this criterion is broader than the DSM's call for a standardized measure. **The third** is that the Guide requires instruments “approved by the Ministry of Education,” yet at the time of writing we found no published list of such instruments, nor any published Saudi standardization of the recent editions of the Wechsler scales or of adaptive behavior scales (Table 7.7).

A question for reflection: If Maryam's case came before you at your school, how would you write the team's decision so that it respects the eligibility criterion in the Organizational Guide while also reporting the confidence interval and the age of the norms?

Conclusion

The argument we have developed in this chapter centers on the claim that intellectual disability is a composite judgment that cannot be derived from an IQ score alone. Adaptive behavior is the criterion that guards against misdiagnosis; it determines the level of severity in the DSM, and it becomes the primary source for judging severity once an intelligence test reaches its floor. The cut-off of 70 is read in light of the confidence interval and the age of the norms, so a person scoring around 75 may be diagnosed if the adaptive deficits are clear. It follows that hearing and vision screening must precede every instrument, that referral for genetic testing is recommended in every case of unexplained intellectual disability, that the diagnosis of global developmental delay is used provisionally below age five, and that diagnostic overshadowing must be guarded against when other disorders accompany the disability.

Still, the chapter leaves questions that remain matters of professional judgment, beyond what the rules can settle. The Saudi criteria are eligibility criteria that differ from those of the DSM in the intelligence cut-off and in the number of adaptive areas, and within them the Wechsler cut-off differs from the Stanford-Binet cut-off, so a diagnosis may apply to a student who does not meet the eligibility criteria. The educational question therefore remains the one most deserving of attention: What support does the student need, where, and how much?

Summary, key terms, and activities

Chapter summary

- Intellectual disability is diagnosed when three criteria are met together: intellectual deficits, adaptive deficits, and onset during the developmental period. AAIDD has raised the age of onset to before 22.
- The cut-off of 70 is not absolute; the confidence interval and the age of the norms are taken into account, so a person scoring up to about 75 may be diagnosed if the adaptive deficits are clear.
- Adaptive behavior is the criterion that protects against misdiagnosis; it determines the level of severity in the DSM and shares that role with ability in ICD-11. When an intelligence test reaches its floor, adaptive behavior becomes the primary source for judging severity.
- Below age five, global developmental delay is used as a provisional diagnosis; its ICD-11 counterpart is “disorder of intellectual development, provisional,” below age four.
- Hearing and vision screening is a prerequisite before any instrument; referral for genetic testing is recommended in every case of unexplained intellectual disability, and becomes more important when the parents are related.
- The Vineland domains do not map directly onto the DSM domains, whereas the Adaptive Behavior Assessment System yields them directly.
- The Saudi criteria are eligibility criteria that differ from those of the DSM in the intelligence cut-off and the number of adaptive areas, and within them the Wechsler cut-off differs from the Stanford-Binet cut-off.
- Co-occurrence is common, diagnostic overshadowing is a constant risk, and co-occurring symptoms are judged against mental age.

- The most important educational question: What support does the student need, where, and how much?

Glossary of terms

Intellectual disability	Significant deficits in intellectual functioning and adaptive behavior that begin during the developmental period.
Adaptive behavior	The conceptual, social, and practical skills that people learn and perform in their everyday lives.
Global developmental delay	A provisional diagnosis for a child under five who is delayed in two or more developmental domains.
Disorder of intellectual development, provisional	An ICD-11 category for a child under four, or for a person who cannot be validly assessed.
Routing subtest	A short subtest that determines the starting level for the remaining subtests of a scale.
Support needs intensity	The amount and type of support a person needs to participate in life activities.
Borderline intellectual functioning	Below-average intellectual ability that does not meet the criteria for intellectual disability, for which the current DSM sets no numerical cut-off.
Chromosomal microarray	A genetic test that detects small deletions or duplications of chromosomal material that conventional karyotyping cannot see.

Exome sequencing	A genetic test that reads the protein-coding portions of nearly all genes in search of a causal variant.
Diagnostic overshadowing	Attributing new symptoms to the intellectual disability itself, so that a co-occurring condition that could be diagnosed and treated goes unnoticed.

Review questions

1. Why did the DSM shift the specification of severity from IQ to adaptive behavior? And how does ICD-11 differ from it in this respect?
2. A student has a full-scale IQ of 66 and an adaptive behavior score of 92. Should he be diagnosed with intellectual disability? And what would you look for next?
3. Using the numbers in Maryam's case, explain why 70 is not an absolute cut-off. Then estimate the range of the corresponding contemporary score had her 74 been obtained on the Stanford-Binet Fifth Edition with its original norms, and explain why this difference is not subtracted mechanically.
4. What is the floor effect? Drawing on Al-Anoud's case, show what an IQ can and cannot tell us at the floor; then choose a suitable intelligence test for a four-year-old suspected of having moderate intellectual disability, and justify your choice.
5. How does a family's culture affect ratings of adaptive behavior? Give two examples.
6. What is the difference between intellectual disability and borderline intellectual functioning? And why is it no longer appropriate to define borderline intellectual functioning by the 71–84 range?

7. A student scored 74 on the Wechsler scale and, two months later, 72 on the Stanford-Binet Fifth Edition, and has deficits in two adaptive areas. Does he meet the intelligence requirement of the Special Education Organizational Guide with each of the two scores? And what does this reveal about the consistency of the criterion?
8. When should the educational team recommend genetic referral? And why do normal newborn screening and premarital screening not make it unnecessary?
9. A student with moderate intellectual disability was rated by his teacher for attention problems on a rating scale normed on the general student population, and his score came out very high. What would you compare before accepting a co-occurring diagnosis of attention-deficit/hyperactivity disorder?
10. **Case for application:** Bassam is eight years old and in second grade. He was given the Arabic version of the Stanford-Binet, whose norm collection year is unknown, and obtained a full-scale score of 72 (67–78), with a verbal score of 70 and a nonverbal score of 76. His mother completed the Vineland form, yielding an Adaptive Behavior Composite of 74 (communication 70, daily living skills 80, socialization 73). His teacher completed the Adaptive Behavior Assessment System form, yielding a general composite of 66 (conceptual 62, social 70, practical 69). He walked at 14 months and said his first words after age two. His mother reports recurrent ear infections in his early years, and his hearing has not been tested since he started school. He received small-group reading support for one semester and progressed slowly. (a) What missing evidence must precede any judgment, and why? (b) Is Criterion A met according to the DSM? And is the intelligence requirement of the Organizational Guide met? (c) How do you interpret the difference between the mother's and the teacher's ratings? (d) What is your decision now: diagnosis, no diagnosis, or deferring judgment? Justify your decision, and specify what you need in order to make it.

Table 7.15: Mapping chapter objectives to review questions and learning activities.

Objective	Assessed by
1. Determine whether all three criteria are met and classify examples of adaptive deficits	Questions 2 and 5; Activity 2
2. Determine the severity level and compare it with the international classification	Question 1; first part of Question 4
3. Select an instrument and justify the choice	Question 4; Activity 3
4. Apply the Saudi eligibility criteria	Question 7; part (b) of Question 10; Activity 3
5. Judge the sufficiency of evidence near the boundaries	Question 3; Question 10 (Case for application); Activity 1
6. Distinguish intellectual disability from similar and co-occurring conditions, and make medical and genetic referrals	Questions 6, 8 and 9

Learning activities

Any activity that involves administering an instrument to a child or using a real student's data must be carried out with the consent of the family and the school administration, without any information that could identify the student, and under the supervision of a qualified professional; its results must not be used in any decision concerning the student.

- 1. Mapping cases:** On a map like Figure 7.4, place five hypothetical cases of your own design, two of them near the boundaries. For each, record the decision and its rationale, along with the effect of the age of the norms, if any. *Product: a diagram and a short table. Time: about one hour.*
- 2. Translating the profile:** Turn the profile in Figure 7.3 into three measurable instructional goals in the conceptual domain that suit Nawaf,

and identify for each goal the adaptive domain it serves. *Product: three written goals. Time: about 45 minutes.*

3. **Instrument profile:** Choose an adaptive behavior scale whose record form and manual are available to you, and prepare a profile for it using the standard template in 7.6, including the Arabic version field. Then map its domains onto the nine domains in the Special Education Organizational Guide and the three domains in the diagnostic manual, and show what it does not cover. *Product: a profile and a mapping table. Time: about two hours.*

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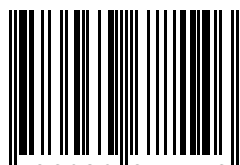
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