WORLD BANK GROUP

INCLUSIVE EDUCATION INITIATIVE
Transforming Education for Children with Disabilities

Toolkit

Using Principles of Universal Design for Assessment (UDA) to Design Accessible Learning Assessments

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Acronyms

AAC	Augmentative and Alternative Communication
ADHD	Attention Deficit Hyperactivity Disorder
CAST	Center for Accessible Special Technologies
CBM	Curriculum-Based Measurement
CCTV	Closed-Captioned Television
EGMA	Early Grade Math Assessment
EGRA	Early Grade Reading Assessment
EMIS	Educational Management and Information System
FCDO	Foreign, Commonwealth, and Development Office
FM	Frequency Modulation
HIC	High-Income Country
IDP	Inclusive Development Partners
IEI	Inclusive Education Initiative
IEP	Individualized Education Plan
IPEA	Inclusive Primary Education Activity

LMIC	Low- and Middle-Income Country
LTA	Learn Together Activity
MoEYS	Ministry of Education Youth and Sports
MTSS	Multi-Tiered System of Support
NCEO	National Center on Education Outcomes
OPD	Organization of Persons with Disabilities
PASEC	*Programme d'Analyse des Systemes Educatifs de la CONFEMEN*
PISA	Programme for International Student Assessment
PISA-D	Program for International Student Assessment for Development
SEA-PLM	Southeast Asia Primary Learning Matrix
TaRL	Teaching at the Right Level
UDA	Universal Design for Assessment
UDL	Universal Design for Learning
USAID	United States Agency for International Development
WBG	World Bank Group

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Objectives

- The purpose of this toolkit is to generate knowledge on how to develop and adapt assessment tools using principles of universal design that yield reliable and valid data and information to track the learning outcomes of marginalized learners, including learners with disabilities.

- To provide background and evidence-based practices on developing inclusive and accessible assessments using the concepts of universal design for assessment (UDA) and universal design for learning (UDL).

- The toolkit is intended for World Bank staff, educational practitioners, and experts.

- The toolkit is designed specifically considering the practical challenges faced by education systems in the Low-Middle Income Countries (LMICs).

Key Messages

- The World Bank Group (WBG) has a corporate commitment of ensuring that all World Bank-financed education programs and projects are disability inclusive by 2025.

- For children with disabilities, the learning crisis is twofold: equitable education access and quality of learning.

- Children with disabilities are less likely to have foundational reading and numeracy skills than their peers with no functional difficulties.

- Learning assessments are often not accessible to all learners because of the way assessments are developed.

- Large-scale learning assessments are often created in a way that does not consider the cognitive, physical, and sociocultural needs of learners with disabilities and other marginalized groups.

- Historically, learners with disabilities have been disadvantaged or excluded from various learning assessment practices. This lack of inclusion impedes their learning, as teachers and educational systems cannot adequately measure these students' learning outcomes or progress.

- Universally designed assessments are intended to allow the equitable participation of the widest possible range of students by considering the different learning needs of students and follow the general principle of ensuring that all students have the maximal opportunity to demonstrate how they are progressing on their educational goals.

- In typical learning assessments, the assessment tasks, presentation of materials, or response requirements may be inaccessible to students with disabilities—or to any student. Teachers and policy makers who use UDA

attempt to identify where these barriers may be present and create assessments that are both flexible and appropriately challenging for students.

- For the development of this toolkit, the accessible Early Grade Math Assessment (EGMA) pilot was conducted in Tajikistan. Lessons from the pilot have informed the development of the toolkit. This is an example of just one type of assessment, but the toolkit provides suggestions for other assessments as well.

- Universally designed assessments:

  - Ensure that assessments are designed in a way that includes all students regardless of disability status, language, gender, and so on.

  - Focus on clearly designed test items and remove irrelevant cognitive, sensory, emotional, and physical barriers.

  - Provide built-in accessibility in test items. Assessments are reviewed to remove items that may be biased against students with disabilities and other marginalized groups.

  - Allow accommodations (for example, braille and sign language) without changing the test construct.

  - Ensure instructions are simple, clear, and presented in understandable language.

  - Allow maximum readability and comprehension by following plain language guidelines to produce readable and comprehensible text (for example, limited sentence length and avoiding unnecessary or difficult words).

  - Support maximum legibility by providing information (including text, tables, figures, illustrations) in an 'easy to decipher' format (for example, color contrast and font size).

- This toolkit provides a detailed 'how to' guidance on designing and piloting UDA tools.

Photo credit: World Bank

1. Introduction

Assessment is a critical part of all education systems. The World Bank Framework on Assessment defines the term as "the process of gathering and evaluating information on what students know, understand, and can do in order to make an informed decision about the next steps in the educational process" (Clarke 2012, 1). But assessment goes beyond simply testing a student's knowledge; it helps educators understand students' needs, set standards, and evaluate progress. Therefore, assessment should be designed to not focus on students' failures but instead provide opportunities for students to demonstrate knowledge. Assessments also help provide national data on how the education system works and what changes must be incorporated. Done well, assessment can motivate and direct teachers' classroom instruction by letting them know what areas of instruction work and where they may need to place more focus. Essentially, when assessment is done correctly, it can help improve the learning experience for all students.

However, although more teachers are being trained on how to educate all students, comparatively less training and guidance have been provided on how to assess the learning of students with disabilities. As countries work to expand access to education for all learners, more programs are beginning to implement universal design for learning (UDL).[1] UDL is an evidence-based approach that supports learning outcomes for students with and without disabilities and is based on the premise that there is great variability in how children learn (Meyer, Rose, and Gordan 2014). However, learners with disabilities have historically been disadvantaged or excluded from various learning assessment practices. This lack of inclusion impedes their learning, as teachers and educational systems are not able to adequately measure these students' learning outcomes or progress. Therefore, even in schools with accessible learning environments, assessments are often not accessible and, thus, do not adequately capture the learning of students with disabilities. If assessments do not accurately capture the learning of all students, including those traditionally marginalized within the education system, diverse populations within a country, region, or classroom are at risk of being left behind. Being left out or marginalized in the assessment process can have detrimental impacts on students with disabilities. These students may encounter long-term implications if they do not participate in assessments or if they do poorly due to inadequate support. Additionally, these implications may affect their college entrance, skills development, and workforce opportunities.

Learning assessments are often not accessible to all learners because of the way these assessments are developed. Learning assessments, especially large-scale assessments, were originally designed to efficiently sort students. In these assessments, standard presentation and response formats were deemed essential for perceived "fairness" (Linn 2001). As a result, assessments are often created in a way that does not consider the cognitive, physical, and sociocultural needs of learners with disabilities and other marginalized groups. This often leads to the development of inaccessible tools and assessment practices that do not appropriately gauge the educational progress of learners in the classroom. However, if assessments are designed with the diverse needs of students in mind, more accurate information can be gathered on learning within the classroom—for all students. Furthermore, though a universally designed assessment will not eliminate the need to provide accommodations to students with disabilities, when universal design for assessment (UDA) is used in

1 The "UDL approach recognizes that each student learns in a unique manner. UDL consists of a set of principles providing teachers and other staff with a structure for creating adaptable learning environments and developing instruction to meet diverse needs of all learners. It involves creating engaging classroom environments; maintaining high expectations from all students while allowing multiple ways to meet expectation flexible ways of learning flexible curriculum; empowering teachers to think differently about their own teaching; and focusing on educational outcome for all, including students with disabilities" (World Bank, Inclusion International, and Leonard Cheshire 2019).

the design of an assessment, the need for accommodations is often reduced.

This toolkit attempts to fill the information and knowledge gap around the application of UDL principles to design inclusive learning assessments. The toolkit presents an evidence-based approach for the development of accessible assessment practices that can be used by education practitioners, assessment experts, and education specialists. The toolkit development process included applying key principles to design accessible Early Grade Math Assessment (EGMA) and piloting the assessment in mainstream schools in Tajikistan. Key lessons from the pilot have been integrated into the toolkit.

1.1. Tajikistan Pilot

To anchor the UDA toolkit in a country context, the Inclusive Education Initiative (IEI), with support from Inclusive Development Partners (IDP), identified Tajikistan to pilot the accessible version of EGMA.[2] Selecting Tajikistan for the accessible EGMA pilot was both opportune and strategic as development partners such as the United States Agency for International Development (USAID) were piloting a standard EGMA baseline activity through a USAID-funded Learn Together Activity (LTA). The World Bank team worked closely with IDP and on-the-ground partners such as Chemonics International and EdIntersect (supported by USAID) to organize the accessible EGMA pilot in tandem with LTA. The accessible EGMA pilot was highly consultative and included several meetings with key stakeholders and organizations of persons with disabilities (OPDs) in Tajikistan, including convening the original EGMA development group, and meeting with the Tajikistan National Working Group on EGMA to discuss the purpose of the pilot, UDA, and review of the accessible subtests. As part of this project, enumerators were trained in Russian and Tajik on the accessible version of EGMA. Although several options were created to help make EGMA more accessible, the Tajikistan working group[3] decided to focus on two EGMA subtests: Number Discrimination and Word Problems. The accessible version of the assessment featured the following changes:

- For the Grade 2 and Grade 4 Number Discrimination subtest, students received a number line and an additional practice opportunity.[4] Students could also use counting sticks, an abacus, or paper and pencil to solve problems. This allowed students to select the way in which they wanted to present their knowledge by providing

2 EGMA was selected as LTA was developing and piloting EGMA tools to be used for a baseline, midline, and endline assessment for the project. This timing allowed for the development of accessible EGMA during the initial stages of implementation.

3 The working group comprised several OPDs representing a variety of disability types, including OPDs for the blind and deaf.

4 Number lines were selected instead of other forms of representation as number lines were currently used in the classroom in Tajikistan.

a variety of options. Annex A provides images and image descriptions of the number lines used.

- For the Grade 2 and Grade 4 Word Problems subtest, students were allowed to choose the context of the story (sports, food, or a school bus). Word problems included images for Grade 2, and students could also use counting sticks, an abacus, or number lines to solve problems. Annex B presents some of the images used in Grade 2 Word Problems.

The Number Discrimination and Word Problem subtests were selected because they could be adapted without changing constructs while still allowing opportunities for additional accessibility. Findings from this pilot revealed the following:[5]

- Students in Grade 4 achieved higher scores using the accessible EGMA compared to the standard EGMA on both subtests. Students in Grade 2 received almost identical scores on both forms of the assessment. However, the results of the full pilot revealed that the subtest on which the accessible EGMA was based may have been too easy for Grade 2 students and, thus, needed to be revised in general.
- The pilot showed that Tajik language learners benefited the most from the accessible EGMA and that Tajik students were reported to be excited to be provided with choices during the administration of the accessible EGMA.[6]
- Girls in Grade 4 performed significantly better on the accessible EGMA over the standard EGMA.
- Lowest quintile scores showed a slight advantage for Grade 4 test takers using the accessible EGMA. No differences were found for students in Grade 2.
- An accessible EGMA only required an additional 1 minute to administer and, thus, did not require significant additional time.
- Using some of the accessibility features to receive and express information was new for students, and students may have benefited from completing an accessible EGMA coupled with additional UDL support in the classroom.
- Although the concept of UDA was received well by all stakeholders, sufficient time is needed to introduce new tools and testing administration processes to ensure that all stakeholders

5 These findings are related to EGMA and the Tajikistan pilot which addresses UDA and being more inclusive for all learners. Annex D provides recommendation for learners who are blind, deaf, or deafblind for what types of accommodations may be needed for these learners.

6 School in Tajikistan recently shifted from Uzbek language to Tajik language as a language on instruction which may have lowered student reading levels initially. Evidence from USAID programs show that Tajik language learners have been seen as having lower performance on literacy scores in the past.

have buy-in and support the revised UDA.

- The pilot shows the importance of UDA as it benefited girls and Tajik language learners and was the preferred assessment of the participating students. Additional pilots and studies will be needed in other countries as well to contextualize EGMA and show the importance of having accessible EGMAs for all students.

It is important to note that the UDA pilot was administered in general education settings in Tajikistan as access to segregated schools was not feasible. Because many students with identified disabilities are currently educated in segregated settings in the country and identification practices in the general education settings are nascent, the pilot was limited as it could not accurately capture how learners with identified disabilities benefit from UDA in the classroom. However, it can be assumed that learners with unidentified disabilities, albeit potentially high-incidence disabilities (challenges with vision and hearing, learning disabilities, attentional disabilities, emotional disabilities, speech disabilities, and so on), were in the classroom and benefited from the accessible EGMA. Tajikistan was selected for the pilot as it was developing EGMA, so it was an opportune time to roll out an accessible EGMA and assess the differences in scores compared to the standard EGMA. The Government of Tajikistan is also committed to inclusive education and showed interest and support of the pilot.

Future administrations, however, would need to consider target populations (in this case, students with disabilities) and plan for piloting where students are receiving their education. In this case, future EGMA pilots should take place in special schools[7] to ensure that the population of students with disabilities is represented in assessment development, implementation, and data analysis/interpretation.

Additional lessons learned from the pilot were integrated into this toolkit. The toolkit provides suggestions not only on how to make large-scale assessments such as EGMA accessible but other formative and summative assessments as well.

1.2. Purpose, Audience, and Structure

The purpose of this toolkit is to provide background and evidence-based practices on how best to develop inclusive and accessible assessments using UDA and UDL concepts. The audience of this toolkit is World Bank staff, educational practitioners, and experts. The toolkit may also help guide donors, governments, and disability advocates on how they can adapt

7 IEI-World Bank promotes the inclusion of children with disabilities in mainstream education; however, IEI also recognizes that segregated schools exist in national education systems. Based on the country context, these schools should be included in pilots to improve the validity and utility of any new accessible learning assessment.

their own work to better gauge the learning of all students in the classroom.

The structure of this toolkit goes from broad to narrow. The beginning of Section 2 provides an overview of assessment and its purposes and introduces some common challenges related to the measurement of learning outcomes for students with disabilities. Section 3 then introduces the concept of UDA, and section 4 provides specifics on the principles of UDA that can be applied across educational settings worldwide, promoting accessibility for students. Section 5 provides an overview on why the accessibility of assessments is part of a larger inclusive education agenda aimed at providing equal opportunities for all students to demonstrate their knowledge and skills in schools. Section 6 discusses accommodations and modifications and the differences between the two, while Section 7 discusses different accessibility features, including those for specific disability types, such as learners who are deaf or blind. In Section 8, case examples describe how to align the Early Grade Reading Assessment (EGRA) and EGMA with UDA principles. Section 9 provides teachers examples of how to incorporate UDA principles into their classroom assessments, which are often more flexible and formative than large-scale assessments. The toolkit concludes with Section 10, which discusses how assessment data can be used. Assessment data can answer many questions about students' learning; however, every assessment is also limited in the information it can provide.

Photo credit: World Bank

2. Background

This section reviews...

- **The different types of assessments that can be implemented in the classroom**
- **The current state of assessment for students with disabilities**

Assessment is any practice that helps teachers or systems understand the knowledge or skills that students have developed (Newton 2007). Students can be assessed in many ways such as asking them to show their work, having a conversation with them, and testing them. UDA is an educational strategy aimed at reducing barriers for students to demonstrate their knowledge and skills (Hanna 2005). **The general principle behind UDA is that all students should have the maximal opportunity to demonstrate how they are progressing on their educational goals.** The assessment tasks, presentation of materials, or response requirements may be inaccessible to students with disabilities—or to any student. Teachers and policy makers who embrace UDA attempt to identify where these barriers may be present and create assessments that are both flexible and appropriately challenging for students.

2.1. Categories of Assessment

Several types of assessments can be implemented within an education system, and they vary depending on the goal for which they are implemented.

Formative assessments. Teachers use formative assessments to inform ongoing day-to-day instruction to help achieve intended educational outcomes (AERA, APA, and NCME 2014). Formative assessments help educators check students' understanding and learning (RTI International 2022) and identify gaps in student knowledge that need to be addressed in daily classroom instruction. Although it is primarily used as an assessment delivered by teachers to students, formative assessment can also be used by students as a form of self-assessment to help foster their motivation (Andrade and Cizek 2010). Since the main goal of formative assessments is to inform teacher instructional strategy or student self-motivation, it is generally recommended that formative assessments not be graded (Andrade and Cizek 2010).

Summative assessments. Such assessments are used to assess a student's knowledge and skill acquisition after the teacher completes instruction (AERA, APA, and NCME 2014). These assessments can be administered at various times, including after an individual lesson or after an entire school year to measure student progress toward learning goals (RTI International 2022). Common examples of summative assessments are quarterly or annual examinations. A danger of relying only on summative assessments for information is that it is sometimes difficult to ensure that assessments closely align with the content if students are measured through a single summative test. As a result, the development of some skills (for example, a student's ability to create oral persuasive arguments) can be underemphasized in instruction to ensure that standards can be measured by an end-of-year summative test (AERA, APA, and NCME 2014).

Large-scale assessments. These assessments provide information on overall performance levels and trends in the education system as an aid to policy and decision-making (Clarke and Luna-Bazaldua 2021). Two types of large-scale assessments currently used in many low- and middle-income countries (LMICs) are EGRA and EGMA, to assess learners on reading and math within USAID-funded early-grade projects. Other examples of regional and international large-scale assessment include Program for International Student Assessment for Development (PISA-D), Southeast Asia Primary Learning Matrix (SEA-PLM), and *Programme d'Analyse des Systemes Educatifs de la* CONFEMEN (PASEC).

2.2. Measuring Learning Outcomes for Learners with Disabilities

Although classroom instruction is becoming more inclusive, ensuring that classroom assessment measurements are inclusive of all students with disabilities continues to be a challenge. This is often due to the lack of identification of students with disabilities (that is, teachers are not aware that certain students have disabilities and could benefit from testing accommodations), the inconsistent use of testing accommodations for those who are identified as having disabilities, and the lack of time and resources on the part of teachers (Buzick and Laitusis 2010). These challenges create barriers in comparing performance measurements of students with disabilities to those of their peers without disabilities. Furthermore, these challenges can limit the usability of data over a long time and continue to exclude students with disabilities within the data (Buzick and Laitusis 2010).

Additionally, students with identified disabilities worldwide are often excluded from testing altogether. This is especially true for tests that may reflect badly on a teacher, school, or program; in these cases, educators are often incentivized to exclude students who may score poorly, such as students with disabilities (Erickson and Thurlow 1996). For example, students with multiple disabilities and intellectual disabilities are excluded from the Program for International Student Assessment (PISA) test on the assumption that students with intellectual and multiple disabilities access only segregated schools, which are further excluded from the overall sample (World Bank, Inclusion International, and Leonard Cheshire 2019). Students with disabilities may instead be offered a modified assessment, which may include testing the student using content from an earlier grade or deleting some items from the test (AERA, APA, and NCME 2014). In these cases, although students with disabilities are still participating in testing, their results have lost comparability, as their results cannot be compared to their peers.

Photo credit: World Bank

3. Universal Design for Assessment

This section reviews...

- The principles of UDL
- The key elements of UDA
- Common myths about UDA
- How UDL and UDA intersect
- Who can benefit from UDA

3.1. Understanding UDL

UDL is based on the premise that there is tremendous variability in how students learn (Meyer, Rose, and Gordon 2014). Based on both neuroscience and learning sciences, UDL uses three basic principles:

1. **Multiple means of engagement.** All students are **motivated** to learn in different ways. Providing multiple options and choices through story reading, exercises, or group practice is one of the best ways to motivate students. Increasing student motivation helps increase student focus.

2. **Multiple means of representation.** Students learn differently, which means that teachers must **present** information in multiple ways. Some students learn best by hearing, seeing, writing, or acting out information. Therefore, instruction should offer a variety of ways to learn new information and match the students' strengths.

3. **Multiple means of action and expression.** Because students learn differently, teachers should try offering a variety of options and allowing students to select the way they prefer to **show knowledge**. This can include using oral responses, written responses, technology, sign language, and other ways to demonstrate what a student has learned (CAST 2018).

UDL in Practice

Use of UDL strategies features in various LMICs as well as high-income countries (HICs). UDL promotes motivating students, presenting information, and allowing students to express their understanding in various ways. UDL is specifically referenced as a foundational inclusion approach in Ghana's Inclusive Education Policy and in the Rwanda Basic Education Board's Strategic Plan 2020–2025. In Liberia, starting in 2022 with support from the USAID TESTS Activity, at least 3,500 preservice teachers at eight colleges and universities will complete a 3-credit course on Introduction to UDL. In Cambodia, the Inclusive Primary Education Activity (IPEA) is working with the Cambodian Ministry of Education Youth and Sports (MoEYS) to embed UDL strategies in early grade literacy instruction and teacher training activities. Collectively, these examples demonstrate that momentum is building among various nations to support instructional strategies that benefit learners with and without disabilities.

3.2. Understanding UDA

Universally designed assessments are intended to allow the equitable participation of the widest possible range of students (Thompson and Thurlow 2002). Such assessments that do not change the construct can produce higher levels of performance in low-performing students including those with disabilities and students who take tests in languages other

than their own by more accurately demonstrating their knowledge and skills (Downing 2005; Haladyna and Downing 2004; Johnstone 2003). **This is because universally designed assessments are developed to consider the different learning needs of students.** There are seven elements of UDA, as described in Table 1.

What Is Assessment Construct?

A construct is the concept or content being tested. When making tests accessible, it is important to keep the construct the same but determine different ways to make the construct more accessible. Keeping constructs the same allows for comparative data between students.

TABLE 1: Seven Elements of UDA

Element	Description
Inclusive assessment population	Tests are designed in a way that they can include all students regardless of disability status, language, gender, and so on.
Precisely defined constructs	Test constructs are clearly designed and remove irrelevant cognitive, sensory, emotional, and physical barriers.
Accessible, non-biased items	Accessibility items are built into the test, and assessments are reviewed to remove items that may be biased against students with disabilities and other marginalized groups.
Amenable to accommodations	Test allows accommodations (for example, braille and sign language) without changing the construct.
Simple, clear, and intuitive instructions and procedures	All instructions and procedures are simple, clear, and presented in understandable language.
Maximum readability and comprehensibility	Plain language guidelines are followed to produce readable and comprehensible text (for example, limited sentence length and avoiding unnecessary or difficult words).
Maximum legibility	Information (including text, tables, figures, illustrations) is easy to decipher and interpret (for example, color contrast and font size).

Source: Thompson and Thurlow 2002.

3.3. Intersections of UDL and UDA

Whether assessment is on an international scale or informally performed in a classroom, it should always be linked to learning and guided by accessibility. This toolkit has specific examples for how to make assessments more accessible, and in many ways, these are guided by the abovementioned three principles of UDL (that is, multiple means of engagement, multiple means of representation, and multiple means of action and expression). Flexibility in how assessments provide students information and how students can respond are two cornerstones to UDA and are informed by UDL directly. UDL and UDA may have slightly different applications (for example, a class learning activity may differ from how a teacher decides to assess the outcomes of the activity), but both are informed by a commitment to give all students the *opportunity* to both learn and show what they have learned. Opportunity, in this case, comes from ensuring that classroom activities (UDL) and the ways in which those activities are assessed (UDA) promote accessibility.

This toolkit provides strategies to develop universally designed assessments that integrate the three principles of UDL and UDA. Table 2 provides an overview of how UDA could support the principles of UDL. The approach aims to promote accurate assessments of the widest possible range of students.

TABLE 2: Examples of How UDA Can Follow the Principles of UDL

UDL Principle	Examples of UDA
Multiple means of engagement	Students are provided with choice of themes. *For example, in Tajikistan UDA EGMA pilot word problem items, students could choose themes for word problems (sports, food, animals, or transportation). Subsequent word problems were then focused on the topic that most interested the student.*
Multiple means of representation	Students are presented information in different formats such as verbal and written instructions and provided images to reinforce concepts. *For example, in the Tajikistan UDA EGMA pilot, students were read the instructions, provided with written instructions, and presented with images to reinforce topics.*
Multiple means of action and expression	Students can demonstrate learning in different ways including pointing, using verbal response, and using manipulative and written response. *Students could answer by demonstrating with manipulatives, responding orally, or writing answers to items on the Tajikistan EGMA pilot. Enumerators recorded all answers from students.*

3.4. Who Benefits from UDA

Similar to UDL, UDA was developed to support the learning of students with disabilities as well as learning assessments. However, research shows that these approaches may also help other students, including students speaking languages other than that spoken in schools (Abedi 2021). Further research is needed for other groups and UDA, but early evidence suggests that UDL has been effectively utilized for students who have experienced trauma (Salvador and Culp 2022), students experiencing poverty (Katz 2013), and potentially other marginalized groups, such as overaged students. Table 3 provides an overview of how UDA might support the learning of a variety of students who are often marginalized within education. As implementation of UDA principles emerges, so will a global evidence base on UDA's potential and limitations.

TABLE 3: How UDA Supports All Students

Marginalized Group	Benefits of UDA
Students with disabilities	With the principles of UDL embedded in assessments, learners with disabilities can receive and express information in different ways. For example, a student with limited writing or challenges with writing can point to the response or use other accommodations to show their knowledge.
Girls and boys	Providing choice of topics that students find most interesting can reduce the likelihood of having assessments that are not gender responsive.
Ethnic and linguistic minorities	Students who are learning the language of instruction may have challenges only receiving written or oral instructions. By providing and allowing both, minority language learners can benefit from UDA by being able to express their knowledge verbally or in writing. Having choice of topics relevant to different cultures can also increase motivation.
Students who have experienced trauma	Students who have experienced trauma may have difficulty focusing and do best when they are able to control various aspects of their lives. With multiple means of representation, minority language learners can benefit from UDA as they can express their knowledge verbally or in writing. This may also allow them to avoid activities that may trigger traumatic experiences.

Marginalized Group	Benefits of UDA
Students experiencing poverty	Students who are hungry may need help with focusing and have a harder time attending to tasks over long periods. By allowing flexibility in the timing of assessments, increasing motivation through choice of topic, and allowing frequent breaks, these students may demonstrate their understanding of the assessment content more accurately. It is also important to avoid questions that may introduce trauma or anxiety (such as money-related exercises) or may be biased because of differential life experience (Fleisher 2022)
Overaged students	Overaged students may be in lower grade levels of instruction, but their interests are often similar to their same-aged peers. In countries with a large number of overaged students, UDA can provide different topics and illustrations that align with the interests of overaged student's, which may reduce the embarrassment often associated with being overage.

3.5. Dispelling UDA Myths

Several harmful myths about universally designed assessments for learners with disabilities are described below.

- **Myth 1: It will take too much time to administer a UDA test versus a traditional test.** A recent pilot study of EGMA in Tajikistan tested this myth, and the difference in the time it took to deliver the UDA EGMA was not statistically significant. In this study, a 'standard version' of EGMA averaged 26–27 minutes for administration, depending on the language of administration. The UDA version of the assessment averaged 27–30 minutes, depending on language of administration as well.

- **Myth 2: UDA signifies easier test questions for students.** A core principle of UDA is that tested constructs remain the same in accessible versions of assessments. Therefore, UDA tests are not easier, do not give answers away to students, and do not give hints to students. Rather, UDA tests aim to maintain the same level of rigor as the tests currently used but eliminate barriers to students participating in and demonstrating their knowledge on assessments. Using UDA may produce higher levels of performance for all students as UDA more accurately reflects the students' knowledge and skills. The pilot showed similar results where test score improved for most students, particularly for girls and Tajik language learners.

- **Myth 3: Only students with disabilities require UDA.** UDA is an approach to make assessments more accessible for all students but especially focuses on removing barriers for students with disabilities.

- **Myth 4: Revising assessments to make them more accessible is too complicated.** The abovementioned pilot in Tajikistan demonstrated that UDA was an easy concept to grasp for stakeholders from a wide range of backgrounds. Teachers, measurement professionals, and policy makers all found the general concepts of UDA to be intuitive. Rather than thinking UDA was too complicated, stakeholders in Tajikistan offered lively debate over the *best* ways, among multiple options, to make assessments more accessible.

- **Myth 5: UDA is too expensive.** Although there are associated costs with reviewing the tests to ensure they are designed inclusively, the up-front costs of designing assessments for accessibility may be far less than retrofitting assessments once they have already been created.

Photo credit: World Bank

4. Principles in Delivering UDA

This section reviews...

- Core principles that should be followed for all students when administering UDA.

When developing assessments for any student, it is important to follow five basic principles of UDA, as described in the following paragraphs.

Principle 1: Presume competence. This is a core element of inclusive education as it reinforces the key belief that all students can learn and should be an integral part of the general education system. Following this principle in assessments avoids misperceiving that students cannot participate in assessments as they do not have the capacity to learn and, thus,

cannot demonstrate their learning. Rather, participation in assessment systems may provide data that better identify gaps in policy, instruction, and opportunity. Excluding students from any aspect of education on the basis of disability label (or any other demographic consideration) is problematic because demographic descriptors are socially constructed and do not predict a student's capacity to learn or demonstrate knowledge. Rather, as assessment designers construct learning assessments, presuming competence means considering the entire population of students for participation. In other words, **the goal is to have as many students take the same tests as possible to allow for comparable data and tools to measure students' individual progress**. A 'presume competence' approach to learning assessment assumes that all students can participate in national education systems if barriers to those systems are removed.

Principle 2: Recognize and promote diversity. When developing national, formative, and summative assessment systems, all students within the country must be included. For example, if assessments do not include learners with isabilities or other demographic groups, the data collected do not provide a holistic or accurate picture of learning outcomes. Therefore, all students should be included in assessments, including those with different types of disabilities (students who are deaf or hard of hearing, are blind or have low vision, are deaf and blind, or have an intellectual disability;[8] students from rural areas; and ethnolinguistic and other minorities). In addition, an assessment should strive to promote gender equity and diversity within the content by having gender parity in images and characters as well as including persons with disabilities and other minoritized demographic groups in empowering ways. Recognizing and promoting diversity requires two commitments from educational systems. The first commitment is to include all students in the assessment population. Excluding students from any educational activity (including assessment) belies their educational rights. The second commitment is to collect demographic data to ensure that all demographic groups have access to assessment. Demographic data collection allows for comparative analyses that may highlight inequities in opportunity. Specific demographic categories may differ slightly by country but can be informed by the demographic data that are often collected in educational management and information systems (EMISs).

Principle 3: Ensure confidentiality. It is vital to maintain student confidentiality throughout the assessment process. This includes maintaining the confidentiality of student records, including assessment results and accommodation needs. Confidentiality is also an important aspect of administering national as well as international tests, such as EGRAs and EGMAs. Therefore, if a student needs to give oral responses on an assessment, the student should not complete the assessment in the presence of their peers (RTI International 2016).

8 These are groups of individuals with disabilities who have traditionally been marginalized within the education system.

Principle 4: Do no harm. Assessment data should be used to have a better picture of national and individual learning outcomes with the ultimate goal of improving instruction and learning for all students. Although assessments can be a useful way to identify students who are struggling with particular content, information from assessments should never be used as a sole tool to diagnose a student as having a disability or as a reason to remove a student from the classroom environment or place a student in an alternative setting. Information obtained through **assessments should be used to support the learning of students within inclusive settings and should not be used as data to promote segregation.**

Principle 5: UDA aligns with best practices in testing. UDA represents a new opportunity for creating accessible assessments for all students, but implementing UDA principles does not preclude assessment designers from following long-accepted assessment design principles. For example, AERA, APA, and NCME (2014) note that for assessments to be effective they must be valid, reliable, and fair. Further, large-scale assessments must have transparent specifications and, while testing content, align with national standards. All scoring and scales should reflect the intended purposes of the assessment (that is, if an assessment is focused on specific criteria, establishing normative judgments may be inappropriate). To this end, all test users and implementers must be trained on the usage and purposes of assessments before implementation. Finally, processes for documenting assessment results and rules for interpreting scores for educational decision-making must be established. AERA, APA, and NCME (2014) also indicate that test takers have rights in the assessment process. These rights include the right to preparation for the assessment and the right to privacy of assessments results. Test taker rights are upheld by responsibilities of test users, which include knowing the validity of assessments used and upholding privacy of results.

Photo credit: World Bank

5. Understanding Accommodations and Modifications

This section reviews...

- Accommodations that can be used to support students when administering assessments
- What a modification is and when it should be used for learners with disabilities
- The differences and similarities between accommodations and modifications.

Accommodations and modifications are two similar but distinct supports that are often used by learners with disabilities. Both accommodations and modifications are considered to be **adaptions** that are designed to reduce barriers to the original tests (AERA, APA, and NCME 2014) with modifications changing the construct of what is being tested while

accommodations provide support but do not change what is being tested. Shifting the construct of the test should be used sparingly if at all. These two adaptions are described more below.

Accommodations are changes in ***how*** a student accesses information and demonstrates learning. The World Bank defines accommodations as considerations for accessibity or specific supports that are different from person to person, dpending on the type of disability and other factors (World Bank 2021). Accommodations ***do not*** change the content, constructs, or instructional level but allow additional supports so that learners can appropriately express and receive information (see **Section 5.1** for examples). With accommodations, all students engage with the same construct, but the timing, the way students respond to assessment items, or the way items are presented may be adapted for individuals (Bolt and Thurlow 2004). Accommodations exist to remove barriers and provide more equitable opportunities to demonstrate knowledge and thus do not provide unfair academic advantages for learners with disabilities.

Modifications are changes to what a student is assessed on. This typically arises when instructional modifications are made to what a student is expected to learn. Instructional modifications may allow students to participate in the regular education classroom and demonstrate their learning even if it is at a different level than their peers without disabilities. Modified content should be age appropriate and similar to the content of their peers and should use plain language if needed instead of reverting to content from earlier grades (for example, plain language version of Romeo and Juliet instead of toddler books). Table 4 provides a brief overview of the differences between accommodations and modifications at three stages of assessment development. This table also presents information on how UDA can help mitigate some of the challenges associated with accommodations and modifications.

Having a universally designed assessment will minimize, but not fully eliminate, the need for accommodations. Even with UDA, many students will still require a full range of accommodations to accurately demonstrate their knowledge.

TABLE 4: Accommodations and Modifications during Assessment Design, Implementation, and Scoring

Stage	Accommodations	Modifications	UDA Considerations
Assessment design	Understand that students may need individualized accommodations to access assessments, but these will not change the constructs of the assessment.	Content or constructs are changed to provide students information at different levels of complexity or difficulty.	Consider barriers such as those found in instructions, problem-solving, and response and attempt to remove them during assessment design. Examine content for bias.
Assessment implementation	Before implementing assessments, student accommodations should be identified and administrators should be made aware of individualized accommodations on assessments.	Before administering modified assessments, students who will take modified assessments should be identified.	Universally designed assessments may reduce the need for accommodations or modifications by providing students with options for representation, response, and engagement.
Scoring	Accommodations do not change tested constructs or make the test content easier, so any assessment taken with accommodations should be scored and treated like all other assessments.	Because modified assessments test different constructs, scores will need to be flagged so that they are not conflated with standard assessments.	Universally designed assessments do not modify constructs therefore can be scored like any other assessment but should disaggregate data to highlight possible inequalities in education systems.

According to United States-Based Research...

- In the United States, the eight most frequently provided accommodations are (1) extended time, (2) small group/individual administration, (3) test items read aloud, (4) directions read aloud, (5) alternative setting, (6) clarification of directions, (7) preferred seating, and (8) breaks as needed (Lazarus, Thompson, and Thurlow 2006).

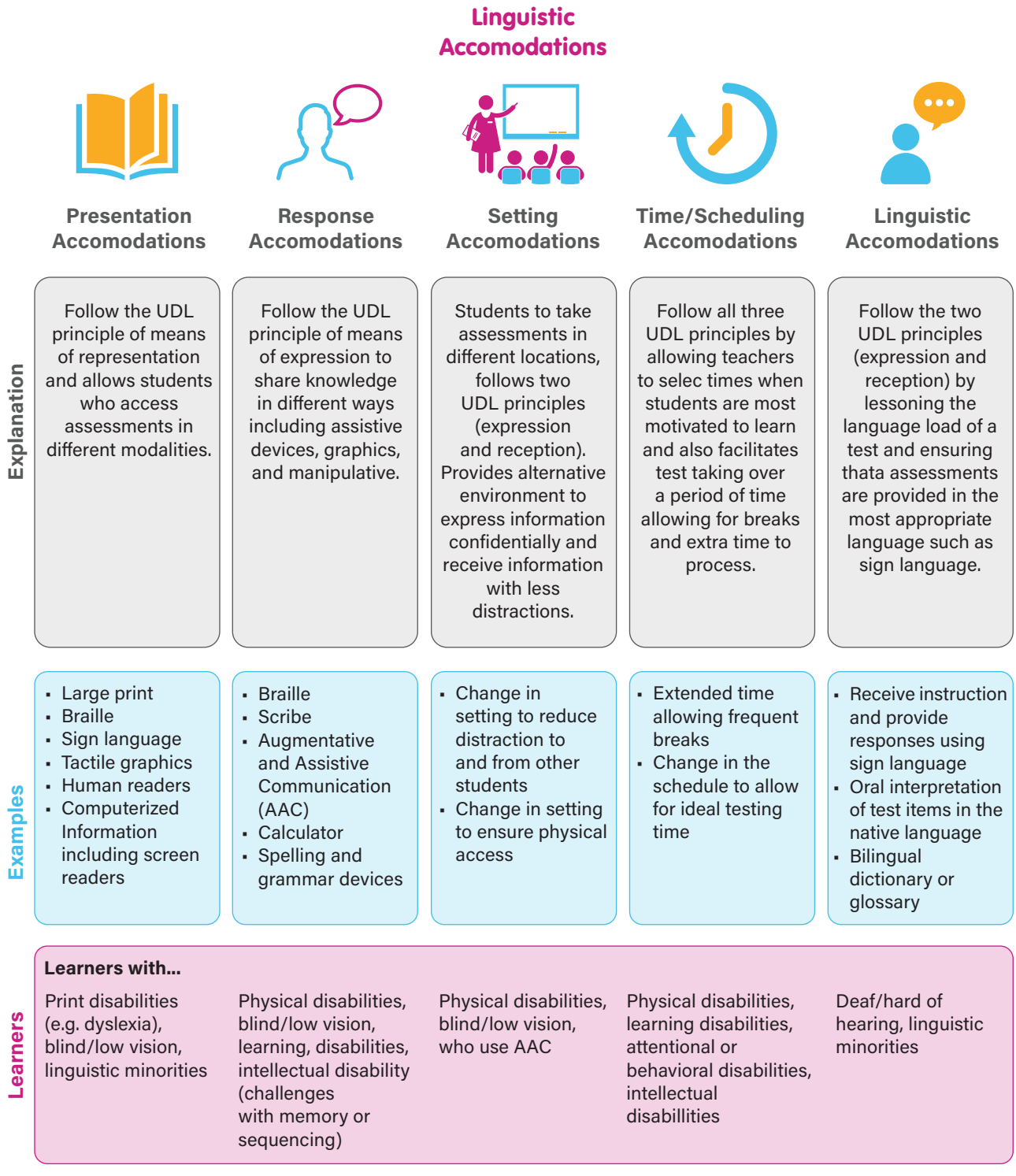
- Allowing students to use accommodations, such as computer administration, oral presentation, and extended time, provides them with more accurate ways of demonstrating their knowledge and abilities, often leading to increased student test scores (Thompson and Thurlow 2002).

- Usage of assistive technology devices in instruction and assessment has grown steadily over the past decade, but Bouck and Long (2021) suggest that more professional development is needed to familiarize schools with ways in which devices can support learning and assessment practice.

5.1. Understanding Accommodations

Accommodations are considered to be changes to the external features of the test (for example, how long the test takes and the setting) for individuals, while the content of what is being assessed remains the same (Dembitzer and Kettler 2018). These supports should respond to a student's learning strengths and needs. Accommodations can be both formal (decided through a comprehensive evaluation and clarified in a student's individualized education plan [IEP]) and informal. Accommodations can also occur in instruction and assessment and are not designed to give learners with disabilities an unfair advantage but instead reduce barriers and allow students to effectively receive information and express learning. Accommodations are generally organized into five categories: presentation, response, timing and scheduling, setting, and linguistic. Examples of common accommodations for assessments are listed by category in Figure 1 (Lazarus, Thompson, and Thurlow 2006).

FIGURE 1: Assessment Accommodations



Source: Adapted from Lazarus, Thompson, and Thurlow (2006).

- With all the choices available for accommodations, it may be challenging for teachers to know which accommodations to use. When selecting accommodations, teachers should consider the following questions:
  - What are the student's learning strengths and needs?
  - How do the student's learning needs affect the achievement of the grade-level content standards?
  - What specialized instruction does the student need to achieve grade-level content standards?
  - Do the accommodations being offered change the construct of the assessment in any way? (See **Section 5.3**)
  - What barriers are created by the way thev assessment is set up, and how might accommodations reduce barriers for students with disabilities?

To ensure fairness, it is important that accommodations DO NOT:

- Coach students during testing or provide answers,
- Edit students' work,
- Allow students to answer fewer questions (that would be a modification),
- Give clues to the answer, and
- Change content by paraprashing or offering additional infomration (Cortiella 2005).

Once accommodations are offered, teachers and students should ideally discuss the accommodations used and which ones were most helpful to evaluate and which accommodations should be continued or discontinued in the future. As noted above, accommodations are considerations for accessibity or specific supports that are different from person to person, depending on the type of disability and other factors (World Bank 2021). All accommodations should be decided before the assessment, and the student should be familiar with the changes (it is not helpful to introduce new accommodations for the first time on the day of an assessment). Annex D provides suggestions for accommodations that may be helpful for students who are blind or have low vision, are deaf or hard of hearing, have complex disabilities, or are deafblind. When providing accommodations, it is important that teachers realize that this does not give unfair advantages to learners with disabilities but instead removes barriers that may limit how they can express their knowledge.

Keeping high standards for modified tests maintains high expectations for students with disabilities.

Accommodation decisions, whether for instruction or assessment, are most appropriate when they are evidence based. This evidence could include observations from teachers, testimonials from students, information from documents like IEPs, and parent inputs. The evidence inputs may vary by context, but in any context it is important to consider that accommodation decisions should be carefully considered and based on available documentation and evidence.

5.2. Understanding Modifications

Modifying an assessment signifies changes to the instruction given or content of the assessment. Modifications are often provided to learners with developmental disabilities, complex support needs, or intellectual disability. An example of a modification includes changing the test content or answers to allow a simplified assessment of constructs (Hamilton and Kessler, n.d.). Other examples of modifications include the following (Dembitzer and Kettler 2018):

- Grading based on pass/fail and/or completion of work instead of content.
- Testing the student on easier content compared to other students in the classroom. For example, if most students are learning two-digit addition (35 + 57), a modification could be testing on single-digit addition (4 + 8).
- Reducing multiple choice options.
- Grading on a different standard (for example, students get credit for completing tasks instead of grading the student's work).

In practice, assessment modifications often go further than the bullet points above, and modified assessments may test some students on completely different content or skills. The challenge in allowing students with intellectual disability or other learners with disabilities to have modified tests is that the results of the assessment are no longer comparable with students who have completed non-modified tests (that is, the norm-reference is lost). Modified tests can only be used to track progress of an individual or others who may have the same modified tests, which makes comparability of learning gains difficult. Furthermore, it is important to note that the consistent use of modifications can "increase the gap between the achievement of students with disabilities and grade level expectations" (s2). Use of modifications may negatively affect a student's educational career and ability to progress.

If modifications are set arbitrarily and/or consistently too low—which is often the case for learners with intellectual disability—they can reduce learning and the opportunity for growth. If modifications are deemed necessary, modified tests should maintain the objective of assessing learning progress toward the same academic standards that are expected of all students. For example, if a student with an intellectual disability is provided 5 vocabulary questions instead of 20 but from the same vocabulary being tested, this would be an example of an adaption. However, a modification would entail selecting easier vocabulary options that are considered to be at a more basic level than the ones being provided to the other students.

Modifications for Learners with Intellectual Disability

Learners with intellectual disability may require modifications for formative and summative assessments, especially as content becomes more challenging. Most assessments discussed in this toolkit are **normative,** where assessments are used to compare learning of students at a similar acedemic level. However, for learners with intellectual disability, **criterion-based** assessments, which look at individual-based performance and their individual growth, may be more appropriate. This means tailoring tests and content to the academic level of the students to ensure the content is appropriate while still moving the students forward in their academic growth. When providing modifications for learners with intellectual disability, it is important to

- **Individualize assessment.** Not all modifications should be given to all learners with intellectual disability as each child has its own unique skills and will progress at its own rate.

- **Align with the curriculum.** Although not all learners with intellectual disability will be able to perform at the grade level, students with intellectual disability should have access to literacy and numeracy and be introduced to other content such as science and social studies that is at the right level.

The best way to avoid introducing modifications that change the constructs of assessments is to have clear communication about the objectives of the assessment (AERA, APA, and NCME 2014) and, where standards are available, to align expectations of assessments with the curriculum or standards (Martone and Sireci 2009). It should be noted that teachers often adjust standards, expectations, and difficulty of tasks in inclusive classrooms to allow for inclusive participation, but these practices may interfere with how student scores can be interpreted in large-scale assessments.

Standardized Tests and Modifications

Some countries—such as the United States and Australia—have introduced legislation that requires learners with disabilities to have access to the general education curriculum as well as take part in standardized testing.[9] The premise is that using and being tested on grade-level standards will ensure high expectations for learners with intellectual disability and, thus, further promote access to the curriculum (Davies 2018). The intent of standardized tests is to assess the extent to which educational standards are being met. These tests are designed for *system* accountability, and disaggregated data are used by governments to ensure all students are making learning progress. In general, standardized tests are unable to be modified given the complexity of the tests and the various subtests that are being administered. In other words, modified tests do not provide comparable data to standardized tests due to the changes made to the constructs of the test. Accommodations, however, can be provided as long as they do not change the construct that is being tested (see below for more details).

5.3. Accommodations versus Modifications

Accommodations and modifications are similar in many ways, including the following (National Center for Learning Disabilities, n.d.):[9]

- Both allow students to receive and express information differently than standard expectations to accurately gauge learning and progress.
- Both can be applied to classroom instruction; applied to formative, summative, and standardized testing; and used across all subjects.
- Both should be determined in advance of testing and are often referenced in a student's IEP; determination of supports should be decided by the teacher, student, and/or caregivers.
- Both should be individualized to the specific student and not based on a disability category, grade level, or instructional setting.

9 It should be noted that the United States allows for 1 percent of students who are considered to have significant cognitive disabilities to take alternative assessments. Other countries, such as Australia, require all students regardless of support needs or cognitive level to participate in standardized testing.

- Both should consider a student's learning strengths and learning needs.

- Both are often mandated within the country's education policies and legislations.

Accommodations and modifications are different in the following ways:

- **Content.** Modifications deliberately decrease the difficulty of an assessment's content while accommodations provide the same content but allow students to express learning in different ways.

- **Identified disability.** Teachers can provide accommodations to any student who is struggling if they think it will support the student in better receiving information and expressing knowledge, regardless of whether the student is identified as having a disability. This is particularly helpful in countries with emerging disability identification systems and practices, where there could be many students who struggle with assessments due to an unidentified disability or other reasons. Modifications should only be used sparingly as part of an IEP and only for those students who have previously been identified as eligible for special education services.

- **Consent.** A teacher can provide accommodations informally for individuals (allowing for additional breaks and daily check-ins to make sure the student understands the lessons and tasks) as well as formally through an IEP process. As modifications reduce or change the difficulty level of content, modifications should only be applied with full and informed parental consent and should be a part of an IEP.

- **Comparability.** Accommodations do not change the core content of instruction or testing, and students tested with accommodations will have comparable data to other students. However, when modifications are made to a test, students who take these assessments can no longer be compared with students who took an unmodified test. Results of modified tests are only used to compare individual student progress over time.

- **Usage and caution.** Individualized accommodations should be used as needed for all students who require them. Given the challenges of reduced learning outcomes, modifications should be used sparingly and only when students have shown that they cannot be successful taking assessments with the same content as their peers even with accommodations.

Accommodations and modifications are similar yet different types of supports. Table 5 provides examples of how these supports are slightly different.

TABLE 5: Accommodations versus Modifications

Assessment	Accommodation	Modification
Classroom assessment	Methods in which learners take the test and express information are varied and/or supported to reduce possible barriers related to disabilities.	Testing may cover less material or address less complex content.
Standardized assessment	The same tests are provided to all students with a variety of accommodations.	Students take a reduced level of test or an alternative test, which is often not allowed in many countries. Other countries have strong restrictions on how many students can take alternative testing as a means to promote student access to the curriculum as much as possible.
Example 1	A student who has challenges writing answers open-ended questions verbally instead of writing the answer. The construct of 'answer the question without prompts' remains the same.	A student who has challenges writing receives multiple response options and points at the correct answer instead of writing the response to open-ended questions. The construct changes because the student has a selection of 3 answers instead of an open-ended question.
Example 2	A student who is blind takes that same test but has the test provided in braille and responds in braille or provides oral answers. The constructs have not changed, but the manner of accessing the printed text has.	A student who is blind takes a different reading test in braille with easier sentence structures and vocabulary. This practice is not recommened as the construct was changed instead of the means of accessing information.

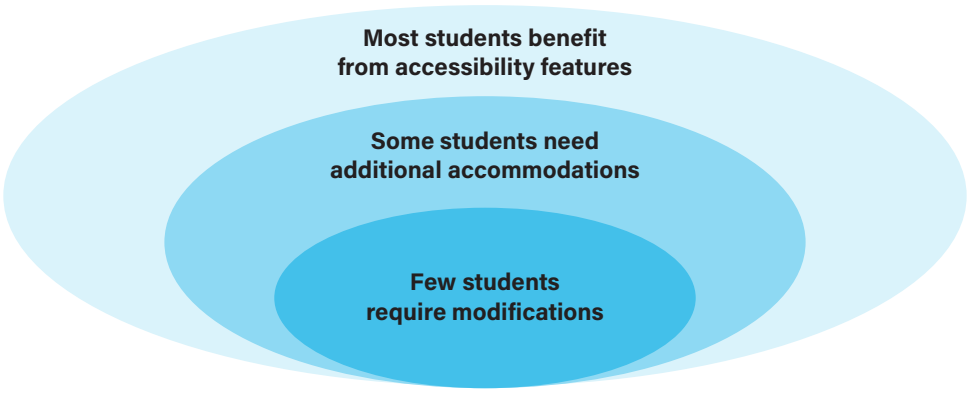
Notably, if the construct of an assessment is changed by providing an accommodation, this may result in a modification. For example, although the accommodation of reading test questions aloud is allowable for most science and math tests, if the construct focuses on a student visually or tactilely reading a passage independently, a read-aloud accommodation would change the construct of the test and, thus, be a modification. Similarly, extended time is an accommodation used in many assessments if the construct is a response within a timed period. For these reasons, it is critically important to identify the desired construct of an assessment so that accommodations do not become modifications.

5.4. Ensuring Proficiency in Alternate Formats

A student should never encounter an assessment format or accommodation for the first time on the day the assessment is used. Whether the assessment is in an alternate format (for example, braille or large print) or a student has access to an accommodation (for example, an assistive technology device), assessments are not a time to experiment. Rather, any alternate format or accommodation provided to the student should be decided upon in advance, with ample time for the student to become familiar with the format or accommodation. Ideally, students will use the same formats and accommodations in assessments that they use in their day-to-day instruction.

In summary, as Figure 2 indicates, most students benefit from universally designed assessments that have accessibility features; some students, even with a UDA test, will require accommodations, and a few will require modifications.

FIGURE 2: Accommodations versus Modifications Summary



5.5. Environmental Considerations

The environment in which students take assessments can have a significant impact on their performance. Background noise, lighting, glare, and visual clutter can affect a student's ability to perform at the optimal level. For example, a student with attentional disabilities may be distracted by background noise. A student who has low vision and light sensitivity may be more sensitive to glare from a nearby window that affects the student's ability to see the test paper. Therefore, it is critical to provide visual and environmental information to students before the assessment. Orienting students to the testing room, describing the items on and around their desk, and showing them where the washroom is located should be standard practice during any testing situation. Table 6 provides environmental considerations that help all students including those students with disabilities.

TABLE 6: Environment Considerations that Support UDA

 **Lighting**	Make sure there is adequate lighting in the room, and ask students if they need additional task lighting.
 **Sunlight and glare**	Check if a window or overhead lighting causes glare or if students are positioned in a place where direct sunlight affects their vision. If using computers or tablets, make sure the screens do not have a glare.
 **Ability to adjust positioning**	Ensure that students can move themselves closer or farther away from the paper or computer screen to better view or access materials on the desk.
 **Visual background clutter**	Review the testing space to make sure it is free of visual clutter and other visual distractions as much as possible.
 **Access to materials**	Arrange test materials in consistent places so that learners with disabilities know where items are located and can access them; remove possible physical barriers between materials and students to faciliate access.
 **Quiet environment**	A test environment with limited background noise is best for all students. Note that some noises that may not be noticed by others, such as a fan, outside gardening equipment, or noise from another room, may need even quieter environments to focus.
 **Familiar Environment**	Test in an environment familiar to the student to reduce stress. Make sure students who are blind or deafblind receive information about the environment around them, including who is in the room, how the room is set up, and what is happening in the room. They should also have access to all communication that is intended for the group.

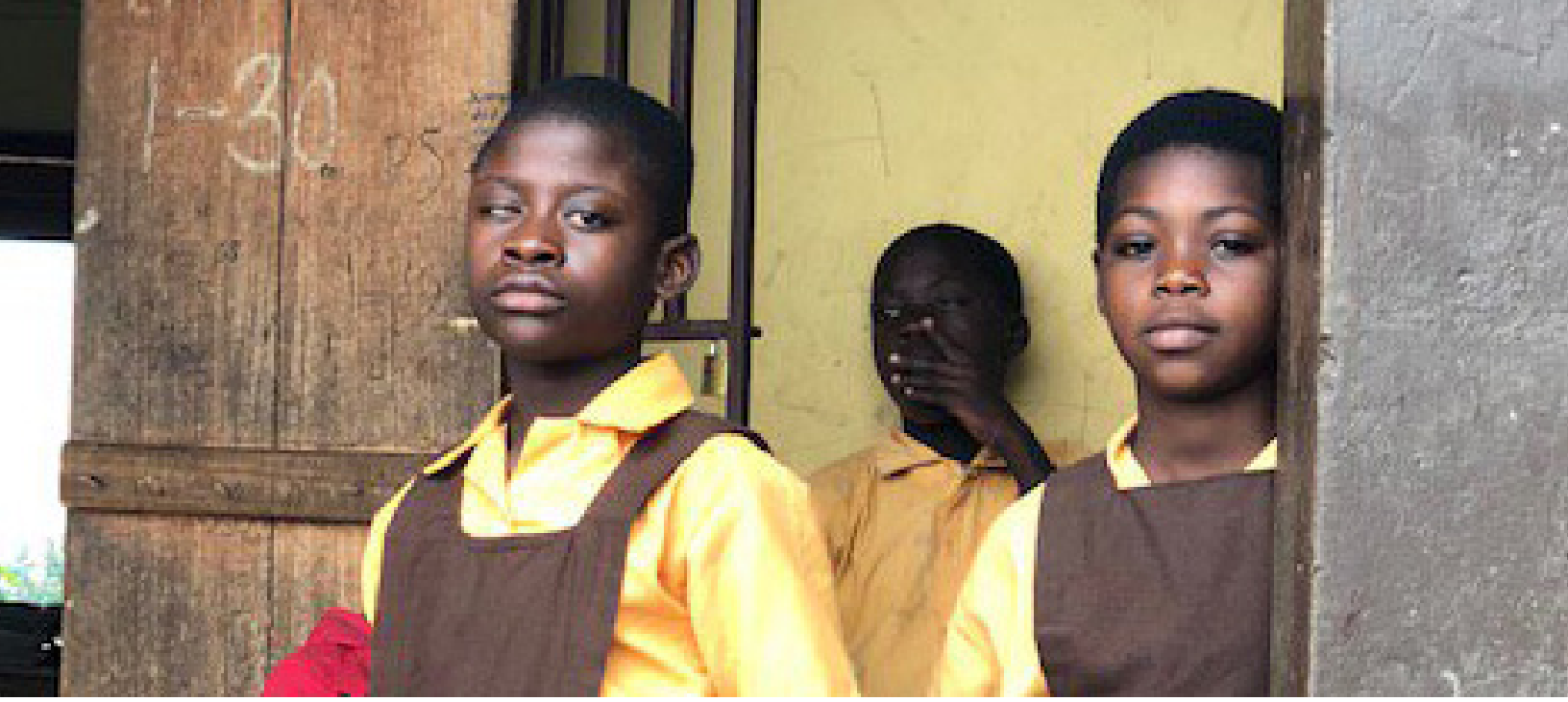


Photo Credit: Leonard Cheshire, UK

6. Understanding Accessibility

This section reviews...

- General features of accessibility, including visual and communication
- Accessibility features for chalkboard-administered assessments
- Accessibility features for printed-text assessments
- Accessibility features for technology-based assessments
- Additional accessibility features for learners who are blind or have low vision or who are deaf or hard of hearing

6.1. General Accessibility Features

Too often tests are designed without considering the accessibility needs of different students. Although accessible versions of assessments can be provided to students who require them, many countries do not have the required systems to appropriately identify students' needs and, thus, present them with alternative versions of assessments. **When all**

students are provided assessments with accessiblity features, students with a variety of needs will benefit even if they have not yet been officially identified as having those needs. Assessments in LMICs are delivered through various means, including chalkboards, paper tests, tablets, or technology based on the country's access to resources and materials. This section provides general guidelines on how to develop assessments with different types of accessibility features to support visual access, communication, and focus. The section also provides general accessibility guidelines that can be used regardless of how the assessment is delivered.

Understanding Functional Vision and Hearing

Having information about a student's sensory status is critical to effective teaching, learning, and assessment. Clinical assessments are typically conducted by vision and hearing professionals, including ophthalmologists, low-vision specialists, and audiologists. These professionals provide clinical diagnostic information about how well a student can see or hear. Functional or informal vision and hearing assessments are typically conducted by someone who can observe the student in natural settings, such as in the classroom, at home, or on the playground. The information from both a clinical and functional vision and hearing assessment can provide more accurate information about what a student is able to see and hear and what supports the student will need to ensure accessibility. However, these services may be limited within an LMIC context.

It should not be assumed that if a student is considered 'blind', the student does not have some usable vision. Legal blindness is a spectrum of vision loss that includes individuals who have low vision and those who have no residual vision. Therefore, some students who are identified as being blind may not use braille but may instead rely on large print. Additionally, students with a progressive vision loss may be transitioning from large print to braille and may need both accommodations to fully access the material. The same holds true for students who are identified as deaf. Some students who are deaf use hearing aids or assistive devices to maximize their residual hearing while also relying on a sign language interpreter to access communication.

In alignment with UDL research, almost all educational activities (including assessment) require some form of representation, response, and student engagement. In assessments, representation often refers to how students access the required task. How information is presented to students matters; if students cannot understand what is required of them, they will not succeed. Similarly, all assessments require students to respond by demonstrating

knowledge or skills. If the required format for response is difficult for a student, the teacher may receive inaccurate information about what a student knows versus what a student does not know. Finally, assessment content and requirements can either be motivating or demotivating (or even offensive) to students. If a student is not motivated to succeed, information from assessments may be invalid.

This section provides 'how to' information for getting started on accessible assessments. Whether students take a classroom, technology-based, or other type of assessment, this section provides information on how to include accessibility features. An Accessibility Checklist can also be found in **Annex C**.

6.1.1. Visual Presentation Accessibility Features

Certain steps can be taken to allow students with a wide range of visual function to access standard assessments. Having a clear assessment presentation is crucial as it supports a variety of learners including students who have low vision, learning disabilities, or other challenges visually processing information. It may also help students who are visual learners, as the assessment's presentation may make content become more relatable. For students who are blind or have low vision, additional considerations are needed to ensure that assessments are accessible. Below are general accessibility recommendations for students who are blind or have low vision, while additional accessibility suggestions for students who access print but have low vision can be found in **Section 7.5**.

Recommendations for Visual Accessibility

- Provide both auditory and visual cues for assessment items.
- Avoid items that require knowledge of specific visual information (for example, color and references to light/dark).
- Allow the use of magnifying glasses or other assistive devices which may be needed for learners who have low vision.
- For items that require looking at a screen or document, ensure that there is high contrast; that letters, symbols, and numbers are at least 14-point font; and that there is a large amount of white space on the page or screen.

6.1.2. Communication Presentation Accessibility Features

Assessments that rely solely on verbal communication to explain concepts or directions or express knowledge can create barriers for many students who have challenges hearing instructions or expressing their knowledge verbally. For example, students who are deaf or hard of hearing may face barriers in assessments when items are presented in verbal formats only or do not have corresponding visual inputs to help these students understand requirements. Test designers may also create barriers if students must engage with the assessment through audiological inputs or listening comprehension tasks. Students who are deaf, hard of hearing, or have audio processing disorder and second-language learners may need more time to process information auditorily than their peers who are hearing or may need information provided to them in their first language—sign language (Rose et al. 2008). In either case, quickly presented verbal information (such as instructions read aloud before an assessment or verbally presented assessment items) may disadvantage many different learners and create a comprehension barrier.

Likewise, students with communication-related disabilities, including those who have challenges using traditional speech, use AAC, or are not fluent in the language of instruction, may have challenges expressing information. In some cases, students may express the correct information verbally but have challenges with articulation that may make it difficult for teachers or assessors to understand the student. The following suggested accessibility features can reduce communication barriers.

Recommendations for Communication Accessibility

- Give clear step-by-step instructions, and present each instruction only as needed to avoid students getting confused or overwhelmed. For example, the following instruction can be provided as "1) read the paragraph 2) answer the questions at the bottom of the page" instead of "read the paragraph and then read the instructions at the end of the page."

- Provide clear objectives and instructions. Instructions should be presented visually using text and/or pictures as well as explained orally.

- Use clear and user-friendly language and avoid using complicated terminology.

- Use consistent language throughout. For example, do not use 'ball' in one sentence and 'soccer ball' in the second sentence to refer to the same object.

- Provide the assessment in students' first language, including allowing assessments to be completed in sign language.

- Ensure that the assessment does not require understanding specific sounds to address item constructs, for example, asking a learner what insect makes a buzz sound.

- Avoid items that may be an external experience to students who are deaf or hard of hearing (phone calls, specific sound references).

- Allow assistive devices, such as sound amplifications systems, AAC, or communication boards.

- Allow students to respond to questions in a variety of ways including orally and written and with assistive devices.

6.1.3. Other Accessibility Features

Many students may have challenges focusing on assessment content. Focusing challenges can be caused by intellectual disability, attentional disabilities (such as attention deficit hyperactivity disorder [ADHD]), prolonged hunger, or exposure to trauma. Therefore, tests can be designed in a way that helps increase motivation as well as promote focus.

Recommendations for Other Accessibility Features

- Allow untimed tests if it is not a part of the test construct.

- Design assessments that allow multisensory engagement, including manipulatives that can be used by all students (if they do not violate the construct tested).

- Include visuals, images, or icons to reinforce concepts.

- Design assessments so that breaks take place as part of the testing process.

6.2. Accessibility Features for Chalkboard-Administered Assessments

Chalkboard-administered assessments may put students at risk of not grasping information for several reasons. In chalkboard-administered assessments, students must listen to a teacher explain an assessment topic, read the topic off a blackboard, and often copy it to paper. During each of these testing procedures, students may miss important information and, thus, not be able to demonstrate their full abilities in the assessment. In addition, students who are blind or have low vision will need additional time to avoid such situations.

Recommendations for Chalkboard Accessibility

- Ensure the chalkboard is cleaned before writing on it. A clean chalkboard enhances contrast between the board and the information written on it, thus increasing legibility.
- Ensure items on the board are printed in a large, legible print.
- Ensure students who are blind or have low vision have access to a reader and/or scribe if needed.
- When explaining a particular item, be sure to point to that item so that students can focus on what is needed to be successful.
- When explaining an item, be sure to use a clear voice and language that students can understand in the class (unless the construct of the test dictates otherwise).
- If explaining an item, ensure simultaneous sign language is available if there are students who are deaf in the classroom.
- If instructions are provided to students in sign language, ensure the teacher or interpreter points to the particular item on which students should focus.
- If possible, provide students with copies of the assessment, so that they do not make mistakes copying from the board.
- If it is not possible for students to receive copies of the assessment, allow students to help one another copy test items from the board to ensure accuracy and not create barriers for students with fine motor or other writing difficulties.
- If written responses are required, allow accommodations for verbal responses.
- Provide students additional time to use alternate formats and processes.

The abovementioned points align with the UDL principles of "multiple means of representation, engagement, and response" outlined by the Center for Accessible Special Technologies (CAST) (2018).

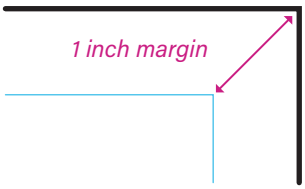
6.3. Accessibility Features for Printed Text

Standard, print-based assessments create barriers in comprehension for students who are blind, have low vision, or have other challenges with traditional print, including students with several forms of learning disabilities. All assessment should be visually accessible.

Recommendations for Printed Text Accessibility

Use 18-point font or larger. Ideally, assessments should also be printed in both 24-point and 26-point fonts to allow learners to choose the size that is most comfortable for them.

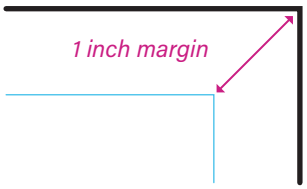
Provide high-contrast materials.



Ensure adequate white space on the page, including margins of 1 inch or more.

Ensure leading (space between lines of text) is 1.25 spaces or greater.

Locate text and relevant diagrams near each other on pages.



Ensure at least 1-inch margins on all sides of the printed text.

Sans serif

Arial Futura **Helvetica**

Block-serif

Rockwell Clarendon Courier

Use sans serif fonts (for example, Arial, Futura, and Helvetica) or block-serif fonts (for example, Rockwell, Clarendon, Serifa, Courier, and Memphis). In addition, sans serif, monospaced, and roman fonts have also been found helpful for learners with dyslexia while italic fonts are often more difficult for them (Rello and Baeza-Yates 2013).

Symbol versus Alphabet Text

The print size of nonalphabetic languages may also affect a student's ability to access information because of the detailed symbols required to read words, also known as complexity. For example, Arabic is two times smaller than English when printed from standard fonts on a computer. The print size chosen must consider the threshold of the smallest letter or symbol used in that language. Just because a standard large print may be 24-point font, it does not mean the smallest symbol will be at that font size.

6.4. Accessibility Features for Technology-Based Assessments

Technology-based tests are becoming more common and inclusive of students with disabilities, as they can reduce the need for many commonly used accommodations, such as human readers, large print, braille, and scribes, for students who are blind or have low vision or who are deaf or hard of hearing. Some of these tests will have accessibility features built into the platform. Students can also use accessibility software programs, such as screen readers, accessible calculators, and keyboards. An advantage of using technology-based tests is that students can control the font size, the speed of audio output, the color and size of the mouse pointer, and the contrast. If a test is computer generated, students need to have experience with the accessibility software and test platform they will use before the assessment. Many variables need to be considered, including what accommodations are built into the test and what technologies need to be compatible with the student's own adaptive technology. For example, if the student uses a screen reader, the test platform needs to be compatible with that particular screen reader. It is imperative that these compatibilities are sorted out before administering the test.

Technology-based assessments provide far more opportunities for adaptability in assessments than paper and pencil tests. Within technology-based assessments, students can

- **Adjust the volume** of audio inputs if they are wearing headphones or ear buds,
- **Adjust the size of visual stimuli** to be larger or smaller as needed,
- **Adjust the contrast** to reduce glare and provide sharper imagery,
- Use selection features such as **highlighting text for emphasis,** and
- **Use built-in tools** such as calculators or dictionaries.

However, whenever options and features are introduced on a technology-based assessment, students should have either had an opportunity to practice such features as part of their everyday classroom activities or, at least, have had an opportunity to practice extensively on the testing platform before the day of the assessment. In addition to ensuring that accessibility features are familiar to students, test designers should also ensure the following:

- **'Scripted' text** (that is, computer-generated reading of test items) is consistent, the information is easily understandable, and it is spoken in a language that students understand (Johnstone, Higgins, and Fedorchak 2019).

- If test items are read to students, simultaneous **sign language interpretation should be available,** either on screen within the assessment itself or from an interpreter.

- If items are read to students, **captions should be available.**

- Item boxes in which students must respond are **clearly marked and easy for an assessor or student to input answers.**

- **'Forward' and 'back' buttons are easily recognizable** and placed at the bottom corners of items.

- **Headings should be hyperlinked and follow a consistent format.** Numbering of headings is preferred compared to only making changes in color and font size which may be less noticeable to persons who are blind or have low vision.

It is important to note that not all LMICs have access to educational technologies. If technologies do exist within the country, there may not be equitable access to them. For example, learners in more remote or rural areas or areas with high levels of poverty may not have access to technology.

Photo Credit: ShutterStock

7. Universally Designed Classroom Assessments (Formative and Summative Assessments)

This section reviews...

- An overview of classroom assessments
- Features of universally designed classroom assessments

7.1. Understanding Classroom Assessments

Classroom assessments can be characterized as assessments 'as' or 'for' learning. As a result, the main focus of these assessments is to provide feedback to teachers and learners to support teaching and learning in classrooms (Clarke and Luna-Bazaldua 2021). However,

UDA and Giving Student Feedback

The purpose of both formative and summative assessments is to improve student learning and shift teaching strategies to ensure that students are learning. Giving students feedback on what they are doing right and areas in which they can improve is extremely important. UDA principles can be applied to a wide range of assessments, from formative to summative. UDL guidelines can also be used in classrooms to provide feedback to students. For example,

- **Multiple means of representation.** Teachers and students alike can provide written, gestural, or verbal feedback to help guide students' understanding.
- **Multiple means of action and response.** Students can receive feedback and inputs from fellow students in paired, small group, or large group exercises.
- **Multiple means of engagement.** Students can improve motivation by learning what forms of feedback are most motivating to students—whether the feedback should be written, verbal, artifactual (for example, stickers or other similar objects), or gestural (for example, thumbs up).

the nature of classroom assessments does not mean that they are low stakes. Classroom assessments can affect school decisions about student placement, progression to the next grade, and a teacher's approach for teaching individual students. If a teacher does not have an accurate picture of students' knowledge, it might affect what is taught, how it is taught, and the teacher's overall perspective on the learning abilities of certain students. Usually, classroom assessments are formative and summative.

- **Formative assessment.** The goal of a formative assessment is to gauge how a student is progressing with the new content and adapt teaching approaches as needed. Examples include quizzes, observations, homework assignments, class discussions, and so on.
- **Summative assessment.** The goal of a summative assessment is to evaluate a student's learning at the end of an instructional unit and compare it to standards or benchmarks. Examples include end-of-the unit exams and national assessments.

7.2. Universally Designing Classroom Assessment Features

UDA in classroom assessments can be implemented in ways similar to UDL because such assessments are often not bound by the constraints of standardization often found in large-scale assessments. Instead, teachers can focus on the primary goal of assessment: understanding what students learned. Examples of classroom assessments that can be used in high- or low-technology-rich environments are listed below.

- **Verbal, signed, or other responses.** Teachers can quickly gauge if students understand by asking questions and asking for verbal or signed responses. Higher-technology options for quick responses from students include 'clickers' that count student responses or low-technology options such as response cards that students can hold up in the air.

- **Observation through diaries/journals.** Students can write about their thoughts in relation to phenomena they are observing in the world or content they are learning in the classroom. A student's writings can provide a glimpse into their knowledge. Journals can also be visual with drawings or even collecting items from their surroundings to express themselves.

- **Curriculum-based measurement (CBM).** It refers to continuous assessments that students take related to the current content they are learning. These assessments are a way for teachers to continuously check progress. CBM may be a short math quiz or a read-aloud activity that occurs in class.

- **Authentic assessments.** Students can demonstrate what they have learned through solving real-life problems that require them to apply their academic learning.

- **Presentations and products.** Students can demonstrate learning through presenting their knowledge to others in the class or developing creative products (adapted from Salend 2009).

Each of these forms of assessment may be engaging to some students but demotivating to others. Therefore, teachers should use different modes of assessment so that they can best understand what and how students have learned in their classrooms. However, each of these assessments can introduce barriers to students.

Roles of Different Stakeholders to Support UDA in Classrooms

National assessment authorities:

- Pilot inclusive formative assessment or large-scale assessment that use UDA and record shifts in test scores between traditional and inclusive assessments and act on results.
- Commit to exploring UDA as means to better demonstrate student knowledge.
- Define test purpose and approach and constructs so that constructs can remain with additional inclusive practices.
- Train teachers and school staff on the value of UDA and inclusive practices.

School leadership:

- Support using UDA in formative and summative assessments.
- Develop policies that allow students to use different accommodations during assessment periods.
- For any IEPs, clarify what type of accommodations should be provided to students and if modifications are required how education will be aligned with the curriculum.

Teachers:

- Allow students to use accommodations during assessments and review which accommodations are most useful for the student.
- Use data from assessments to determine which students may be continuing to struggle and provide small group instruction.

Photo Credit: World Bank

8. Universally Designed EGRA and EGMA

This section reviews...

- The introductory steps to implementing UDA within EGRA and EGMA, including defining constructs, designing for accessibility, providing accommodations, piloting, and analyzing information
- That concepts may be used by national governments administering their own tests or using EGRA and EGMA

8.1. Understanding Large-Scale Assessments

As mentioned previously, the goal of UDA is to assess all learners using the same or similar test materials to have norm-referenced comparability data for a target population (AERA, APA, and NCME 2014). However, in the early 2000s, many countries were implementing national standardized assessments that did not capture what students in the country knew. Students scored so poorly that the test could not identify their current knowledge and skills (RTI International 2016). As a result, in 2006, USAID developed EGRA, with the goal of developing an instrument that could accurately measure how well primary grade students in LMICs were acquiring reading skills (RTI International 2016). EGRA is primarily used by early grade reading projects and, as of 2015, had been used by over 30 organizations in more than 70 countries.

Once EGRA had been widely used, a similar disconnect was addressed in assessing knowledge in mathematics. In 2008, EGMA was developed to accurately measure how students in the same countries were acquiring mathematics skills. As of 2016, this assessment had been used in 22 countries around the world (RTI International 2016). Recently, many organizations have tried to adapt or modify EGRA and EGMA to be inclusive of learners with disabilities with varying levels of success. Given this interest in ensuring that EGRA and EGMA are inclusive of learners with disabilities, this toolkit provides particular attention to these two forms of assessments. Furthermore, EGMA was selected for the Tajikistan UDA pilot and thus has additional relevance to this toolkit.

8.2. Universally Designing EGRA and EGMA

The 2014 EGMA toolkit provides an overview of the key domains and administration procedures of EGMA. The suggested UDA changes presented in Table 7 can likely be made to the assessment without changing the core domains and competencies being tested. These changes align with UDL principles of multiple means of representation and response, which are discussed in further detail in **Section 3.1** (CAST 2018). Furthermore, the examples from the Tajikistan UDA EGMA pilot and the adaptions were shared with the developers of the EGMA tool to ensure that the intended construct had not be changed as a result of the adaptation. This section provides an overview of adaptions for students who are blind and those who are deaf. For large-scale assessments, evidence-based practice does not recommend modifying assessments for students with cognitive disabilities but instead provide accommodations as needed (see **Section 5.2**). This is, in fact, law in the United States as it is seen to promote access to the curriculum with few exceptions provided (Landau, Vohs, and Romano, n.d.).

Learners who are blind or have low vision may need additional accommodations for EGMA or large-scale math assessments including having tests in braille, 1.5 or 2 times more extended time, access to a large print calculator, images in larger sizes and high resolution, and ability to mark up or take notes on the test itself (Perkins School for the Blind, n.d.). Learners who are deaf and hard of hearing should have access to instructions and any questions provided in sign language (Cawthon and Leppo 2013). It is important to assess first that they have strong sign language skills so that they fully understand the instructions and content of the instructions or written tests.

TABLE 7: Possible Adaptations for EGMA Subtests

Subtest	Adaption	Description
Number Identification	• Allow students to receive instructions in both written and oral formats. • Allow students to respond in their home language (including sign language) for all number identification items. • Allow students to write the number, say the number, or point to the number on a number line.	This will ensure that students do not encounter linguistic or communication barriers in naming numbers.
Number Discrimination	• Allow verbal (spoken) or signed identification of numbers in number discrimination items, along with visual inputs for students. • Allow 'this one' responses as students differentiate between the larger number in pairs rather than requiring them to say the name of the larger number.	This will provide students with multiple ways to see and hear the numbers they must discriminate from one another (that is, finding the larger number in a pair). The current EGMA toolkit requires students to say the full name of the larger number in a pair (for example, the student says the number '732' aloud), but this may introduce new and unnecessary memory requirements when the task is simply to identify the larger number in a pair or group.
Addition and Subtraction	• Remove time limits on addition and subtraction problems. In this domain, the construct is the ability to add or subtract.	Adding a time limit may introduce new anxieties for students or may encourage them to rush through items, thus providing assessors with invalid data.

8.3. Developing Literacy Assessments for Students Who Use Sign Language

Attempting to retrofit existing learning assessments to include students who are deaf or hard of hearing often results in assessments that are less effective because they are not easily adapted. For learning to be adequately addressed, instruments must be developed considering the unique learning and assessment needs of students who are deaf or hard of hearing. Below are three suggestions on how literacy assessments, including EGRA, can be designed to better include learners who are deaf or hard of hearing.

A. Sign language assessments should include at least two tasks: vocabulary and language comprehension.

Because language is critical to reading, a reading assessment that is appropriate and sufficiently sensitive to students who are deaf or hard of hearing should include language tasks that assess both vocabulary and language comprehension. For example, USAID Tusome Early Grade Reading Activity in Kenya assessed students who are deaf on four subtests (Piper et al. 2019). As sign language is not standardized in some countries, test development should be sensitive to regional variations in signs.

Vocabulary. Vocabulary knowledge can be assessed receptively (students select the picture that matches the sign) and/or expressively (students label the pictures). For both tests, the goals are to include sufficiently challenging vocabulary to be sensitive to the range of abilities possessed by students who are deaf or hard of hearing and to select stimuli that do not allow students to guess the answer due to sign iconicity. Selection of words should be based on language, not reading development. In other words, the selection of words on the vocabulary tasks should not be created based on text analyses as is typical when developing a literacy assessment instrument in a new context.

Language comprehension. The typical literacy assessment language comprehension task requires learners to answer questions about a story. A better task may be to present signed sentences individually to the learner (arranged in increasing complexity). For example, after watching a signed sentence, a learner who is deaf or hard of hearing can choose the matching picture out of four options.

B. Reading assessments should include at least three tasks: alphabetic knowledge, familiar word reading; and reading comprehension.

Alphabetic knowledge. Knowledge of the letter names (not sounds) is a foundational skill for students who are deaf or hard of hearing. This task should require learners who are deaf or hard of hearing to exhaustively name the letters in a language.

Familiar word reading. This skill should be measured by presenting individual words in order of complexity for students to read and provide the sign. Words that do not have a sign equivalent should be excluded.

Reading comprehension. Subtasks should present simple print sentences and have the learner select the correct picture from an array of three. Subtasks should start with simple phrases and slowly become more complex.

For each of these subtasks, it is critical for students who are deaf to understand what they are supposed to do. Visual cues may improve the validity of assessment results because students understand what is expected of them. Therefore, signed instructions, tactile/visual demonstrations by enumerators, and visual examples in the assessment itself may reduce construct-irrelevant errors (that is, those not related to students' literacy skills) in the assessment.

For the reading comprehension text, visuals that support comprehension of the passage can be part of all EGRA assessments. Such visuals should relate to information in passages but should not be merely decorative or distract readers from intended meaning of passages (Thompson and Thurlow 2002).

C. Fluency should not be a component of literacy assessments for students who are deaf or hard of hearing.

Fluency is typically embedded within literacy assessments. Fluency is, by its very nature, a measure of automaticity of reading knowledge, which is a more advanced skill than the ability to know the meaning of a printed word. Therefore, measuring fluency may add an unnecessary level of complexity to the assessment for students who are deaf or hard of hearing. Therefore, it may be better to only test knowledge (that is, what words are recognized) when assessing this population in the early grades. Stimuli should be arranged by difficulty and tested one at a time (Lazarus et al. 2022).

8.4. Developing Literacy Assessments for Students who Use Braille

When developing and administering literacy assessments for students who use braille, two important components need to be considered: (1) the student's braille literacy skills and (2) the accessibility and accommodations available to students who prefer to use braille on literary assessments.

Assessment of braille literacy. To support students' ongoing acquisition of braille, it is essential to determine their fluency in both braille code skills and broader literacy skills. A meaningful assessment of braille literacy skills should include (1) a focus on literacy, not solely or primarily on braille code skills; (2) the use of a multifaceted approach; (3) an ongoing assessment over time; and (4) a meaningful integration of the assessment and the student's instructional program. An assessment of braille literacy should include emergent literacy skills, formal literacy skills, and functional literacy skills (Region 4 Service Center 2015).

Accessing standardized literacy assessments using braille. Research indicates that students using braille or large print to access standardized tests perform similarly to their peers without visual challenges who use standard print (Stone et al. 2010). This suggests that the use of braille (with appropriate accommodations) does not affect student performance or adversely affect the validity of the assessment. However, braille should only be used for assessment after it is determined that the student is fluent in decoding braille and only if the student uses braille regularly for instructional purposes. The type of braille used for the assessment should match the version the student typically uses (contracted versus un-contracted). As discussed in other sections of the toolkit, when developing literacy assessments for students who are blind or have low vision, it is imperative to eliminate questions that use visual references (color, description of pictures, visual item identification) or that rely on visual recall.

Accessibility features and accommodations. It is increasingly common to have tests that are designed and developed with braille readers in mind. Students can use screen readers for computer-generated tests with braille-ready files, including visual descriptions of pictures, headings for each section, and alt text, to ensure accessibility for braille users. The following accommodations are in addition, and/or restated for their significance, to those indicated in **Section 6.1.1** of the toolkit and should be considered for all students who use braille for literacy assessments.

- Test developers need to have extensive knowledge of braille formats. Braille versions of assessments need to be edited and reviewed for accuracy.

- Additional time to take the test should be considered for all students using braille. Reading braille takes more time than visually reading print (Trent and Truan 1997).

- Assessments should be printed on good quality braille paper or card stock and checked to make sure the braille is not worn down and is still legible.

- One line of spacing should be between all lines of braille to avoid students 'catching' the dots from the line above. Guiding lines (continuous dot 6) should be placed on the appropriate subtasks (that is, vowel).

- Response accommodations, such as presenting answers orally to a scribe who records on paper, using a braillewriter or slate and stylus, or using a computer word processing program, should be considered.

8.5. Steps for Implementing UDA

Implementing UDA (within EGRA and EGMA) involves various steps. For any other large-scale assessment, the steps can be contextually modified.

Step 1: Build consensus on the importance of UDA with key stakeholders. Global policies have shifted toward promoting inclusion in schools. As nations turn their focus to access and improved instructional practice, assessment is often overlooked as a site of inclusion. Honest and forthright discussions among stakeholders about inclusive assessment and the utility of UDA for improving accessibility are a useful first step. Stakeholders often agree about the concept of inclusion but disagree on the best ways to include all students. UDA presents one way of framing assessment design to align with inclusive ideals.

Step 2: Build upon priority learning goals and standards to inform the constructs, target skills, and UDL strategies for an assessment. Nations often have standards or learning goals by grade level that can be used to inform *what* will be assessed and *how* standards and content will be assessed (Clarke and Luna-Bazaldua 2021). Once the scope of an assessment is defined, another preliminary step is to identify the assessment's target skills to ensure that the assessment is accessible and measures these skills accurately. Identifying both target and access skills is critical to promoting accessibility.

- **Target skills** are the tested constructs or what students must do to effectively demonstrate knowledge or skill on EGRA or EGMA.

- **Access skills** are those skills that students must have to successfully comprehend and respond to the test items.

A careful review of the target and access skills of any assessment constructs should be clearly articulated before developing an EGRA or EGMA subtest to ensure that the changes in design and administration do not affect the intended original constructs of the assessment. For example, EGMA requires students to listen to and respond to prompts in its Word Problems subtest. For this subtest, mathematical problem-solving is the target skill (what is being assessed), and listening comprehension is the access skill (what is needed to access the construct). Table 8 provides further examples of target and access skills frequently found in large-scale assessments.

TABLE 8: Examples of Target and Access Skills

Subject Area	Target Skill	Access Skill
Reading	Letter recognition (timed test)	Swift processing of letter names
Reading	Fluency	Spoken language
Mathematics	Number recognition (timed test)	Swift processing of number names or quantities
Mathematics	Mathematical reasoning through word problems	Reading skill, computation

Source: Adapted from Kettler (2015).

Step 3: Review questions and instructions for sensitivity and bias. All assessments might contain instructions, requirements, or examples that are either offensive or biased against particular populations within any given country or provide an unfair advantage to certain groups. Larger assessments (particularly national assessments, EGRAs, and EGMAs) should be shared with representatives from OPDs and other marginalized groups so that they can examine the assessments to identify and mediate potential biases and any item requirements that may be inaccessible, unfair, or unfamiliar to students with disabilities. For example, a student who is blind may not be able to identify an object based on color on a test. A student who is deaf or hard of hearing may not be able to answer a question about sounds that are alike or different. It is important that individuals who are deaf or hard

of hearing and individuals who are blind or have low vision are part of the test design and review process to make sure that information can be accurately accommodated through sign language and braille with no additional barriers. Having these individuals review items in advance may help stakeholders identify biases or assumptions in the existing assessment that can be adapted to allow more inclusive participation.

Step 4: Follow accessible presentation guidelines. It is important to follow National Center of Educational Outcomes (NCEO) guidelines for universally designed assessments to design tests in a way that is accessible to students with a variety of needs. **Section 6** provides more details that should be considered to improve the presentation of visual and communication accessibility features as well as other accessibility features.

Step 5: Review materials and images for diversity and representation. One element of UDA is to include visual images, stories, or materials. When developing such materials, test designers need to ensure that characters and images represent the diversity within the country. In general, at least 50 percent of characters should be girls and 15 percent of characters should be individuals with disabilities. Although some assessments do not currently have imagery, as images begin to be used for accessibility purposes, they should follow these guidelines. These images and characters should represent individuals in empowering ways, not doing stereotypical tasks. For example, women should be seen as community leaders and entrepreneurs instead of only doing household tasks. For more guidance in this area, please consult 'A Guide for Strengthening Gender Equality and Inclusiveness in Teacher and Learning Materials."[10]

Step 6: Conduct test reviews with content, assessment, and disability experts. Once a test is developed, it needs to be reviewed by experts. A formal review should be held with content area experts (such as experts in EGMA) to ensure that constructs were not changed, and nothing interferes with the original intent of the subtests. Second, a validation should be held with adults and professionals with disabilities (an OPD is ideal if possible) to ensure that no additional barriers can be removed. Most importantly, individuals who are deaf or hard of hearing and individuals who are blind or have low vision need to be part of the test design and review process to make sure that information can be accurately accommodated through sign language and braille.

Step 7: Train assessors and teachers. Universally designed assessments may look different or have slightly different procedures than assessments typically given to students. For this reason, it is important to develop training materials and then train assessors and

10 https://shared.rti.org/content/guide-promoting-gender-equality-and-inclusiveness-teaching-and-learning-materials-2#modal-29-628.

teachers on both the rationale (why a test is universally designed) and the procedural aspects of the assessment (how to administer it).

Step 8: Pilot the UDA tool. Before administering an assessment at scale, it is important to pilot it with a diverse group of students. Ideally, this would also include piloting the assessment with students who have been previously identified as having disabilities, such as with students who are deaf or hard of hearing, are blind or have low vision, have intellectual disability, have learning disabilities, and so on, to determine if any barriers or biases have not yet been identified and eliminated. Target populations for accessibility features should always be part of the pilot, so adjustments can be made as needed before full implementation.

Step 9: Provide accommodations as needed (see Section 5). Accommodations are additional supports that students may need when taking assessments or completing schoolwork. When assessments are designed accessibly, the need for accommodations may be reduced but will not be eliminated. Accommodations should be provided to students as needed. Decisions about accommodations should be made by the educational team supporting the student, including the student himself/herself, a family member, the teacher, and other support service providers. It is best to document these supports so that they are consistently used in both instruction and assessment. If the student has an IEP or an academic support plan, these accommodations should be documented in these plans. **Decisions on the type of accommodations provided should be based on the student's particular needs and not on the disability category or other characteristics. Never assume a student's needs by defining them by the student's disability status, gender, ethnicity, or other characteristics.** Once accommodations are used, they should be reviewed to see how they supported the student and if changes might be needed in future.

Section 5 of this toolkit provides additional information on accommodations as well as information on the differences between accommodations and modifications.

Step 10: Administer with a universal design approach (see Section 3). This step builds on CAST's UDL guidelines. These guidelines suggest that educational experiences should provide (1) multiple means of engagement, (2) multiple means of representation, and (3) multiple means of action and expression. Translated into the assessment context, this would mean that UDA will

- Allow students to access information and items both visually and auditorily;
- Allow students to respond either verbally or through pointing/circling/writing;

- Ensure assessors are engaging and warm so that students can easily converse with them. If possible, students should already know the assessors; and

- Adhere to domain-specific recommendations found in Step 3 above.

Step 11: Use data analysis strategies. Once the UDA strategies have been implemented and UDA is administered, further inferences about its accessibility can be made through data analysis. Ideally, the data would be analyzed by statisticians or other professionals who can select the best method to review the data. In addition, when presenting data, descriptive statistics and graphical representations should be used that can help make the data accessible to a diverse group of stakeholders.

Step 12: Share results with key stakeholders. Although UDA is a global approach aimed at improving assessment accessibility, the interpretation and use of data should be highly contextualized. Assessment data need to be interpreted within the framework of the cultural context and educational structure of where the assessment took place. Debriefing meetings with national and local stakeholders can help answer questions about *why* certain findings may have arisen and *what to do* with emergent results in relation to assessment or administration revisions. Ideally, messages should be tailored to address how the results apply to the specific context of different stakeholders.

Step 13: Learn and continuously improve UDA tools and processes. The pursuit for inclusion must be relentless and ongoing. After every UDA administration, lessons will be learned from the process of administration and the test data. There is no endpoint to a universally designed assessment. Rather, shared expertise of stakeholders and assessment data allow a version to be developed, piloted, and eventually fully administered. After the pilot and comprehensive administrations, data should be analyzed to test accessibility hypotheses. Additionally, as accessibility features are built into assessments, student response data can be examined to determine the impacts of features. Further, qualitative interviews with students can also inform the process. In sum, a test is never 'universally designed.' Rather, UDA strategies can be used to improve assessment accessibility and accessibility should always be reviewed and, if necessary, revised in subsequent versions.

Photo Credit: World Bank

9. Using Assessment Data

This section reviews...

- How to use assessment data in LMICs

Assessment data can be useful to teachers and school systems in a variety of ways. Assessments can:

- Inform teachers on how students have responded to instruction and on how to adjust teaching methods as needed,
- Measure the individual student's achievement compared to grade-level peers,
- Measure individual student progress toward specific benchmarks, and
- Ensure that all students benefit from instruction (Spinelli 2012).

Assessments also provide information to teachers about students who may struggle in the classroom and who may be at risk of academic failure. Students may struggle for many reasons, such as being in a language

minority, being exposed to trauma, experiencing poverty and hunger, or having a disability. **Using assessment data to identify struggling learners is preferred as other methods of identification may be influenced by teacher biases** (Alahmari 2019). For example, many checklists and evaluation tools ask teachers to provide their opinions of students. These opinions can lead to the determination of disability based on gender, behavior, or other demographics, such as race or religion.

Using assessment data to determine which students may benefit from additional intervention and support is a core element of a multi-tiered system of support (MTSS). MTSS is a schoolwide method for providing students with instruction and behavioral support at three levels: whole classroom instruction, small group instruction, and intensive/individualized instruction. Essentially, MTSS allows teachers to adjust the intensity of instruction based on students' assessment data as well as provide class wide and behavioral supports as needed (Hayes, Turnbull, and Moran 2018). The key features of MTSS include the following:

- "The creation of an MTSS team for planning and implementation
- Three tiers of increasing intensive instruction
- Use of evidence-based instructional practices
- Differentiated instruction through UDL
- Regular screening and progress monitoring
- Data-based decision-making by the instructional team." (Hayes, Turnbull, and Moran 2018)

FIGURE 3: Three Tiers for Instruction and Support

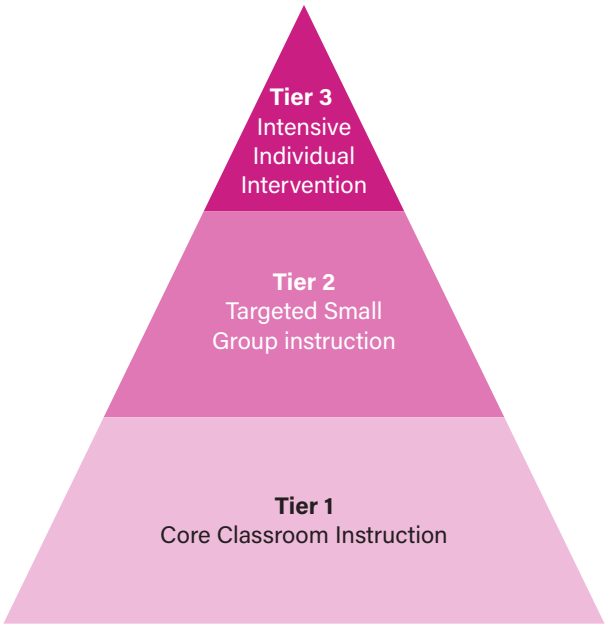


Figure 3 provides an overview of the three tiers for instruction and support. In Tier 1, students are provided with high-quality, evidence-based instruction by a trained teacher and then using formative and summative assessments indicates which students may not be meeting academic milestones compared to their peers. Based on these assessments, in Tier 2, students are provided additional targeted intervention within a small group setting in addition to the general curriculum over a period. Students who continue to demonstrate little

progress through formative and summative assessments may benefit from receiving individualized supports in Tier 3. These supports can include accommodations and adaptions in assessments and in the classroom setting as well as special education services within the inclusive classroom setting (RTI Action Network 2022). Table 9 provides additional information on inclusive practices that could be used in a classroom with the MTSS model.

One of the primary benefits of using assessment data to provide students with a tiered level of support is that students who are struggling can be proactively identified before they fail (Reynolds and Shaywitz 2009). Other aspects of MTSS that would apply to LMICs include

- Focusing on the needs of all students in the classroom including those who may struggle to learn,
- Providing different levels of instruction based on need,
- Establishing a collaborative culture where there is a collective responsibility to teach all students, and
- Recognizing that the tiers are fluid and students may move between tiers based on their needs and progress.

TABLE 9: Suggestions for Inclusive Practices by Tier

Tier	Recommended Inclusive Practices
Tier 1	• Use UDL practices for all students. • Use UDA for assessment.
Tier 2	• Provide small group instruction. • Provide accommodations if needed; for example, a child who is easily distracted in large groups could benefit from taking exams in a quiet setting.
Tier 3	• Provide individualized instruction and evaluate learners for possible disability. • Provide accommodations and explore if modifications are needed. For example, during a formative assessment, students with an identified intellectual disability may take a spelling test with fewer questions and more aligned with their learning level.

MTSS should be used to facilitate inclusion and never be used to remove students from the classroom.

It is important to recognize that while the general principles of MTSS are applicable to LMICs, other aspects of this approach must be further researched and piloted within each respective country to ensure that interventions reflect the country's context. For example, when MTSS is applied in HICs, it is assumed that approximately 80 percent of students will be able to make progress with quality evidence-based curriculum and instruction (Shapiro 2014). However, this percentage may differ in countries with high incidences of trauma, poverty, or stunting, all of which signify that more students may struggle to learn. Thus, the percentage of students succeeding with only Tier 1 interventions may be lower in other countries. The following are suggested steps on how MTSS could be applied in LMICs.

- **Step 1: Ensure that all students in early grades receive vision and hearing screenings.** Many LMICs have yet to administer routine and universal vision and hearing screenings within the classroom setting. Some level of vision and hearing screenings must be administered to rule out if learning challenges may be related to not seeing the content or not hearing the instruction. These vision and hearing screenings should engage caregivers, and schools should gain caregivers' consent before screening students. Once completed, schools should refer students to medical clinics, where available, to receive additional testing and potentially assistive devices, such as glasses. Teachers can also modify the classroom environment to support students with known vision and hearing challenges (Hayes, Turnbull, and Moran 2018).

- **Step 2: Use formative and summative assessments using principles of UDL.** Based on the guidance provided in this toolkit and in other evidence-based materials, all assessments should be designed to be accessible and to utilize the principles of UDL. Teachers may want to use data from curriculum-based assessments to support students in the classroom with tiered interventions (that is, assessments that use observations of students' performance on the local curriculum; Deno 1987) instead of data from EGMA, EGRA, or other standardized tests. Teachers can then consistently monitor progress through assessments based on relevant curricular content.

- **Step 3: Establish benchmarks and procedures for how teachers recognize and define success.** The benchmarks and procedures for determining a student's success may vary from country to country, within regions, and even between schools. Many countries' benchmarks related to literacy and numeracy already exist. If so, these can be used or adapted by a particular school or classroom.

- **Step 4: Determine where a student scores according to benchmarks.** Once data are obtained, teachers, with school leadership, should review student assessment scores and identify which scores may indicate a student's progress at an acceptable rate and which scores may indicate progress that is lower than the determined benchmark, placing the student at risk of poor learning or poor social, emotional, and behavioral outcomes (Hoover 2011). For example, a school has a grade-level or school-determined benchmark that students should read at 100 words per minute. However, a particular student is consistently reading at 70 words a minute, despite the evidence that many of their classroom peers have obtained the benchmark. The lower score for reading words per minute may indicate that this student would benefit from additional support in tiered instruction. Conversely, if the majority of the students in the class are not meeting this determined benchmark for reading words per minute, the selected benchmark may be too high and should be reexamined.

- **Step 5: Provide small group instruction to students below the identified benchmark.** Students who continue to struggle over time compared to their peers often benefit from small group instruction (Shapiro 2014). During this time, all students may be placed in small groups based on their learning strengths and needs. For example, students can be placed together in groups with other students who have similar challenges. One group may focus on decoding, another group may focus on fluency or comprehension, and so on. During small group instruction, students in the class who are doing better in literacy (or math) could use this time to work on more complex tasks. Suggestions for small group instruction include the following:

  - Organize a collaborative schoolwide team of teachers and staff to address the learning, behavioral, and social-emotional needs of all students.

  - Engage with school leadership, the schoolwide team, caregivers, and community members to find solutions for supporting small group instruction.

  - Strategically use school volunteers, such as caregivers and community members, to allow small group instruction and support other students in the classroom during small group instruction time.

  - Arrange groups of six or fewer students to be led by a teacher or a school volunteer. Teachers should lead groups of students with the most challenging learning and behavioral needs.

  - Strategically place students together based on similar learning needs.

  - Allow time for each teacher-volunteer/student group to meet three to five times per week.

- Allow 30 minutes for each teacher-volunteer/student session.

- Allow a time and place within the school day instead of outside school hours to reduce the burden on teachers, volunteers, and students.

- **Step 6: Continually monitor students' progress.** Progress monitoring is an important element of MTSS as it can help teachers understand how small group instruction helps each student learn. Although progress should be recorded for all students, particular focus should be given to those students who are unable to meet the determined benchmarks and are placed in small group instruction. Students who are successfully learning through teacher-led small group instruction may be able to move toward fewer days per week in small group instruction or to instruction led by a volunteer. However, for students who do not continue to make progress, additional time and supports may be needed. Again, students may struggle for various reasons including short-term challenges, such as a disruption to their home life or an illness that may subside over time. In these cases, dips and plateaus in performance should be anticipated and considered when planning small group instruction.

- **Step 7: Provide individualization and accommodations to students who continue to struggle to learn.** Students who continue to struggle with teacher-led small group instruction may benefit from additional supports including individualization and accommodations (see **Section 5**). All students have the right to learn in an inclusive environment so the need for individualization does not signify that a student should be removed from the classroom and placed in an alternative setting, such as a resource room or segregated school.

Teaching at the Right Level

Teaching at the right level (TaRL) is a remedial education program developed by the Pratham Education Foundation in India and has since been used in several countries in Africa (Banerjee et al. 2016). It supports the premise that students have the ability to learn at their own pace and allows teachers to provide additional support to students as needed. Although TaRL and MTSS are slightly different, both recognize that students may require various levels of instruction and this determination should be based on assessment data and not teacher opinion.

- **Step 8: Train teachers.** For MTSS to be successful, the school must reflect a unique cultural context that values the success of all students and recognizes the benefits of inclusive education. Importantly, teachers will require sufficient training on use of assessment data and on procedures for monitoring students' performance. Teacher training should include the following:

    - Disability awareness so that teachers understand the benefits of inclusive education and that MTSS and assessment data are used to support inclusion and do not signify a justification for segregation.

    - How to collect, analyze, and use assessment data to support decision-making when developing supports for students.

    - How to develop a collaborative whole-school environment to support MTSS.

10. Conclusion

As outlined within this UDA toolkit, incorporating assessment flexibility (without changing constructs) gives students with disabilities ample opportunities for inclusion. Cases will arise, however, in which students will need additional accommodations. The two-strategy approach of first applying accessibility principles (informed by UDA) and then accommodations for students will allow greater participation of students who are blind or have low vision, are deaf or hard of hearing, have intellectual disability, or have physical disabilities.

As UDL and UDA build on each other, **UDA is also more likely to be successful if UDL is being used consistently within the classroom.** By committing to implement both UDL and UDA, LMICs can give all students the opportunity to both learn and show what they have learned. As a result, learners who are comfortable expressing what they learn in different ways within classroom instruction will be more comfortable doing so in assessments as well. By committing to both UDL and UDA, more accurate information can be gathered on learning within the classroom—for all students.

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Glossary

Accommodation: Changes that reduce barriers and allow students to effectively receive information and express learning. These can include changes in the presentation, response, timing, scheduling, setting, or language used.

Adaptions: All students engage with the same content or construct, but the timing or the way items are presented or the way students respond to assessment items may be adapted (Bolt and Thurlow 2004), for example, adapting a test normally delivered in text format to braille format or allowing a student to respond in sign language instead of speech.

Assessment: The process of gathering and evaluating information on what students know, understand, and can do (Clarke 2012).

Augmentative and alternative communication (AAC): A set of tools and strategies that an individual uses in communication. These can include speech, text, gestures, facial expressions, touch, sign language, symbols, pictures, and speech-generating devices (International Society for Augmentative and Alternative Communication)[11].

Braille: A widely used touch system of reading and writing for people who are blind that uses a special code made from six raised dots on a grid (World Blind Union 2021).

Construct: The concept or content being tested.

Disability: A social concept that resides not in a person's specific impairment but in the interactions between the impairment and the attitudinal and environmental barriers they face (World Bank 2021).

Formative assessment: Provides real-time information that teachers can use to guide day-today instructions or to tailor teaching to the needs of individual students (Clarke and Luna-Bazaldua 2021).

Early Grade Math Assessment (EGMA): A test developed by RTI International to measure how students in the same countries are acquiring mathematic skills.

Early Grade Reading Assessment (EGRA): A test developed by RTI International to measure how well primary grade students in LMICs are acquiring reading skills primarily used by early grade reading projects.

11 International Society for Augmentative and Alternative Communication. What Is AAC? https://isaac-online.org/english/what-is-aac/.

Large-scale assessment: Provides information on the aggregated performance levels among students in the education system for a particular curriculum area and at a particular age or grade level (Clarke and Luna-Bazaldua 2021).

Modifications: Changes to what a student is assessed on or what the student is expected to learn.

Organization of persons with disabilities (OPD): An organization led, directed, and governed by persons with disabilities who compose a clear majority of its membership (United Nations Disability Inclusion Strategy 2021).

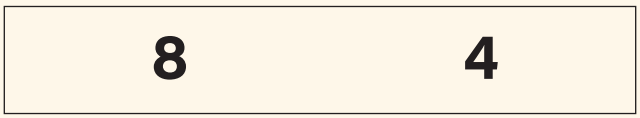
Summative assessment: Provides information on what students have learned that can guide decisions on the progression of students through the education system or decisions on education system policy (Clarke and Luna-Bazaldua 2021). Administered after the teacher completes instruction (AERA, APA, and NCME 2014).

Universal design for assessment (UDA): Assessments that are designed to allow the equitable participation of the widest range of students (Thompson and Thurlow 2002).

Universal design for learning (UDL): Adaptations to make learning more accessible to persons with disabilities that may be helpful to all individuals.

Annex A: Images of Number Lines Used in Tajikistan UDA Pilot

Gr 2 ND PRAC 1 #



Gr 2 ND PRAC 1 # 2

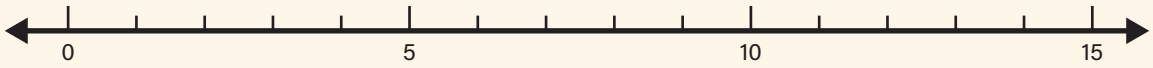
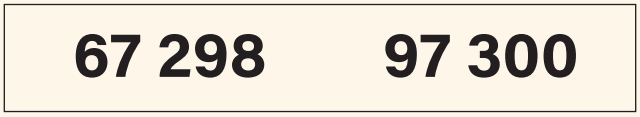


Image Description: Number line used for Grade 2 UDA test. The numbers 8 and 4 are shown for students, and a number line from 0 to 15 is provided.

Gr 4 ND 10 # 1



Gr 4 ND Item 10 # 2

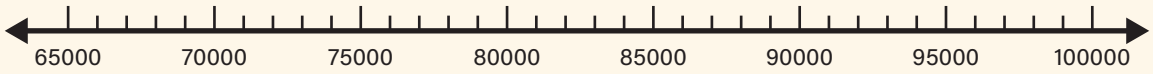


Image Description: Number line used for Grade 4 UDA test. The numbers 67298 and 97300 are shown for students, and a number line from 65000 to 100000 is provided.

Annex B: Word Problem Images Used in Tajikistan UDA Pilot

There are five students in the classroom

Gr 2 WP PRAC A # 1

Two students leave the classroom

Gr 2 WP PRAC A # 2

How many students are still in the classroom?

There are five football players sitting on a bench

Gr 2 WP PRAC B # 1

Two players leave the bench

Gr 2 WP PRAC B # 2

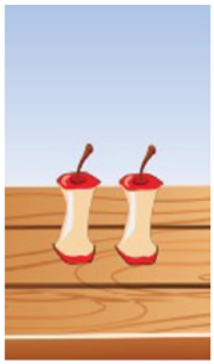
How many players are still sitting on the bench?

There are five apples in a bowl

Gr 2 WP PRAC C # 1

Two apples are eaten

Gr 2 WP PRAC C # 2



How many apples are still in the bowl?

Image Description: Three sets of pictures are present in the image. The first picture has students in a classroom, with five boys and girls in the top picture, but two leave in the bottom picture. The second group of pictures shows five football players on a bench, and in the second picture two players leave the bench. Finally, the third set of pictures shows a bowl with five apples, and in the second picture two apple cores are present, indicating two apples had been eaten.

Annex C: Accessibility Checklist

Accessibility Guideline	Yes/No	Recommended Changes
Paper-Based Assessments		
Are instructions presented in a language the student understands? (Adapted from Thompson et al. 2002)		
Is an example of how to complete a problem provided for every new item set or domain? (Adapted from Thompson et al. 2002)		
Are common words in the language of student instruction used for assessment instructions? (Adapted from Thompson et al. 2002)		
Are technical terms avoided unless necessary for the construct of the assessed item? (Adapted from Thompson et al. 2002)		
Is the item free from unnecessary language requirements that are unrelated to the construct assessed? (Adapted from Thompson et al. 2002)		
Do illustrations support the item's comprehension? (Adapted from Thompson et al. 2002)		
Is the text in at least 14-point font? (Adapted from Thompson et al. 2002)		
Is there adequate white space on pages and between images, numbers, and so on to facilitate the comprehension of items? (Adapted from Thompson et al. 2002)		
Computer-Based Assessments		
Is the text in 18-point font? (Section 508 guidelines)		

Accessibility Guideline	Yes/No	Recommended Changes
Can the test be resized as needed on the platform? (Section 508 guidelines)		
Is the information not reliant on color alone? (Section 508 guidelines)		
Can instructions be accessed verbally and textually? (Section 508 guidelines, UDL guidelines)		
Can items be accessed verbally and textually? (Section 508 guidelines, UDL guidelines)		
Is alternative text (alt text) provided for all images? (Section 508 guidelines, UDL guidelines)		
Are there keyboard equivalents for every mouse requirement? (Section 508 guidelines)		

Annex D: Additional Accommodations by Disability Type

This annex provides additional accommodations that may support students with a variety of disabilities.

Additional Accessibility Features for Students Who Are Blind or Have Low Vision or Are Deaf or Hard of Hearing

Students who are blind or have low vision and students who are deaf or hard of hearing often require additional accessibility features. Students who are blind or have low vision may require a variety of alternate formats, accessibility features, and accommodations to have full access to assessments. No single method will work for every student. Some students require more than one accommodation and may use alternate formats and accommodations interchangeably. Additionally, the student needs to be familiar with the accessibility features and use them on a regular basis. Table D.1 provides suggestions for accommodations for students who are blind or have low vison.

TABLE D.1: Suggested Accessibility Options for Blind or Low Vision Students

Alternate Formats	
Braille	Print all assessment sheets on braille paper or cardstock and reuse each assessment no more than three times; after each use, ensure all dots are still raised. Ensure that one line of spacing is between all lines of braille to avoid students 'catching' the dots from the line above.
Large print	Use 18 points or larger to allow for materials to be within large print.

Audio versions	Audio version of text including description of images and other graphics can help ensure accessibility of information.
Digital versions	Use screen readers, text-to-speech software, and keyboard access through braille or switches. Computer-generated testing can be compatible with braille displays and screen-magnification software.
Built-In Accessibility Features	
Tactile graphics	Maps, diagrams, and other technical illustrations may require the use of tactile graphics, and developing tactile graphics requires specialized knowledge and skill. Many students who use tactile graphics also require a written description of the graphic to accompany the tactile version. Haptics communication, such as using touch to draw images on the student's body, is also a strategy a teacher or assessor can use to provide a student visual information about images.
Image descriptions	Test items should not rely solely on pictures for information needed to answer the test items. Include image descriptions of all non-text items to provide more detailed descriptions of an image. Alternative text or 'alt text' provides a shorter, more basic description of an image.
Accommodations	
Devices	Students who are blind or have low vision or are deaf or hard of hearing should be allowed devices, including magnifiers, screen readers, recorders, and closed-captioned televisions (CCTVs).
Human readers	An individual who can read instructions, including test instructions or other elements of written text provided in the classroom setting.
Additional time and breaks	Students who are blind or have low vision may experience eye fatigue, and braille reading consumes more time than print reading (Trent and Truan 1997).

Scribes	Students are allowed to dictate responses to a scribe or notetaker.
Calculators	An accessible calculator should be permitted if scientific or nonscientific calculators are allowed for the general student population.
Manipulatives	Rulers, protractors, and other devices help students keep their place on the test and draw straight lines. An abacus is often used as an alternative to pen and paper to work through math problems.
Alternate response	Students are permitted to respond to test questions in an alternate format, such as orally, via a braillewriter, with a slate and stylus, and through word processing programs.
Bold, dark, writing devices	Students are allowed to use markers such as Sharpie pens.
Task lighting	Some students may require a light on their desk to illuminate the test paper.
Specialized paper	Assessments should use single-sided, bold-line, or raised-line paper.
Color contrast	Some students who have low vision require specific color contrast between the background and print color. White-colored paper often creates a glare that interferes with visual access.

Accessibility Features for Students Who Are Deaf or Hard of Hearing

Students who are deaf or hard of hearing constitute a diverse group with a wide range of language and cultural backgrounds. Some students who are deaf or hard of hearing use sign language while others use hearing aids, cochlear implants, or other assistive devices to maximize residual hearing. Many students use a combination of these devices. Table D.2 provides accommodations that may be useful for students who are deaf and hard of hearing.

TABLE D.2: Suggested Accommodations for Deaf and Hard of Hearing Students

Accommodations	
 **Sign language interpreters**	Sign language interpreters should be skilled in test situations and be familiar with the content being tested. If possible, students should use the same interpreters for testing and instruction.
 **Extended time on tests and interval breaks**	Additional time for tests or having the option of tests that are not timed as well as frequent breaks, depending on the needs of the students
 **Captioned media**	Captions should be used for any videos or instructions. This can be in combination with a sign language interpreter.
 **Scribes**	A scribe will record the responses that a student gives in sign language.
 **Assistive listening devices**	Students are allowed to use devices such as frequency modulation (FM) systems, loop systems, and pocket talkers.
 **Transcripts**	Students have access to transcripts for audio/video portions of the test.

Students with Multiple/Complex Disabilities and Students Who Are Deafblind

With a global commitment to the inclusion of all students with disabilities in accountability efforts, it is imperative to consider the needs of students with multiple and complex disabilities including students who are deafblind. Accommodations and modifications allow many students with disabilities to participate in a variety of assessments. For students who have multiple/complex disabilities and for those who are deafblind, participation in assessments may require a more thoughtful, individualized approach, and in some cases, an alternative assessment may be an appropriate option.

Educators need to understand that students with multiple/complex disabilities and those who are deafblind often have such significant challenges with access to information, communication, and learning that they are perceived to have an intellectual disability. If students have not learned formal communication and language systems and do not have access to incidental learning opportunities, they do not have the ability to learn new concepts and express their thoughts and ideas. However, this should not reflect on their intellectual capabilities. Having access to an educational program that has expertise in educating students with complex needs is imperative for a student to learn and thrive. It is critical that the support and accommodations that are part of the student's instructional program are present in the testing environment.

Given the heterogeneity of students who have multiple/complex disabilities and those who are deafblind, students may need to be supported with a variety of accommodations and modifications to meet their specific needs. For example,

- A student who is deafblind without enough residual vision and hearing to access visual sign language or print may require a tactile sign language interpreter and a braille version of the test.

- A student with limited motor ability who cannot use physical movement to indicate an answer and who is also deaf may need a sign language interpreter and alternative means of indicating an answer (such as using eye gaze instead of a written answer).

As appropriate solutions for these students can be complex, teachers and other support staff who work with these students on a regular basis should be involved in the planning and implementation of assessments to ensure maximum access. In addition to the accommodations listed for students who are blind or have low vision or who are deaf or hard of hearing, Table D.3 provides suggestions for accommodations that can be considered for students with multiple/complex disabilities and those who are deafblind.

TABLE D.3: Suggested Accommodations for Deafblind Students and Students with Multiple Disabilities

Accommodations	
 **Proper positioning with full access to usable vision/ hearing**	This may require a tilt screen or a raised desk. Students should be well supported so that they can focus on the assessment and not on trying to balance and support their body.
 **Extended time on tests and interval breaks**	Additional time for tests or having the option of tests that are not timed as well as frequent breaks depending on the needs of the students.
 **Communication preferences**	Students should be allowed and/or supported to use their preferred mode of communication, including picture symbols, AAC devices, and object symbols.
 **AAC**	Students should have access to augmentative communication devices such as an iPad or other technology devices that they regularly use to communicate.
 **Timing**	Give the assessment during periods when the student is in an alert state. Some students, due to medical conditions or medicines that they take, have times during the day when they perform more optimally.
 **Multiple means of indicating choice**	Students may use both pointing and eye gaze to indicate a test answer depending on their physical status that day.
 **Large workspace**	Students should have a workspace that is large enough to hold their AAC devices, manipulatives, and other support devices.

Accommodations	
 **Environment**	Students should have time to orient to the test environment if they are unfamiliar with it.
 **Color contrast**	There is contrast between the background and print, pictures, and objects.
 **Other accommodations**	Students who are deafblind have access to tactile interpreting, close-vision interpreting, or other modifications.

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