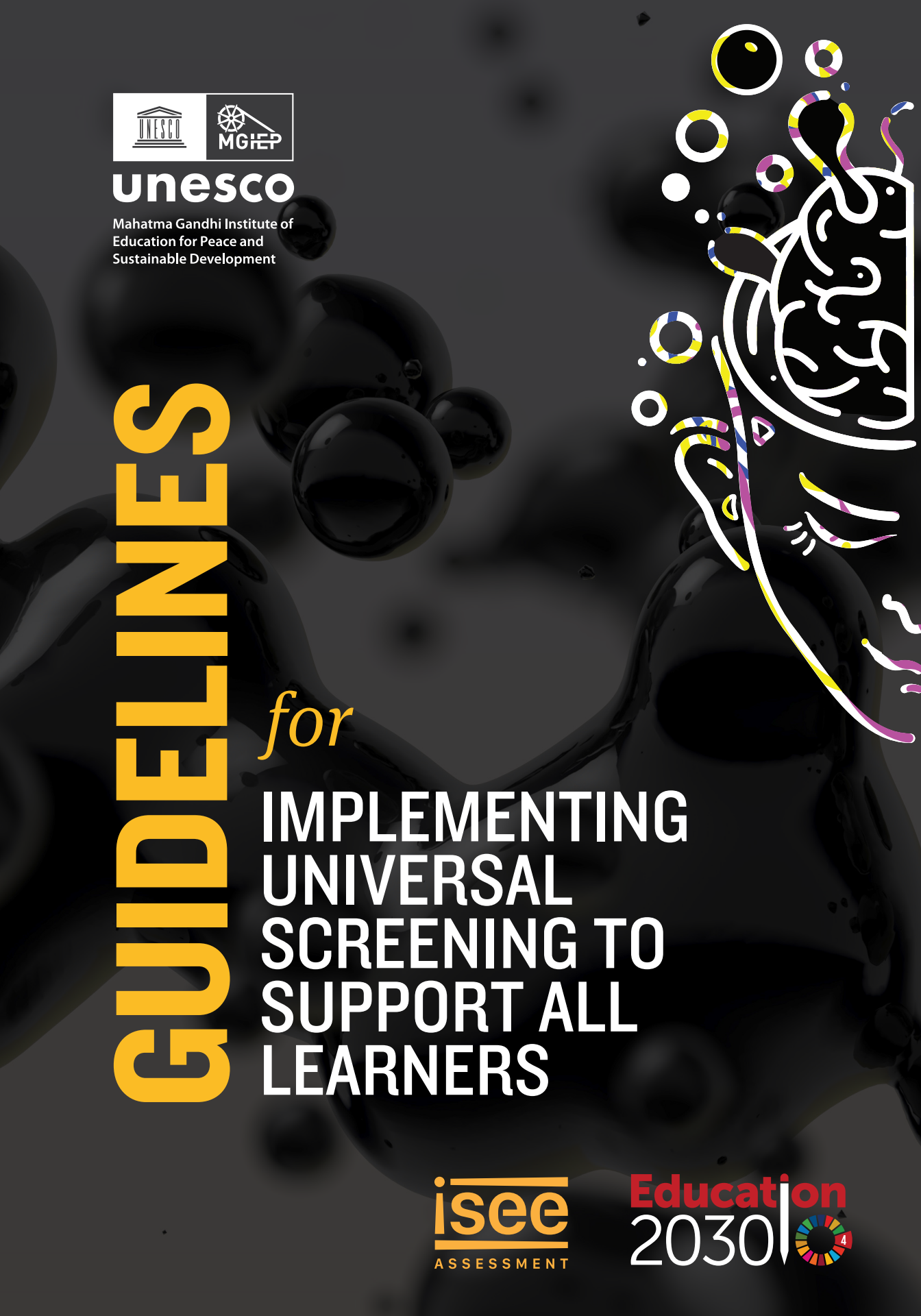

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Mahatma Gandhi Institute of Education for Peace and Sustainable Development

GUIDELINES *for* IMPLEMENTING UNIVERSAL SCREENING TO SUPPORT ALL LEARNERS

isee ASSESSMENT

Education 2030

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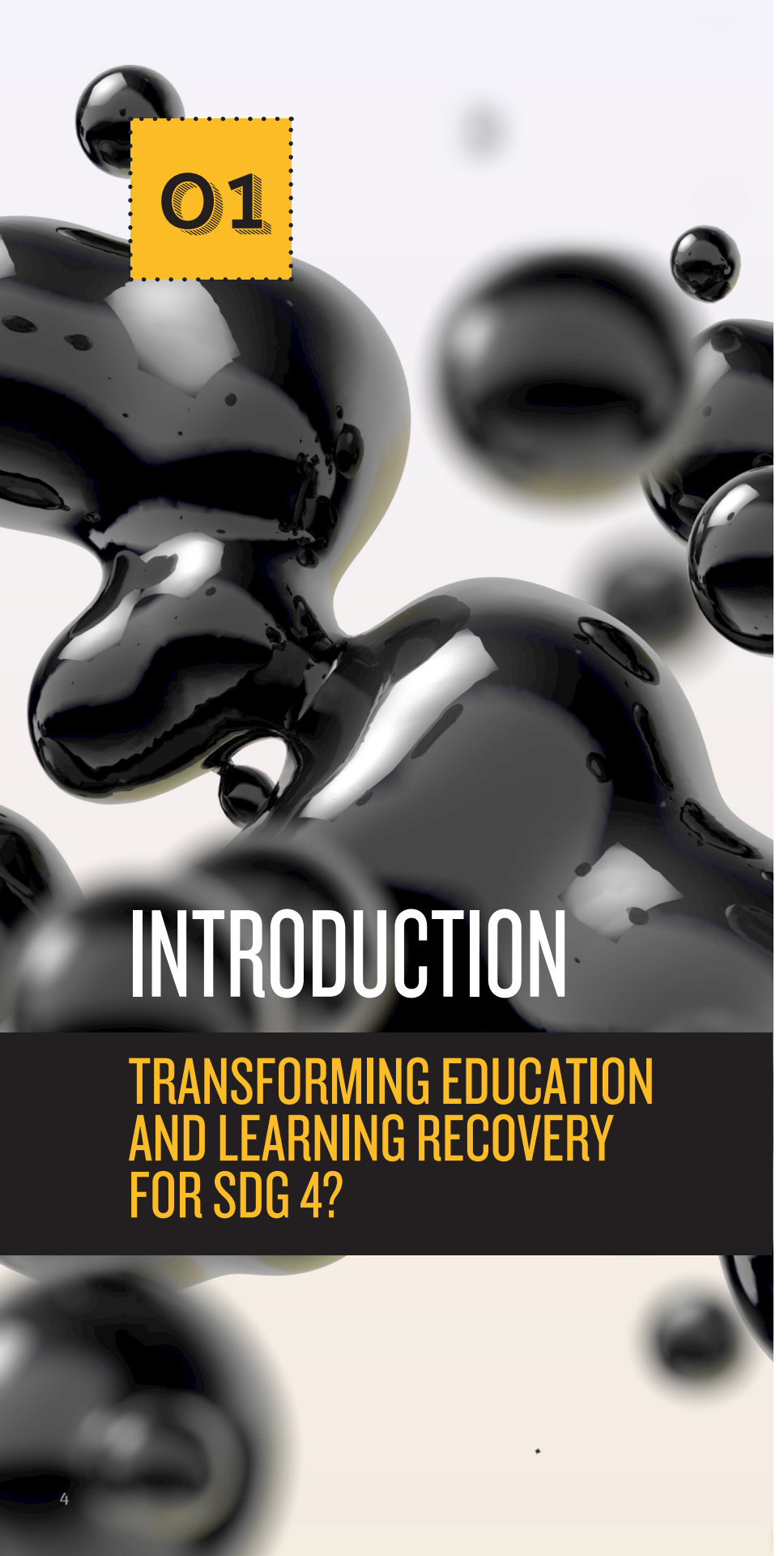


01

INTRODUCTION

TRANSFORMING EDUCATION AND LEARNING RECOVERY FOR SDG 4?

Universal quality education is a fundamental human right (UN, 1948), and is essential to ensure freedom and well-being for all humanity (Sen, 1999, p. 296). While there are common competencies that all people should be motivated to develop, human beings are unique, and therefore their needs and paths towards these competencies are distinct.

Thus, as indicated in Article 26 of the Universal Declaration of Human Rights (U.N. General Assembly, 1948), education's promise to fully develop the personalities of all individuals can only be achieved when the individual learner's needs are acknowledged and addressed. Sustainable Development Goal 4 (SDG 4) aims to deliver quality education throughout life, ensuring no one is left behind.

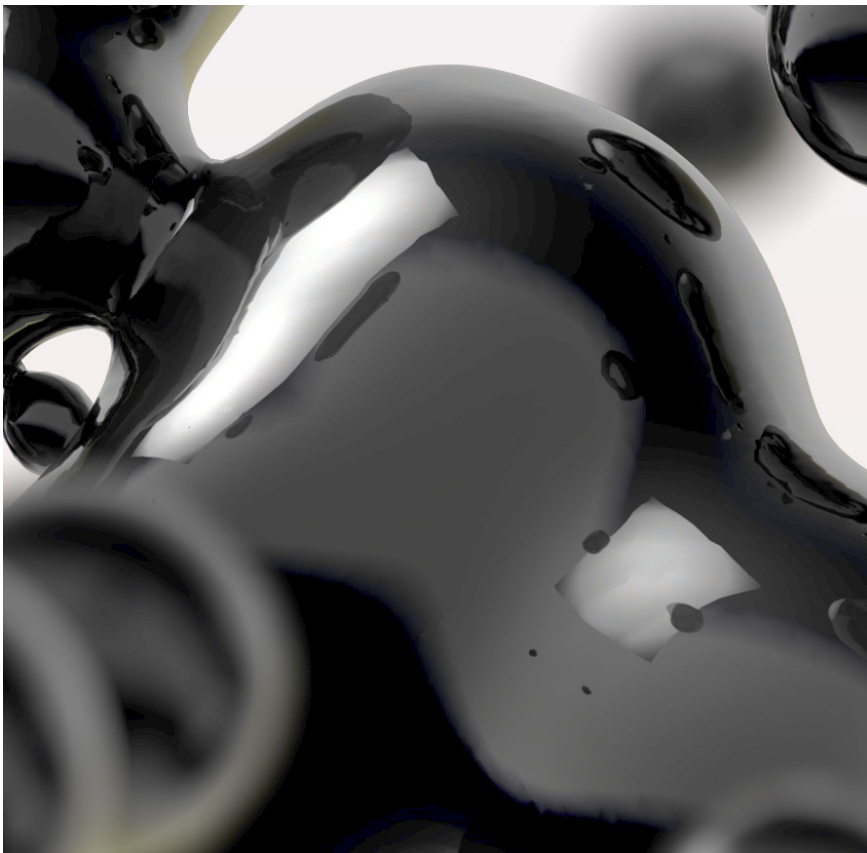
However, education is at a precarious crossroads, threatening the achievement of SDG 4. Learning poverty—the inability to read and understand a simple text by the age of ten—is abysmally high (Azevedo et al., 2021). Prior to the onset of the COVID-19 pandemic, learning poverty was at 53 per cent in low- and middle-income countries (LMICs) and as high as 80 per cent in low-income countries (Azevedo et al., 2021). In 2020, the pandemic led to school closures and huge losses in learning. As a result, learning poverty is set to increase by at least 10 per cent (Azevedo et al., 2021). Further, school dropouts that ranged between 3 and 6 per cent pre COVID-19 are expected to increase to 5 to 8 per cent post pandemic.

School closures have also highlighted a silent mental health pandemic related to anxiety and stress in learners. During COVID-19, anxiety and stress levels in young people from numerous countries intensified, indicating a significant risk for social and emotional well-being (OECD, 2021). Specifically, anxiety and stress levels increased from 19 to 39 per cent in the United Kingdom, 8.2 to 30.8 per cent in the United States, 13 to 21 per cent in Australia and 6.1 to 15.6 per cent in New Zealand.

Considering childhood and adolescent social and emotional well-being is closely related to academic outcomes, educational attainment and continuation in higher education (Carneiro, Crawford and Goodman, 2007; Gutman and Schoon, 2013; Gotlieb et al., 2022), experiences of reduced social and emotional well-being due to pandemic-related school closures are likely to worsen learning poverty further.

1.1 How can learning poverty be addressed and learning loss recovered?

In March 2022, the first International Science and Evidence based Education (ISEE) Assessment report (Duraiappah et al., 2022) was released. A product of 300 authors from 45 countries, the ISEE Assessment identifies and determines the most thorough, reliable and replicable evidence pertaining to learning and education to achieve SDG 4. Moreover, it provides recommendations to ensure all learners' needs are addressed.



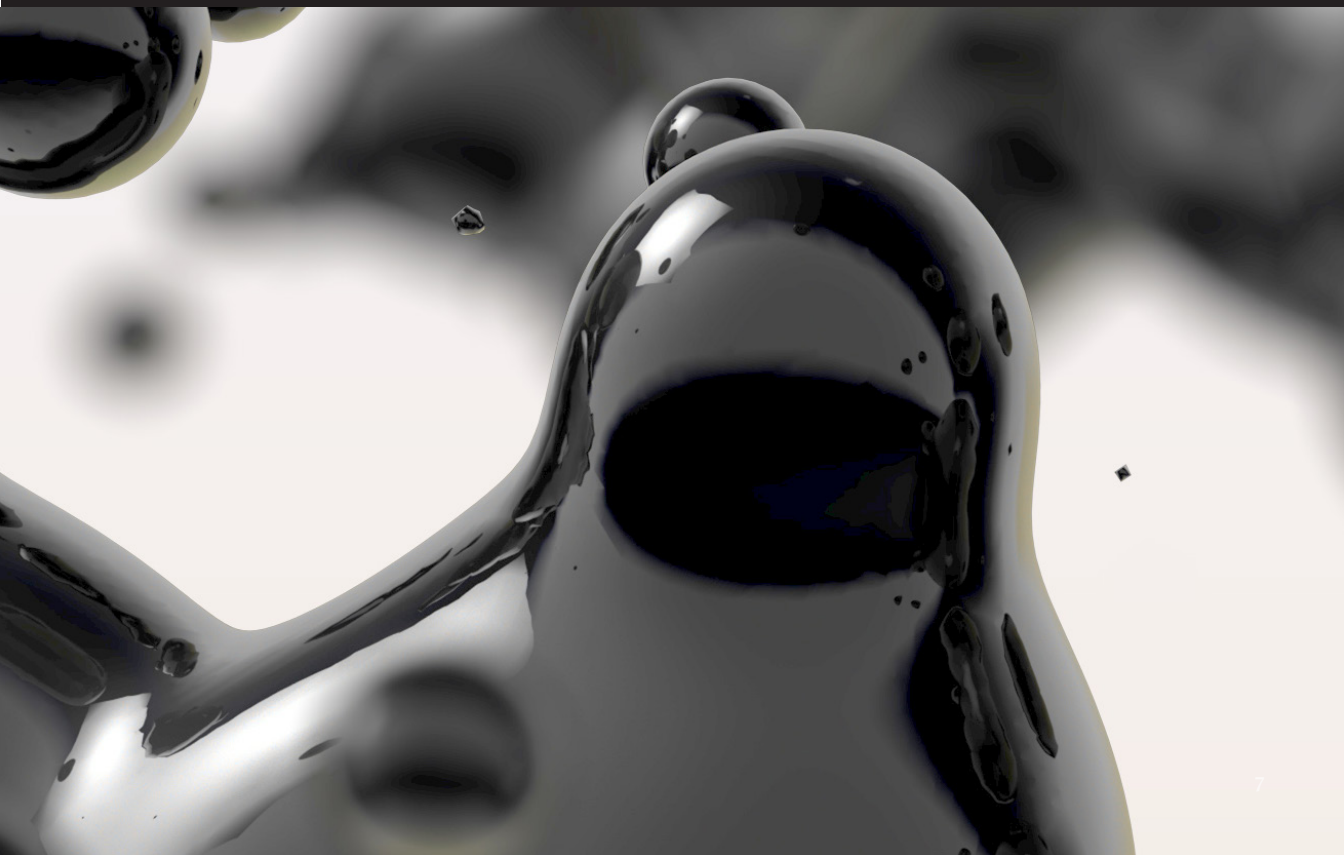
Following are some relevant key findings of the ISEE Assessment (Duraiappah et al., 2022):

01 Every learner learns differently and follows an individual trajectory.

02 A whole-brain learner-centric approach to learning strengthens the interconnectedness between cognition and the Social, Emotional and Behavioural (SEB) domains necessary to achieve quality learning outcomes; individual differences in this interconnectedness critically influence the development of cognition and academic competencies and knowledge (Gotlieb et al., 2022).

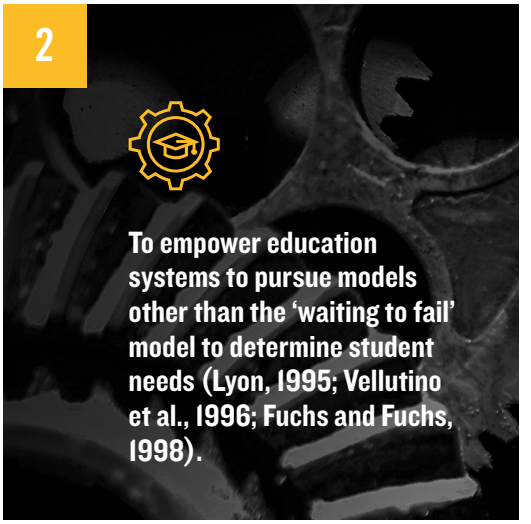
03 Awareness of students' knowledge levels, strengths and weaknesses helps teachers to provide quality education for all students (Darling-Hammond et al., 2020).

04 Early intervention is key to improving academic, social and emotional outcomes (Linzarini et al., 2022).



On the basis of the above findings, one of the key recommendations of the ISEE Assessment is to introduce early universal screening (see box 1 and box 2)., intervention and monitoring in the academic and SEB (or global) domains. Structured processes in education systems will thus identify and meet the needs of all learners, and enable design-inclusive education and learning (Whitley and Hollweck, 2020; Duraiappah et al., 2022).

Targeted at policy-makers, the document provides guidelines for universal screening for all and aims to serve two purposes:



Purpose of universal screening

The primary purpose of universal screening is to identify students' needs based on their strengths and challenges. Individual differences in student needs could be biological but they can also be due to environmental influences. These may include early presence or absence of exposure to print; presence or absence of play and reading with parents and other caregivers in the early years of development; quality or poor pedagogical instructions; and pleasant or stressful home and/or school environments. However, they should not be used to diagnose or label learners.

Universal Screening Vs Learning Assessment

Decision-makers and practitioners should not equate universal screening with learning assessments or use learning assessments as a screening measure. Universal screening and learning assessments have different purposes and characteristics, as outlined below.

CHARACTERISTICS	UNIVERSAL SCREENING	LEARNING ASSESSMENT	
Purpose	Identify students at risk of poor learning outcomes and their learning needs	Infer student learning and development	
Type	Academic, SEB, combined	Assessment for learning	Assessment of learning
Frequency	Two or three times a year, starting at the beginning of the school year	Continuous process in the classroom	End of semester or school year
Duration	Short; thirty to forty-five minutes	Very brief to short (a few to several minutes)	Long (several hours)
Method(s) used	Standardized tests; teacher and parent questionnaires (if necessary)	A variety of classroom methods	Standardized test
Primary action	Determine intervention type, strength and/or special education and medical diagnosis referrals	Improve and adapt teaching instructions and pedagogy	Determine mastery levels of students at current grade; use data to inform learning progress to district education boards

02

WHAT IS UNIVERSAL SCREENING?

Universal screening is a formal process administered by teachers and educators in a classroom, school or district to identify students at risk of or with cognitive, SEB and/or specific academic challenges. It uses standardized tools to identify and assess all students who can potentially benefit from particular attention, resources and intervention (Feil, Severson and Walker, 2002).

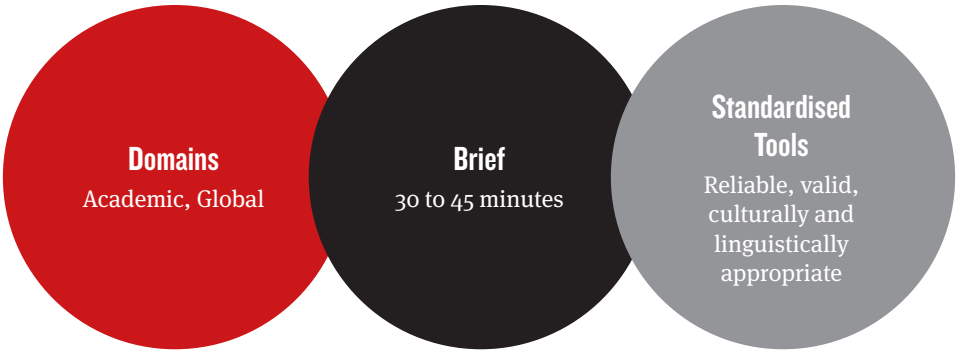
2.1 Core features

The core features of universal screening (see Figure 1) are:

- it screens one or multiple spheres of knowledge or activity (domains);
- it takes a short time to administer; and
- it uses a set of standardized measurement tools in each domain.

The standardized process guides teachers and educators but also allows flexibility so that teachers and parents can participate in the decision-making process.

Figure I: Core features of universal screening



2.2 Domains, constructs and competencies

Screening of competencies within the SEB construct will identify learners struggling with SEB problems who may be at risk of developing significant clinical difficulties, including anxiety, depression, and mood and conduct disorders

The scientific evidence presented in the ISEE Assessment shows that both the global domain, which includes SEB and cognitive constructs, and the academic domain, which comprises literacy and numeracy, are necessary to achieve learners' potential so they may become active global citizens who care for 'self' and 'others' and champion peaceful and sustainable societies (Ergas et al., 2022b; Gotlieb et al., 2022). The global domain influences the academic domain and vice versa, with continuous interaction between the two. Thus, universal screening should include screening tools for both domains.

This pivot towards the inclusion of the global domain in universal screening highlights the shift in understanding of the learning process: that learning is a cognitive and emotional process involving the whole brain. In other words, social and emotional components have a significant influence on the cognitive processes involved in academic learning. For example, including screening of competencies within the SEB construct will identify learners struggling with SEB problems who may be at risk of developing

significant clinical difficulties, including anxiety, depression, and mood and conduct disorders. The appendix (see Figure A1) provides examples of constructs that may be measured under the academic and global domains respectively.

2.3 Strengths of universal screening

An extensive body of research has established the following benefits of universal screening.

1

Universal screening allows teachers to be informed about the prior knowledge, beliefs, strengths and weaknesses of all students—not just those at each end of the spectrum, that is, those at risk or with clinical difficulties, or gifted students. For each student, what needs teaching (and how) is highly dependent on what they know and how they learn (Allen et al., 2022; Bonte et al., 2022; Linzarini et al., 2022). This continuum of information gives teachers a substantial advantage in being aware of their classroom's learning and knowledge profile and how they can activate individual students' prior knowledge as they develop curriculum plans (Nation, 2019).

2

Universal screening identifies gifted students and those at risk (e.g., with autism spectrum disorder) who show savant skills in specific domains. In addition, universal screening increases the representation of minority and low-income students in gifted education (Card and Giuliano, 2016) and reduces over-representation of minorities in special education (Raines et al., 2012).

3

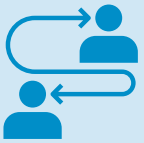
While brain maturation follows a universal blueprint, it is a complex and dynamic process that results in subtle individual differences as a result of genetic and environmental interactions (Allen et al., 2022; Bonte et al., 2022; Cachia et al., 2022). Universal screening, primarily evaluative and administered in the early years of schooling (K–2 or K–5), helps identify these subtle learning differences in the population and provide appropriate intervention. See Table A1 for best practices in the universal screening process.

03

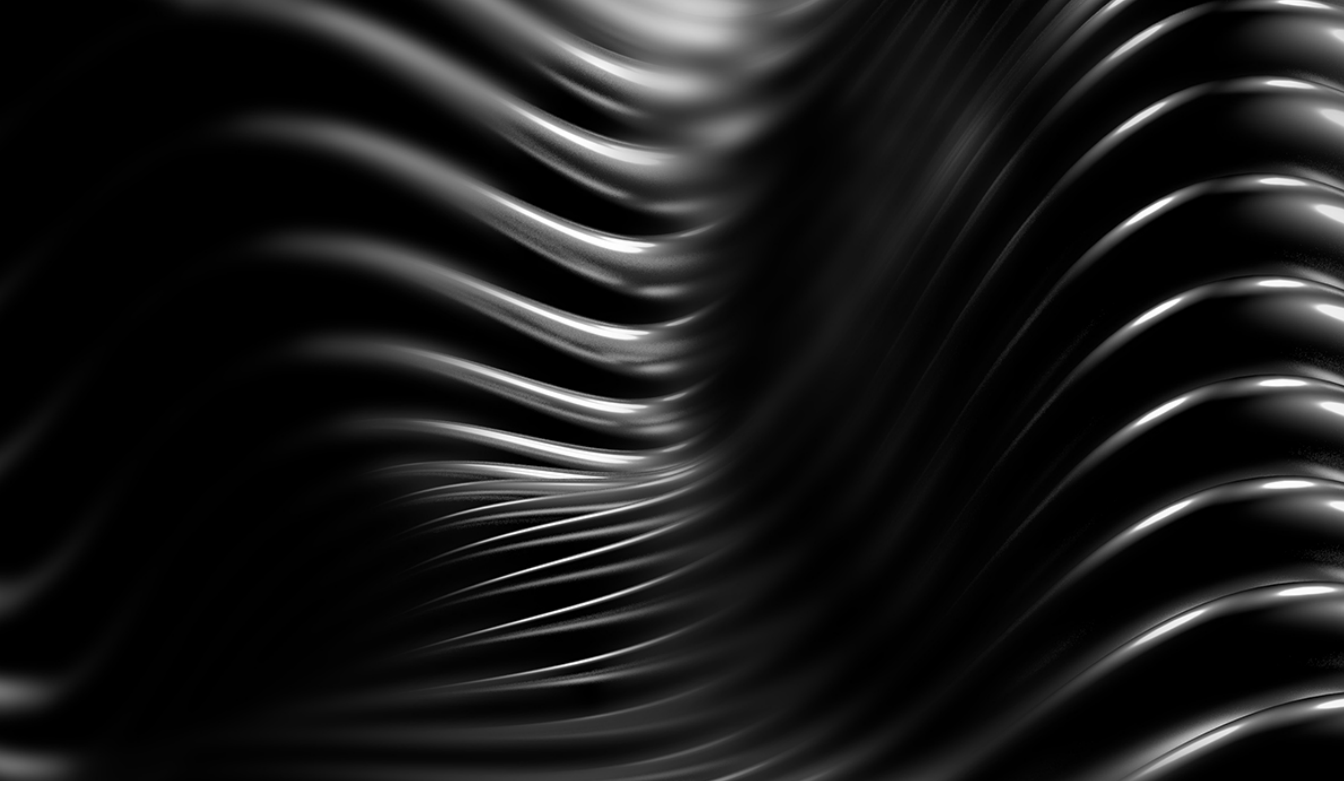
UNIVERSAL SCREENING: IMPLEMENTATION STEPS

The following subsections provide detailed guidelines on how to implement universal screening at national, state or district levels. Four essential steps are involved: identify, inform, assess and administer (see Table 1).

Table 1: Universal screening: steps and components

UNIVERSAL SCREENING: IMPLEMENTATION STEPS		REMARKS
 **Step 1: Identify**	• Convene team • Conduct situational analysis • Define goals • Identify screening instruments • Construct universal screening tools • Plan analysis and scoring procedures • Determine administration timeline and delivery mode	• Relevant actors and implementation tools are identified • An expert team helps in top-down implementation and design • Micro-level teams carry out situational analyses • Micro-level teams inform the expert team on defining the aims of the screening process, identifying screening competencies and constructing the screening tools based on the needs and context of the school communities in the district
 **Step 2: Inform**	• Inform parents and caregivers • Train teachers and administrative staff	• Parents and caregivers are informed about the universal screening process, its aims and strengths, data analysis process, data storage and usage protocols, and consent procedures (if any) • Teachers and administrative staff are informed about, and educated and trained in the universal screening process and in building school–community partnerships
 **Step 3: Assess**	• Prepare for data collection and storage • Set up identification, placement and review procedure • Run pilot study	• Prepares for post-screening and assesses if all requirements to carry out screening and post-screening processes are in place • A design, placement and review committee guides post-screening implementation steps • The pilot study smooths out design and implementation challenges
 **Step 4: Administer**		

The next section provides details on the processes involved in each of the above steps.



STEP

1

Identify

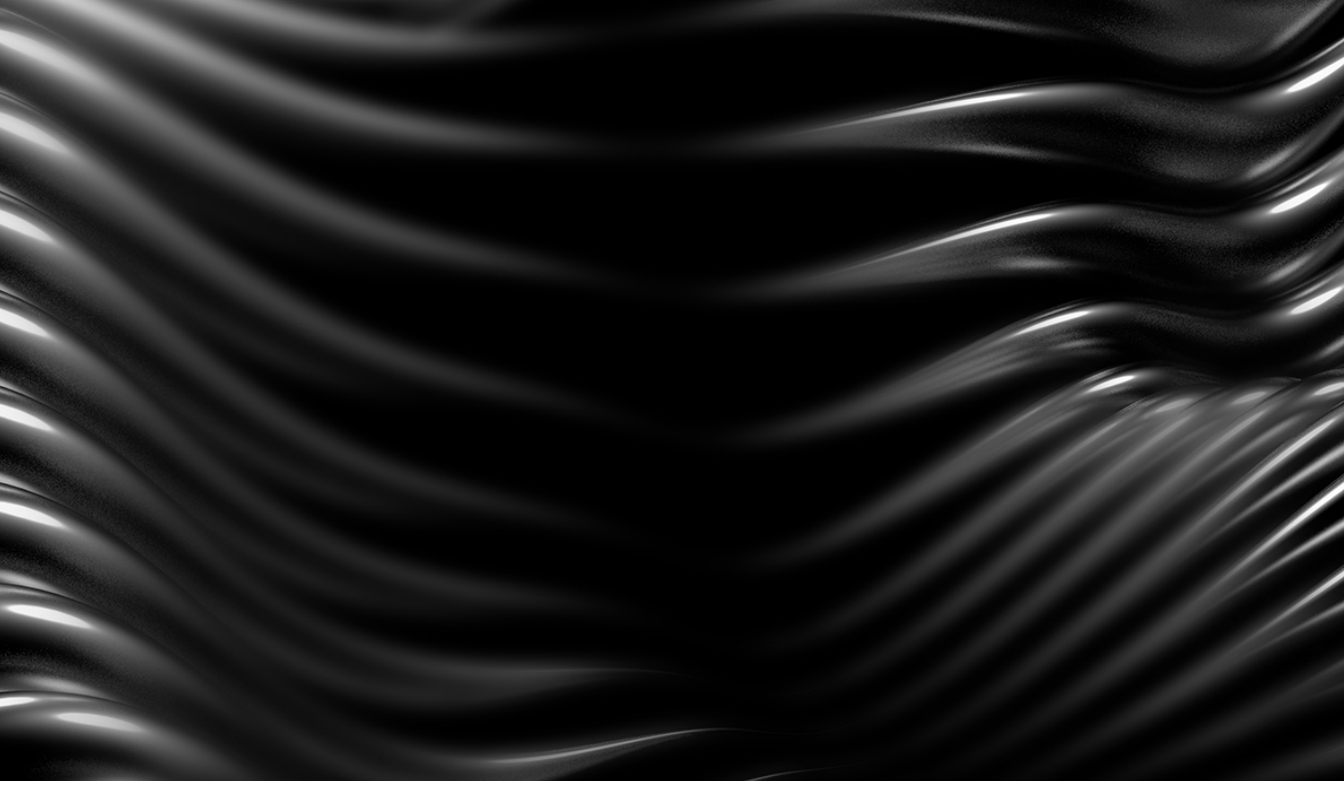
This step has seven essential components.

3.1.1 CONVENE TEAM

Implementation of a robust and long-term screening process requires dynamic and iterative interactions between different teams at macro and micro levels. Decision-makers should recruit a multidisciplinary team of experts at national or state level to meet the entire spectrum of conditions. This team should include psychologists, educators, cognitive scientists, policy-makers, statisticians and digital experts (Verlenden et al., 2020, p. 7). In addition, it is essential to establish several micro-level teams to carry out the groundwork in situational analysis.

3.1.2 CONDUCT SITUATIONAL ANALYSIS

Situational analysis needs to be carried out by micro-level teams in different states/districts to evaluate the needs of all learners and the provisions that are in place to support them. Also called a needs assessment, the analysis is conducted during the early developmental phase of the screening process. Situational analysis should consider, among other things: (1) the current extent of identification of students facing learning challenges in both academic and global domains; (2) the current extent of support provided to students with challenges



in the form of specialized teaching instructions, interventions and special education schools; (3) the urbanicity of the school; (4) the availability of digital aids to support the needs of all learners; (5) the digital literacy of the teachers; (6) the socio-economic, racial, ethnic, religious, cultural, gender-based and linguistic backgrounds of the students; (7) the attitudes and preconceived notions of parents, teachers, administrative staff and the broader community towards students with learning challenges; and (8) the nature of funding available to carry out universal screening and follow-up interventions.

3.1.3 DEFINE GOALS

The universal screening tool seeks to identify the needs of various students by assessing their strengths and weaknesses. The goals for screening practices should be made clear by the team and legislative bodies. Definition of goals can help develop a national database of benchmarks for cognitive and SEB development. When used continuously, screening can also identify research gaps that need addressing in order to build a longitudinally robust screening process.

3.1.4 IDENTIFY SCREENING INSTRUMENTS

There are several considerations when selecting screening instruments to measure competencies in different constructs in both the academic and global domains. Since the purpose of screening tools and the entire screening process is to predict outcomes, screening tools must have good classification accuracy. They also need to be cost-effective and easy to administer, score and interpret (Jenkins, 2003). Finally, they must have positive consequential validity,[1] in that students must experience a net positive effect from the screening process (Messick, 1989). See the appendix for features of reliable standardized tools.

3.1.5 CONSTRUCT UNIVERSAL SCREENING TOOLS

Identifying or constructing the appropriate tools for universal screening is essential but challenging and consists of the steps outlined in Box 3. Trained school personnel and teachers typically administer universal screening tools.

3.1.6 DETERMINE ANALYSIS AND SCORING PROCEDURES

Once the screening tools have been selected, the team must determine how to code and score the test data. Digital tools can help automate the analysis of large-scale data. In this step, the team should also determine cut-offs and benchmarks on the basis of test results from the normative sample population. When using a normative and representative sample, cut-offs are usually set by the dichotomizing scores through mean and standard deviations (e.g., anyone who scores below two standard deviations from the mean would fall below the cut-off) or through percentiles (e.g., anyone who scores below the 25th percentile would fall below the cut-off) (also see He and Meyer, 2021 for details on calculating cut-offs and grade-based benchmarks).

1 Consequential validity refers to the positive or negative social consequences of a measure or test. Positive consequences of a standard screening tool for reading might include identifying students with reading difficulties and providing necessary aids to improve learners' reading outcomes. Negative outcomes might include inappropriately labelling students with reading disorders and using test results to describe something the test does not measure.

3.1.7 DETERMINE ADMINISTRATION TIMELINE AND DELIVERY MODE

Different schools or districts might have different screening frequencies depending on available resources and needs. Using other factors and pilot data, the build team needs to decide if universal screening should be nationally mandated. Examples of such factors include , the percentage of false positives from the first screening and the percentage of students that move between different intervention tiers when rescreened.

There can be multiple types of informants based on the screening measures selected. It is important to determine what percentage of measures will be automated online andwhat percentage of measures will be collected offline alongwith the measures that will include online teacher, parents and staff scoring and observations. Many countries, states and districts may have reduced digital access and/or literacy. In such cases, hybrid or offline options must be made available along with increased resource allocations to address these challenges.

Steps in constructing universal screening tools

1. Determine the domains, the constructs within a given domain and the competencies within a given construct that one aims to screen. These include academic and global domains (Figure 2). Then select the screening instruments or tools to measure the selected competencies, paying particular attention to screening compliance (See Appendix: Features of reliable standardised tools; Glover and Albers, 2007; Cook, Volpe and Livanis, 2010).

2. Construct a normative sample. Once the domains, constructs and competencies are selected, it is necessary to construct a sample from the representative population. This is used to derive normative data, that is, what is typical in the representative population. Measures from an individual can be compared against the normative data to ascertain how they compare to the representative population in the tested measure.

   It is essential to ensure that the collection of normative samples is well documented. Samples must be stratified by key population characteristics/demographic variables such as socio-economic status, language, age, gender, ethnicity and cultural or other group membership, and genuinely represent the classroom, school or district population.

   The normative sample must be recent (collected or updated within the last ten years) and sufficiently large (≥ 200 children for each year level tested) (Glover and Albers, 2007; Alfonso and Flanagan, 2009; Miles, Foolbrook and Mainwaring-Mägi, 2016). It is tested with the same tools used in the follow-up screening procedure.

3. Determine the appropriateness of the developed screening process in a given context. The goal of the screening process must be well defined and in line with available services in terms of intervention programmes. In recent cases, schools have administered universal screening with the intention of ascertaining levels of difficulty and strengths of all students as well as identifying those who are at elevated risk of developing severe problems or who are already living with persistent lifelong challenges. All four levels of appropriateness—developmental (measure constructs to age-specific demands and opportunities), contextual (measure constructs to context-specific demands and opportunities), cultural (acknowledging that what is being measured can vary across cultures) and equitable (recognizing that what is being measured can vary across racial, ethnic, gender, socio-economic and linguistic backgrounds)—should be considered when developing a universal screening protocol.

4. Determine the breadth of screening. The breadth of the screening is determined by the screened domains and categories. Categories generally include the nature and extent of difficulty. For example, in Ontario, Canada, categories are typically chosen and defined by the Ministry of Education (see Ontario Regulation 181/98 of the Education

Act) and completed by kindergarten and elementary school teachers (see Early Development Instrument; Ontario, 2017/2018).

Example categories are: communication: autism, learning difficulties, language impairment, speech impairment, deaf/hearing impaired and blind/visually impaired; intellectual: developmental disability, mild intellectual impairment, gifted; behavioural challenges; multiple difficulties/exceptionalities.

STEP 2

Inform

3.2.1 INFORM PARENTS AND CAREGIVERS

School administration and the wider decision-making body should inform parents and caregivers about the entire screening process, including post-screening steps for how data will be used and stored. For example, state and district education boards might distribute booklets in various languages, set up digital portals to address concerns and queries from parents and caregivers, and provide a detailed FAQ section.

In specific screening processes, parents can choose to 'opt out' or give consent; in any case, parents should be provided with information regarding the consent process. Where universal screening is mandated, it can be helpful to position the process of consent, which is an ethical issue, against the goals of the screening process. Legislative bodies and teams must carefully ponder the question of ethics and consent before deciding on consent inclusion in the final process.

In this step, district and local administration should also form community partnerships and establish leadership that includes key stakeholders to ensure an overall preventive approach beyond school boundaries.

3.2.2 TRAIN TEACHERS AND ADMINISTRATIVE STAFF

As they are the primary administrators of the screening process, one of the main areas of focus is ensuring adequate training, education and support for teachers and administrators.

Teacher training should focus on how to:

a) administer and interpret the screening data;

b) interpret the guidelines to assign intervention tiers and types to students;

c) build collaborative relationships with parents and help them understand the universal screening process;

d) use digital tools and assistive technologies optimally to build a classroom shaped around digital pedagogy.

Teacher education should empower teachers with knowledge of the science of learning. This will enable them to understand the basis of individual differences in learning and the interaction between biology and environment in the emergence of these differences. These strong

instructional foundations will also help teachers support learners in overcoming their learning challenges. Such understanding also places teachers in a better position to adapt content, process and instructions to meet learning challenges in their classroom.

Continuous administrative support is key to the success of universal screening. Teachers should be able to receive additional training and education in the form of workshops, conferences and seminars as required. The administration should identify pathways via which teachers can resolve conflicts in intervention assignments and data interpretation. Administrative support thus boosts teachers' morale and guides them toward successful implementation.

STEP

Assess

3.3.1 DATA COLLECTION AND STORAGE

To ensure confidentiality, data collected from the universal screening procedure should remain anonymous and be stored securely. Therefore, a process for collecting, storing and accessing the data, including who has access to them, must be established. Cost, links to other data systems and data validity are essential considerations in this step. For example, it is important to choose cost-effective data storage solutions that align with district needs and resources yet ensure adequate privacy.

It is important to determine the validity of the collected data. All data should be reviewed thoroughly and only the highest quality data should be included in further analysis. It is critical that teachers and administrative staff with access to the data fully understand the value of these steps as each student's education depends on them.

3.3.2 IDENTIFICATION, PLACEMENT AND REVIEW

A process to guide protocol for data usage, for example, how to convey results to key stakeholders, should be developed. Additionally, there should be a protocol for placement of students in different intervention levels. The screening leadership team should develop this process, or the education board can set up a separate committee (see Box 4).

3.3.3 RUN PILOT STUDY

Following initial preparatory steps to identify and inform, education boards should undertake a pilot study to validate the screening protocol. Piloting allows identification of bottlenecks and challenges in the previously discussed steps and provides options to reassess and update the design, planning and implementation process.

Setting up an identification, placement and review committee

The Ontario Government has set up an Identification Placement and Review Committee (IPRC) that uses definitions of disability/exceptionality and categories developed by the Ministry of Education to outline how the outcome measures will identify each student with (or at risk of developing) a particular difficulty and the extent of that difficulty (see Ontario Regulation 181/98 of the Education Act). The IPRC also provides guidelines for placing the student in one of three tiers of support depending on the extent of the difficulty. Finally, it provides guidelines for any exceptionality to the given identification as raised by parents, caregivers or teachers.

STEP

4

Administer

The final step is to administer universal screening at national, state or district level.

Following the universal screening process, an important question is how to act optimally to support students' needs through interventions in order to set them up for success. The following section discusses the most robust intervention models currently in practice. The subsequent sections provide details on the implementation of post-screening steps (steps 5 and 6).

04

POST-SCREENING STEPS

Following the previous three steps of Identify, Inform and Assess, and the administration of universal screening, school administrators should use the data collected to decide the placement of students in different intervention tiers through Step 5 Act, and monitor students' progress through Step 6 Monitor.

4.1 Tiered intervention models

Following universal screening and identification of learner needs, interventions to support these needs must be designed. This requires a tiered intervention approach, namely, interventions designed with different strengths, from the most general to those that are highly personalized, on the basis of the needs identified by universal screening. The following subsections discuss the two most popular tiered intervention models currently in practice.

4.1.1 RIGHT TO INTERVENTION MODEL

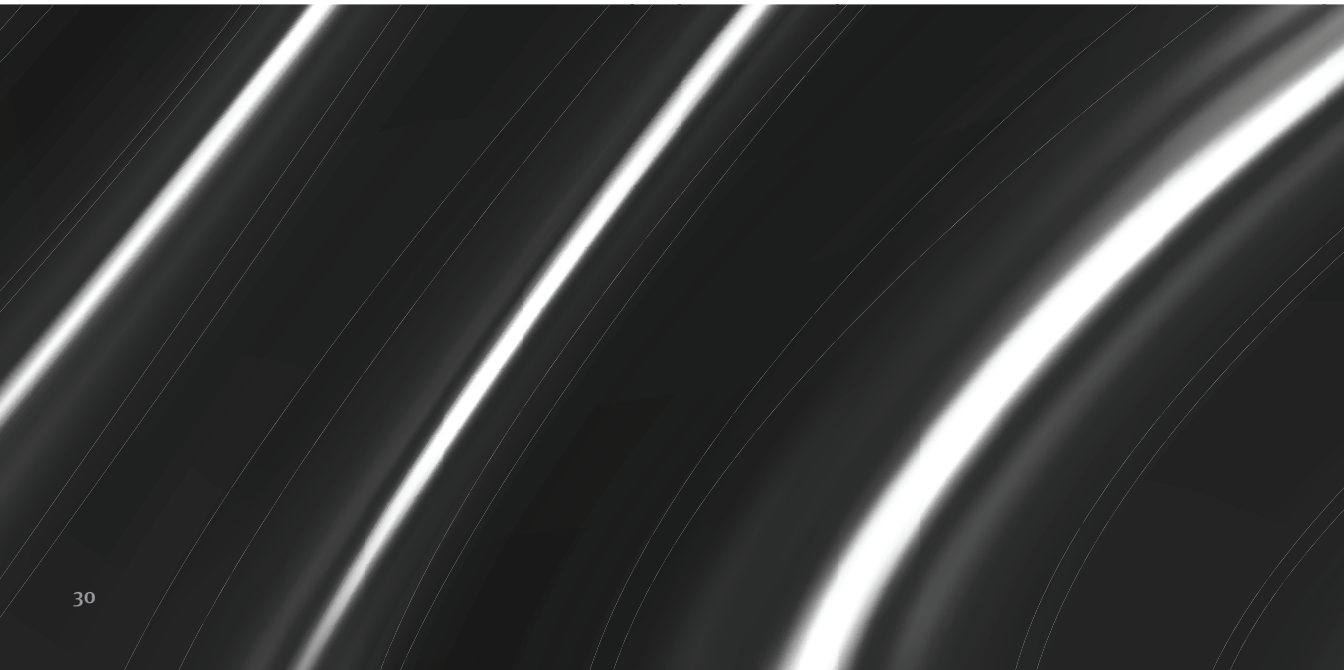
The right to intervention (RTI) model, a three-tiered intervention approach to address the learning needs of all students, can ensure schools identify and support struggling students before they significantly fall behind their peers. RTI implementation has been chiefly practiced in the academic domain.

However, exclusion of the SEB construct in the identification and intervention framework of the RTI model has been widely criticized.

To overcome the shortcomings of the RTI model, a more comprehensive tiered intervention model—the multi-tiered system of supports (MTSS)—has gained popularity in recent years.

4.1.2 MULTI-TIERED SYSTEM OF SUPPORTS MODEL

'A multi-tiered system of supports (MTSS) is a proactive and preventative framework that integrates data and instruction to maximize student achievement and support students [sic] social, emotional, and behavior needs from a strengths-based perspective. MTSS offers a framework for educators to engage in data-based decision making related to program improvement, high-quality instruction and intervention, social and emotional learning, and positive behavioral supports necessary to ensure positive outcomes for districts, schools, teachers, and students' (Center on Multi-Tiered System of Supports, 2022; see also AIR, 2022).



Given that the MTSS model is more comprehensive than the RTI model (see Figure 2), and takes a 'whole child' approach to support growth in both academic and global domains, the guideline proposes the MTSS approach.

Figure 2: MTSS: an umbrella model

4.2

Step 5 involves assigning students to different intervention tiers with progressively increasing strength (Robinson and Hutchinson, 2014). The expert team should make available a comprehensive list of interventions for both academic and global domains to all state and district education boards. However, the district or school teams should carefully select the types of intervention in different tiers on the basis of available resources and context.

Following is an example of a three-tiered intervention approach.

4.2.1 TIER I

Tier I consists of **80 per cent or more** of students who should be able to make steady and consistent academic growth with quality classroom instructions and support from their classroom teachers. Learners in Tier I may sometimes experience difficulties which they can overcome with **little** impact on their overall academic performance or emotional well-being.

This tier involves regular class placement, often with different support structures. All students placed in a regular class with indirect support receive basic Tier I service, including quality teaching instructions that are effective and built on continuous monitoring of the performance of all students, irrespective of their abilities.

Examples of differential classroom instructions in Tier I include:

a) one-minute interventions (Hattie, 2009);

b) key daily practices that engage heterogeneous groups of students in classroom tasks and create multiple opportunities for students to engage with the learning materials (Baker et al., 2014);

c) allowing students multiple opportunities to practise what they have learnt (Vaughn and Fletcher, 2020);

d) providing students with purposeful feedback;

e) quality classroom instructions that are explicit and systematic, providing emotional support and evoking high levels of engagement (Namkung, Peng and Lin, 2019);

f) booster instructional sessions for SEB and academic domains;

g) implementing class-wide social and emotional learning sessions;

h) class-wide behaviour intervention strategies such as the good behaviour game (Kilgus and Eklund, 2016);

i) class- or school-wide meditation or mindfulness training.

4.2.2 TIER II

This tier consists of **targeted interventions** for **specific** groups of students. Of the approximately 20 per cent of students for whom Tier I is insufficient, around **6 to 15 per cent** may need additional support in specific domains. While students in Tier II can be slightly or significantly behind their peers, they can show marked improvement with this additional support and these targeted interventions.

This tier involves placement of students who did not show sufficient progress with respect to the benchmark in the regular classroom. Tier II requires frequent monitoring and involves specialized intervention programmes (for a minimum of ten weeks) targeting specific difficulties.

Typically, this tier does not involve removing students from the regular classroom environment; rather, 'the interventions take place in the original classroom, over a set period of time, with different students involved, depending on the skill or concept being addressed' (Katz, 2012, p. 139).

Research shows that using both the rate of growth and performance level is better for identifying students who do not respond to intervention and instruction components (McMaster et al., 2002). These metrics reduce over-representation of ethnic minority groups in the special education system and avoid gender bias.

Examples of differential classroom instructions in Tier II include:

a) check in/check out for global and academic domains;

b) counselling sessions conducted by a school counsellor or psychologist for students facing emotion-related challenges;

c) small group social skills for students dealing with social challenges (Kilgus and Eklund, 2016);

d) in the academic domain, teaching practices in small group instruction that maximize solution predictability and reduce constraints on memory and reasoning (Fletcher and Miciak, 2019);

e) graphic, verbal and written support for students facing challenges in learning mathematics (Jitendra, 2002) (see Linzarini et al., 2022 for further details on new research in tutoring interventions).

4.2.3 TIER III

This tier consists of **highly targeted, individualized and intensive interventions** for **1 to 5 per cent** of students. Learners in this tier include those who have not responded as expected to Tier I and Tier II interventions. Schools and parents must assess if these students should receive more support in special education schools, particularly if the school cannot support their needs entirely and/or if the interventions offered by the school cannot provide sufficient support (see Box 5). Education systems must make available an adequate number of special education schools in each district to accommodate and support the needs of these learners.

Students placed in this tier receive regular class assistance and specialized and explicit instructions outside the regular classroom for 50 per cent of the school day, usually in a 1:1 or 1:3 setting. Outside resources, such as a special education teacher or administrator, are often available in this tier.

Students in this tier may not have a neurodevelopmental condition but may have been exposed to environmental factors that result in poor outcome measures. For example, first-generation learners, first-generation literacy, inconsistent past education or a primary language other than English can result in low percentile reading scores.

Special Education Placements

States should not mandate a legal requirement of medical diagnosis for students to be admitted to special education schools; instead, this decision should be informed by function-based performance scores in different learning domains, and it should be at the discretion of parents and caregivers.

STEP

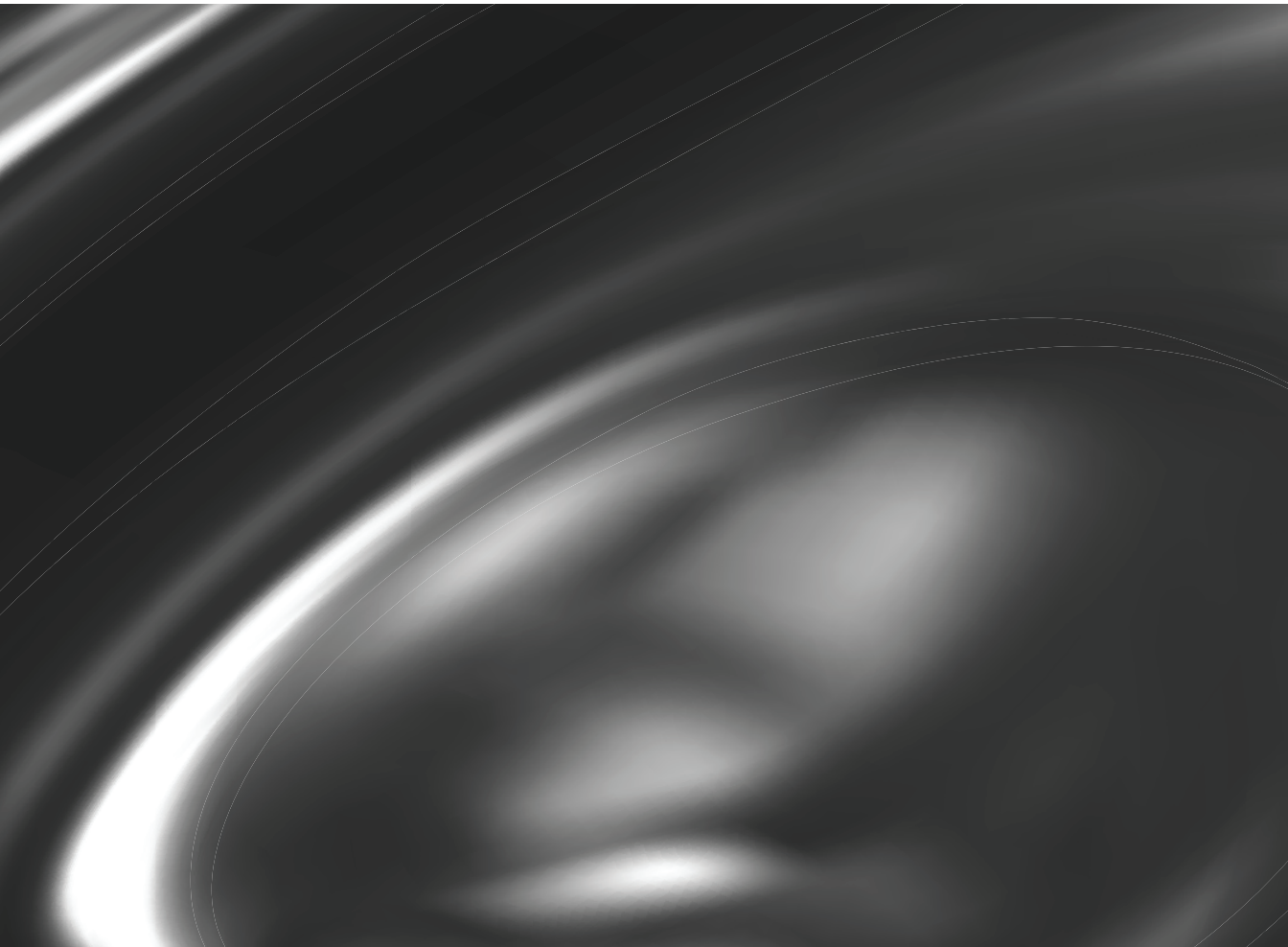
6

Monitor

4.3

Within each classroom, continuous monitoring ensures identification of struggling students who have been previously unidentified by the universal screening procedure but are experiencing some difficulty in the general classroom. Decisions regarding placement in a new tier are then made for the struggling students to provide a more optimal support system based on growth rate and performance level. Similar decisions are made for students who show regression when placed in a particular support tier.

It is relevant to point out that while universal screening outcome measures guide placement decisions for individual students, these measures are used in conjunction with academic performance within the classroom to monitor how well the students are performing within a given tier.

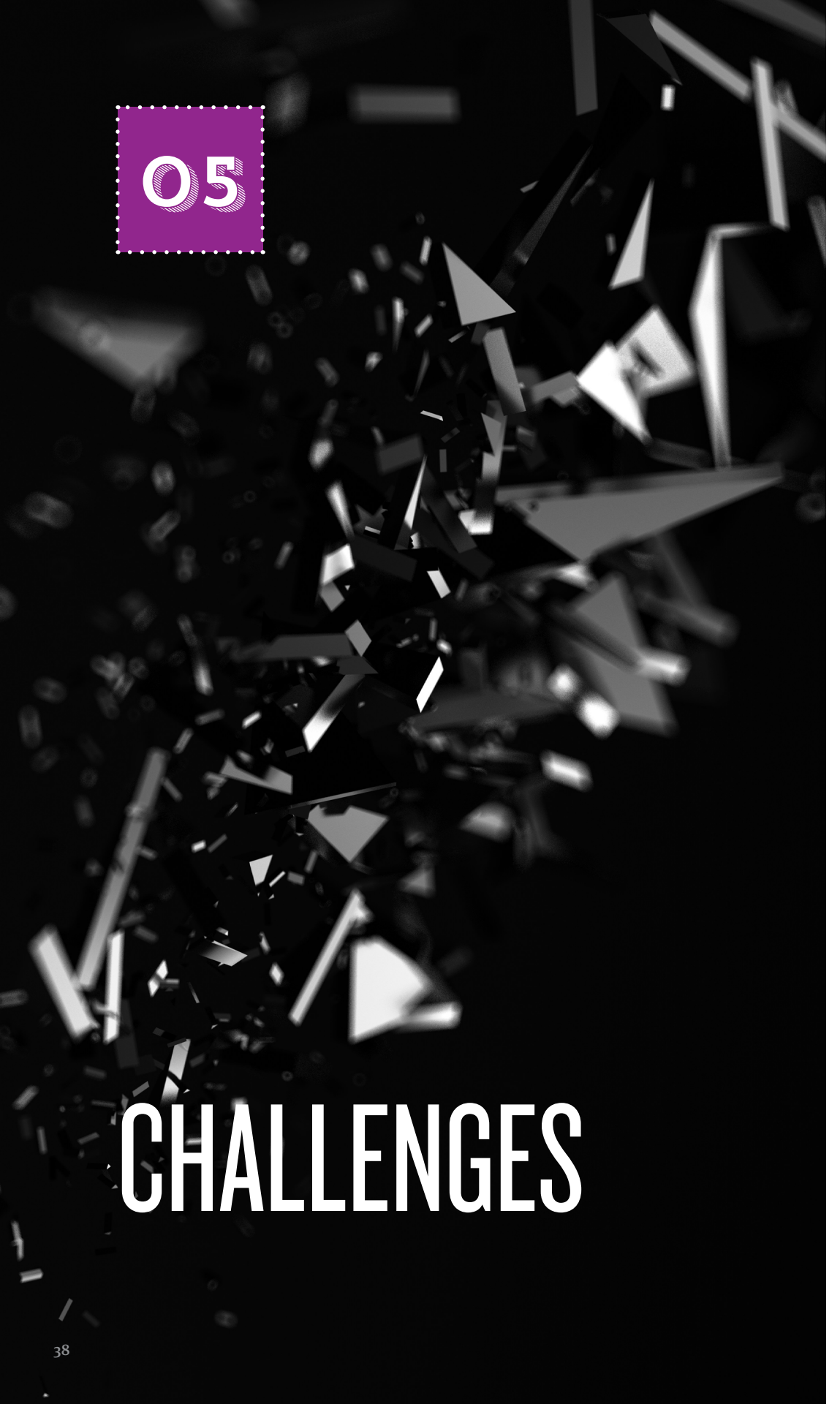


4.4 Closing the loop: how universal screening and tiered interventions will enable SDG 4

By identifying the needs of every child, universal screening and tiered interventions provide a shift in delivery from school services that are reactive and individual to those that are preventive and universal (Dowdy, Ritchey and Kamphaus, 2010). They have several benefits and challenges, which are discussed below.

Benefits of tiered interventions include:

- increased evidence-based and research-validated practices in the classroom;
- early intervention for students who need it;
- continuous monitoring to inform the decision-making process that determines the appropriate intervention tier for individual students;
- intervention for students in a phased approach;
- appropriate referral for students in the special education system;
- inclusive and equitable education.



05

CHALLENGES

Universal screening and intervention come with unique challenges for teachers and school administrators, and in the design and analysis phases. The sociocultural context is therefore an essential consideration in developing and implementing universal screening. Besides proximal factors such as family (Aikens and Barbarin, 2008), neighbourhood and school contexts, distal contextual factors such as cultural, social, political and economic aspects strongly influence childhood development (Fernald et al., 2017). There is growing consensus that the development of intervention programmes directed at early childhood development and education in LMICs needs to focus on academic as well as social-emotional learning (De Ruyter et al., 2022; Gotlieb et al., 2022). Children in LMICs are at higher risk of being exposed to adverse early life events that might stunt their physical, cognitive, social and emotional growth, and negatively impact their education and learning and their ability to live a flourishing life. This understanding has led to increasing demand to establish innovative approaches such as the MTSS model, including universal screening in education systems worldwide.2

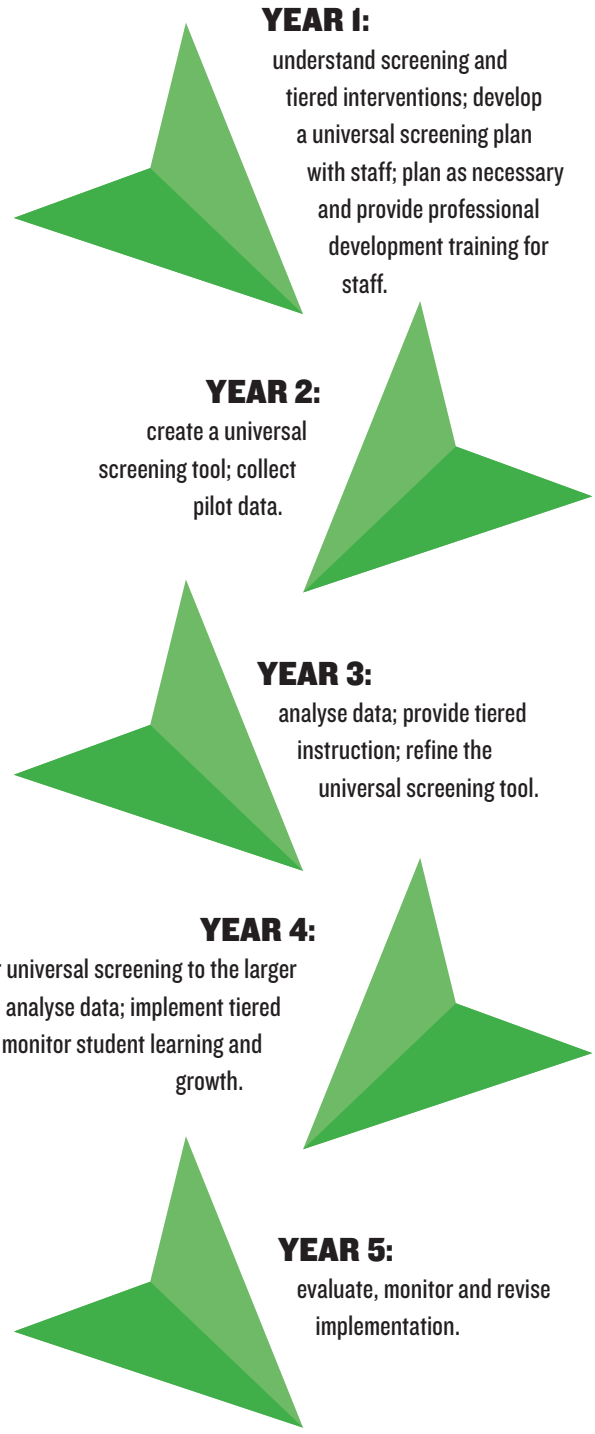
2 For a detailed review of domain-specific measurement scores in early childhood development in different countries and a toolkit for measuring early childhood development in LMICs, see Fernald et al. (2017).

06

CONCLUSION

Successful implementation of screening and intervention for students with learning challenges requires leadership, teacher buy-in, professional development and resources. A five-year plan will likely reveal the benefits of universal screening in reducing learning poverty, learning gaps and school dropout. This will require setting up a screening and intervention ecosystem—developing an understanding of the concepts, selecting an appropriate model, building teacher professional development and partnership, leveraging technology for screening and data collection, conducting assessments and interventions and, most importantly, establishing a timeline.

A typical five-year plan may be structured as follows.



It is only through evidence-based intervention, accountability, intent, resources and policy reform that education systems will be able to achieve quality instructions to close the learning gap and enable SDG 4.

APPENDIX

Figure AI: Constructs and competencies that can be measured using universal screening tools

GLOBAL DOMAIN

COGNITIVE CONSTRUCT

Example Cognitive Competencies

Attention control, e.g. ability to sustain attention using strategies and in the face of distraction;

Inhibitory control, e.g. ability to inhibit/minimise mind wandering, to use strategies to wait for one's turn and minimise inappropriate responses;

Working memory and planning, e.g. engages in goal-directed behaviour;

Cognitive flexibility, e.g. able to shift from one task to another; Critical thinking, e.g. able to evaluate, reason, analyse and interpret.

SOCIAL, EMOTIONAL AND BEHAVIOURAL (SEB) CONSTRUCT

Example Social Competencies

Social cues, e.g. understanding and appropriately responding to others' social cues (refers to others) and appropriately using social cues such as body language and tone of voice (refers to sell);

Conflict resolutionlsocial problem solving, e.g. solving interpersonal conflicts in constructive ways;

ProsociaUcooperative behaviour, e.g. inclusive towards other children, can effectively enter, engage and maintain social situations; shows the ability to share and care

Example Emotional Competencies

Emotional knowledge and expression, e.g. able to identify emotions in self and others; ***Emotion regulation,*** e.g. can effectively regulate one's emotions such as anxiety, anger or stress;

Empathy/Perspective taking, e.g. can identify and acknowledge others' viewpoints, experiences, feelings

Example Behavioural Competencies

Internalising/Externalising behaviour, ea. able to regulate withdrawal or hyperactivity, hyper aggression and/or repetitive behaviour; *Age-appropriateplay*

ACADEMIC DOMAIN

READING CONSTRUCT

Example Reading Competencies

Letter naming fluency; oral reading fluency; phonemic segregation, non-word fluency; word identification

WRITING CONSTRUCT

Example Writing Competencies

Grapheme-Phoneme correspondence; Orthographic processing, Knowledge and concept of print; Handwriting skills, Spelling; Punctuation

MATHEMATICS CONSTRUCT

Example Mathematics Competencies

Knowing place value; Perceptual subitising; Conceptual subitising; Comparing objects, distance, sizes, quantities and others; Visual perspective-taking; Recognising, organising and rotating geometrical shapes; Understanding symmetry

Table AI: Best practices when choosing a universal screening procedure (adapted from RTI Action Network, 2007)

UNIVERSAL SCREENING: BEST PRACTICES	
Use more than one measure in a given construct	In a given construct, research shows that a screening battery with multiple measures, rather than a single measure, is preferred. For example, in the reading construct: measured competencies—letter name fluency, phonemic segmentation and syllable elision—achieve better classification accuracy (O'Connor and Jenkins, 1999; Jenkins and O'Connor, 2002; Ritchie and Speece, 2004; Davis, Lindo and Compton, 2007). Similarly, when screening for competencies in the SEB construct, universal screening should include multiple measures (e.g., with regard to the social construct, recognizing and responding appropriately to social cues, joint attention and eye-gaze detection, social overtures, and cooperative and collaborative scenarios).
Screen multiple times a year	Screening should occur multiple times a year in elementary grades (K–2/K–5). Schools tend to screen at the beginning of each year to determine intervention tiers for each student and ensure proper resource allocation. However, this often results in classification errors. It is thus advisable to rescreen elementary grade students at multiple time points throughout the academic year (e.g., in December and March) to identify false positives (Vellutino et al., 2007). There is little data or mention of screening beyond elementary grades. However, in light of the ISEE Assessment's findings (Bonte et al., 2022; Cachia et al., 2022; Gotlieb et al., 2022;), which shows that adolescence is a period of significant SEB changes, there is a need to implement screening of SEB competencies throughout adolescence.
Expect different benchmarks/cut-offs across the board	Benchmarks or cut-offs set for different tiers are neither permanent nor homogeneous. For example, they might vary between districts and states depending on the initial sampled population. As Tier I reading instructions improve, it is vital to revisit cut-offs periodically to match student outcomes.

FEATURES OF RELIABLE STANDARDIZED TOOLS

Reliability. In the screening tools, there must be high reliability across three commonly used reliability measures. All values of the reliability measures range between 0 and 1, where a higher value indicates greater validity.

1. **High internal consistency:** commonly measured using Cronbach's alpha (> .70), this reliability measure is primarily used for questionnaires and scales; it indicates the reliability of a scale/questionnaire, for example, how well the items in a scale/questionnaire measure the same construct.
2. **High test–retest reliability:** commonly measured using Pearson's correlation, this reliability measure checks if test scores are comparable over a short period. It is not very helpful if the test score varies from day to day by a significant margin.
3. **High interrater reliability:** this ensures a high agreement between different raters when using tools/interviews that require subjective judgement.

Validity. There are three relevant measures of validity for the screening tools.

1. **Predictive validity:** the accuracy of any screening process depends on its predictive validity. This includes *sensitivity* (of those at risk, what proportion is identified accurately) and *specificity* (of those not at risk, what proportion is identified accurately); *positive predictive value* (PPV; of those at risk, what proportion is identified correctly); *negative predictive value* (NPV; of those not at risk, what proportion is identified correctly); and *hit rate* (what proportion of the sample is correctly identified). Ideally, robust and reliable screening tools should have 90 per cent sensitivity and 80 per cent specificity. PPV and sensitivity are particularly important in the context of universal screening. A low PPV means screening instruments are over-identifying students at risk, resulting in depletion of resources and aid for individuals who do not need it. A low sensitivity value indicates screening instruments are under-identifying students at risk, thus defeating the purpose of universal screening. When sensitivity scores are relatively low, one might consider compromising precision (specificity or PPV) for inclusion (sensitivity).
2. **Criterion validity:** this measures how well a screening tool measuring a given competency compares with an outside tool measuring the same competency. A high correlation between screening tool scores (e.g., empathy quotient) with an outside tool (e.g., social skills scale) indicates good criterion validity.
3. **Construct validity:** this indicates the extent to which a screening tool can measure the underlying theoretical construct, trait or concept. This measure further includes discriminant and divergent validity (see Westen and Rosenthal, 2003).

RESOURCES

- RTI Action Network: http://www.RTInetwork.org/learn/what
- IRIS Center: https://iris.peabody.vanderbilt.edu/module/cnm/cresource/q1/p01/#content
- Toronto District School Board: https://www.tdsb.on.ca/Portals/0/docs/Special_Education/Special-Education-Plan-2021.pdf
- Mabel: https://www.eldel-mabel.net/test/
- Texas Primary Reading Inventory: https://childrenslearninginstitute.org/resources/tpri/
- Project CoVitality: https://www.covitalityucsb.info/resources.html
- Reach Every Reader K-3 Screener & Assessment: https://reacheveryreader.gse.harvard.edu/areas-of-focus/k-3-screener-and-assessment-focus/
- International Development and Early Learning Assessment: https://idela-network.org/
- Alberta Education Approved Literacy and Numeracy Assessments: https://www.alberta.ca/assets/documents/edc-approved-literacy-and-numeracy-assessments-grades-1-3.pdf
- CASEL: https://www.casel.org
- RAND: https://www.rand.org/pubs/external_publications/EP67751.html
- Explore SEL: http://exploresel.gse.harvard.edu
- Early Development Instrument (EDI): chrome-extension://oemmndcbldboiebfnladdacbdfmadadm/https://edi-offordcentre.s3.amazonaws.com/uploads/2019/01/EDI-ON-ENG-2018.pdf

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Mahatma Gandhi Institute of Education for Peace and Sustainable Development

The International Science and Evidence Based Education (ISEE) Assessment is an initiative of the UNESCO Mahatma Gandhi Institute of Education for Peace and Sustainable Development (MGIEP), and is its contribution to the Futures of Education process launched by UNESCO Paris in September 2019. In order to contribute to re-envisioning the future of education with a science and evidence based report, UNESCO MGIEP embarked on the first-ever large-scale assessment of knowledge of education.

The overall goal of the ISEE Assessment is to pool multi-disciplinary expertise on educational systems and reforms from a range of stakeholders in an open and inclusive manner, and to undertake a scientifically robust and evidence based assessment that can inform education policy-making at all levels and on all scales. Its aim is not to be policy prescriptive but to provide policy relevant information and recommendations to improve education systems and the way we organize learning in formal and non-formal settings. It is also meant to identify information gaps and priorities for future research in the field of education.

In the education sector, the term assessment generally refers to activities used to measure student progress. Going beyond this narrow notion of education assessment, and drawing lessons from the IPCC Assessment Reports and other scientific environmental assessments (such as the Millennium Ecosystem Assessment and IPBES), UNESCO MGIEP aspires to initiate a scientifically credible, legitimate, relevant and inclusive process that will assess the state of education as a complex system and its role in achieving sustainable and peaceful societies.

The ISEE Assessment uses the 1996 Delors Report's four pillars of education — Learning to be, Learning to know, Learning to do and Learning to live together as evaluative benchmarks and the lens of 'what','where','when' and 'how' we learn and teach. The assessment is compiled by four Working Groups: (1) Human Flourishing, Education and Learning; (2) Education, Learning and Context; (3) Learning Experience; and (4) Data and Evidence.