

The BlueDot

Exploring new ideas for a shared future



The Seen Unseen

Improving education for the invisible billion difference learners

- Global Citizens for Inclusive Education: MGIEP's Action Journey
- Cultural Validity in Dyslexia Assessment
- Change-maker Swapnil on "The Magic of Madness"
- From Awareness to Action: The Parent's Journey

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THE BLUE DOT features articles showcasing UNESCO MGIEP's activities and areas of interest. The magazine's overarching theme is the relationship between education, peace, sustainable development and global citizenship. THE BLUE DOT's role is to engage with readers on these issues in a fun and interactive manner. The magazine is designed to address audiences across generations and walks of life, thereby taking the discourse on education for peace, sustainable development and global citizenship beyond academia, civil society organizations and governments, to the actual stakeholders.

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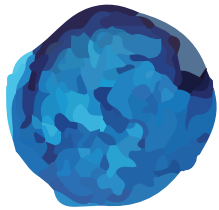
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“Look again at that dot.
That’s here. That’s home. That’s us.

On it, everyone you love,
everyone you know, everyone you ever heard of,
every human being who ever was,
lived out their lives.
The aggregate of our joy and suffering,
thousands of confident religions,
ideologies, and economic doctrines,
every hunter and forager, every hero and coward,
every creator and destroyer of civilization,
every king and peasant, every young couple in love,
every mother and father, hopeful child,
inventor and explorer, every teacher of morals,
every corrupt politician, every superstar,
every supreme leader, every saint
and sinner in the history of our species lived there-
on a mote of dust suspended in a sunbeam.”

CARL SAGAN

PALE BLUE DOT: A VISION OF THE HUMAN FUTURE IN SPACE



Toward Inclusive Education

Achieving our educational goals means understanding the needs of all children

To be called “lazy”, “stupid” or simply “difficult” by teachers, peers and parents at a young age can be devastating. Imagine giving your best and being judged like this. Even worse, you have no understanding why you don’t learn like the other children in class.

For children with difference learning, this is the reality of daily life. One that has nothing to do with intelligence, but rather the way cognitive connections are “wired” neurologically – in a way somewhat different from the majority.

One in every six people has some form of difference learning. The most common is dyslexia, a disorder involving language processing. Other forms include problems with mathematics and writing.

It is well-documented that children with learning differences do not do well in traditional educational systems. They require a different approach, which accommodates and adapts to the specific learning difference the child exhibits.

Unless special attention is paid to these children, the Sustainable Development Goal on education will be not achieved in a majority of countries. Equally important are the social consequences individual children with learning differences suffer under the present education systems. As highlighted earlier, these children are often categorized as “stupid”, “slow” or “lazy”. This leads to social exclusion, bullying and ostracizing by peers, family and society.



DIRECTOR’S MESSAGE

A 2008 study conducted by the Science Division of the British Government found that dyslexia and dyscalculia affect between 8 and 15 per cent of children in the United Kingdom, and can reduce lifetime earnings from between GBP 81,000 to 114,000. The irony of the situation is that many children with difference learning have higher-than-average intelligence. Some notable luminaries who suffered from difference learning include Galileo Galilei, Albert Einstein and Nikola Tesla. Children with difference learning can be invaluable members of society, if given the right tools and support in their early years.

MGIEP believes that addressing the needs of children with difference learning offers a unique opportunity to build the competency of understanding, respect and appreciation between the children and the rest of their peers in school. It provides the Institute favorable conditions to put in practice how inclusive education is a necessary condition for building peaceful and sustainable societies. Many of the Information Technology pedagogical tools developed by the Institute lend themselves to children with difference learning.

Transforming the education system in such a manner will allow mainstream schools to provide a learning platform that breaks down barriers across learning types and provide the equitable access to education that is a fundamental Sustainable Development Goal.

We are, in this issue of The Blue Dot, privileged to read from some of the world’s best experts on the subject describing the challenges at hand and suggesting ways and means of addressing the lacuna present in curricula and policy. As always, we dedicate a special section to reflecting the voices of young people in our discussion. I am especially honoured and delighted to present a foreword from a young entrepreneur who has not allowed his neurobiological dyslexic condition to prevent him from pursuing his dreams to help others.

Please do not hesitate to share your feedback and new ideas for The Blue Dot.

ANANTHA KUMAR DURAIAPPAH
Director, UNESCO MGIEP

The Magic of Madness



Cited as one of the “1000 World Leaders for Hope”, Swapnil is a social entrepreneur, rover, inventor, linguist, writer and founder of “Livemad”, a movement that spreads hope in troubled communities through social inventions, entrepreneurship and love. A dyslexic and synaesthetic by birth, his work explores the synergy and congruence of human senses and the ability to explore alternative intelligence among people, especially with learning disorders. His social inventions span new-age education systems, healthy living, women safety mechanisms and AIDS prevention.

Swapnil is one of the youngest change-makers to be featured by Forbes Magazine, The Better India, Himalaya Foundation Award, and is a case study at LBS, Newcastle University, The I Share Hope initiative and University of Tampa.

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From “Onus Aham Ahann... Onus Aham Ahann... Onus Aham Ahann,” I chanted, a wide-eyed boy of 12 gazing out at the night skies of a new millennium, the dawn of a whole new world – outside and within. I’d spoken, mostly to myself, in this surreal gibberish since the age of five. In that moment, I had fallen in love with the mystery, the mystery of the world, the mystery that I was to be.

Born with dyspraxia and synaesthesia, among other pleasantries, I walk in diagonal lines, and classify the personalities of those I meet according to an unorthodox matrix of sensory values, such as a specific taste or smell, or an object that seems to me to match. Words are sumptuous. While writing a rhyme, a watery mouth satiates itself by crafting a rich recitation (writing this piece, even, I salivate!).

I am different. Often an impediment in tasks. A virtuous handicap.

But I always believed one needn’t be handicapped to be “different”. Everybody in this world is different. That would mean a world full of handicapped/disabled/ specially-abled men, women and trans-genders, keeping themselves off the red line of societal abandonment, only christening others as one.

After 29 years of “this-ability”, I now know who needs help!

I was always a rebel, forcing my way in. But childhood was an altogether different ball game. After years of cold

“... I always believed one needn’t be handicapped to be “different”. Everybody in this world is different.

stares, routine underperformance, and social inelasticity, I eventually figured out that I was no good to the machinery of this world – and somehow not required. I felt one with that dropped valency of chemical compounds, numbers post the 3rd decimal place, that tiny appendix in your gut – waiting to be of use, but instead only making itself heard as a painful rebel, because the system no more acknowledged its worth.

Be it by evolutionary accident or intelligent design, the wish to exist is a human trait. And I am wired to be a Superhuman!

Thinking the opposite of what you think will make you become the opposite of what you are. For me, the result was nowhere near “disabled”. It was like the secret ingredient, the super power that takes you beyond where human comprehension ends.

The advent of my religion, called Hope.

Creativity is the greatest knowledge: one that can neither be learnt nor taught; only explored, embraced and again let go. After a short stint at the Reserve Bank of India, my first venture – Naked Colours – was born, with the mantra “Creativity for Good”. Naked Colours explored endangered civilizations in the tribal jungles of India, and helps preserve cultures affected by incessant socio-economic turmoil. The social business model of Sarv Mangalam – Good for All – divided proceeds of sold art among the venture, the tribal artisans, and the next community requiring help, and



On a societal and policy level, acceptance helps reassure a special mind that it is very much a part of the diaspora. The perception of the crowd needs a sea change in attitude towards people with special abilities.

maintained sustainable growth along with holistic societal benefit. In the six years of its existence, the model has helped create Hope in more than 35 clusters across Asia and Africa.

The travails with Creativity led to ideas (patents in process) in the areas of women safety (such as The Pink Whistle Project – an affordable self-defence device and safety mechanism for women), the dissemination of Marketing Information, sensory optical efficiency mechanisms and Social Development modelling.

Livemad, my recent initiative, strives to spread Hope further where there is now none. With behavioural psychology-based counseling initiatives and the power of Sustainable Business planning, Livemad spreads actionable inspiration and has touched lives of women in the flesh trade, victims of domestic abuse, war widows and artisans. Livemad also undertakes sessions on Alternative Intelligence, Creativity and Innovation with various Ivy League institutions and corporate actors. Livemad’s “Life-Alive” is a 24-hour

helpline for people suffering from acute depression and suicidal tendencies; the helpline has so far helped more than 5000 people choose life.

This issue on “Difference Learning” by UNESCO-MGIEP requires a special mention of “The Invention School”, a learning initiative I undertook with three institutions for specially-abled children. The focus of the initiative is to explore the expanse of a special mind beyond the boxing-in of instincts. The initiative has helped hone a NASA astrophysicist at age 21 (Asperger’s syndrome), and two playwrights aged 9 and 12 (autistic), and a host of other abilities we, at this juncture, may not derive meaning out of, but must surely explore and embrace.

“Almost 30 per cent of the world’s inventors, scientists, entrepreneurs and artists are specially-abled.

The advent of the Special Ability footprint depends upon three vital pillars.

1 Love

Family is the prime determinant of the well being of every mind. With a mind that is rarely understood by the narrow constructs of the society, family is bestowed with the responsibility to provide faith, and the platform to nurture and nourish a special mind. My life remains indebted to my family that made me believe in fragile times and inspired me to go beyond to lead a life that is as fulfilling as it can be.

2 Acceptance

On a societal and policy level, acceptance helps reassure a special mind that it is very much a part of the diaspora. The perception of the crowd needs a sea change in attitude towards people with special abilities. Arts and culture play a huge role in strengthening ties, along with education systems that help coalesce intellects. Be it by widening learning atmospheres or reinventing knowledge delivery. The addition of the “alternative intelligentsia” will only enrich the human race, and not impede its growth as some have presumed.

3 Opportunity

Almost 30 per cent of the world’s inventors, scientists, entrepreneurs, and artists are specially-abled. But the road to their success is often harder than for others. With an already-compromised surrounding, it is difficult for them to unleash their full potential, which often results in depression and lack of hope. Reinventing talent measurement scales and incorporating “creativity metrics” can help provide a canvas that may one day house a masterpiece.

The gibberish I spoke as a child is now a 200-syllable 700 word-rich language called “Satt”, and I still chant “Onus Aham Ahann”, meaning “I am chosen”.

I’m not a mistake. I am the way I am meant to be.

Always Livemad.

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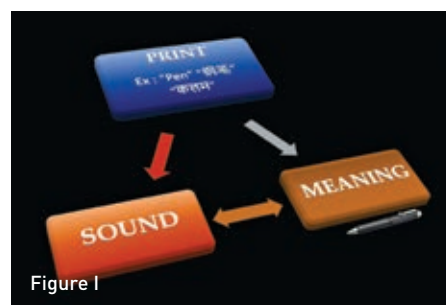
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Cultural Validity in Dyslexia Assessment



Nandini Chatterjee Singh is a cognitive neuroscientist formerly at the National Brain Research Centre in India and now working as Senior Project Officer at UNESCO MGIEP. Her areas of research are language, literacy and music. Recently, research in her laboratory has focused on understanding how the brain learns to read multiple writing systems and the implications of this in the assessment of dyslexia. She champions the cause of cultural validity in dyslexia assessment and has developed the first screening and assessment tools for Dyslexia Assessment for Languages of India (DALI).

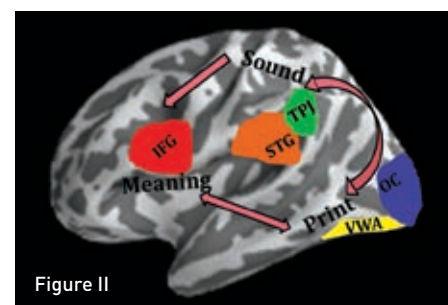
Literacy is today regarded as a fundamental skill that provides individuals the means to pursue knowledge and enjoyment independently. In modern day knowledge societies, literacy skills are a necessity. A UNESCO report on literacy states that literacy is pivotal for development at macro-levels of nations, regions and the world¹. The first step to literacy is the ability to read – possibly one of the greatest inventions of mankind. It is almost impossible to fathom a world when humans were unable to read, yet the ability to read is only 5000 years old and is acquired primarily through instruction. The remarkable ability wherein sounds of a language are mapped to symbols, thereby providing a visual form to spoken



↑ Learning to read requires the brain spoken languages (sounds) to be mapped to symbols (print) to finally make meaning.

language, forms the basis of reading.

In order to learn to read, regions in the brain learn to associate specific sounds with symbols (or letters), forming neural circuits between brain structures; the key mechanism underlying this process is “neuroplasticity”. Popularly known as “rewiring the brain”, neuroplasticity is a unique phenomenon wherein brain regions originally specialized for vision (the occipital cortex), for hearing (the auditory cortex)² and language (the frontal cortex) connect together to form a new brain circuit (Figures 1 and 2). The rules that define this mapping from sound to letter are determined by the writing system for that language. This new circuit becomes easier and stronger with practice; similar to how a muscle in the arm or leg becomes stronger with regular exercise.



↑ Different regions of the brain make new connections in order to learn to read. Individuals with dyslexia might be weak at mapping sounds to letters or accessing the meaning of the word.

...neuroplasticity is a unique phenomenon wherein brain regions originally specialized for vision...for hearing...and language...connect together to form a new brain circuit



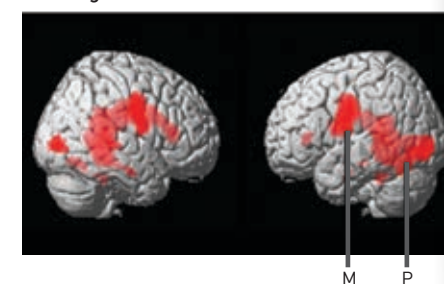
of people worldwide suffer from dyslexia, according to recent reports



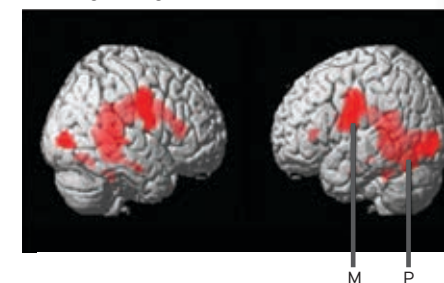
Reading requires two processes: one involving letter-sound (orthography-phonology) mapping, and a second, wherein entire text is directly accessed (semantic storage)³. The first process requires the ability to decode, in that each printed letter of a word is first converted to its corresponding sound before accessing meaning. Acquisition of speech is therefore a prerequisite before one learns to read. However speech acquisition is a natural process whereas learning to read requires extensive instruction. This is because spoken language appears seamless to the listener, with no clues to its segmental nature. Thus, the word “mat” comprises of the sounds “m”, “aa” and “t”, but one hears the holistic word “mat” and not three separate sounds.

Letter-sound mapping, however, requires multiple skills, including developing an awareness that spoken language can be segmented into smaller elements (i.e., phonemes or syllables), identifying letters, learning the rules of how to print maps onto sound, recognizing whole words not only accurately but also rapidly (automatically), acquiring a vocabulary, and extracting meaning from the printed word(s). In case of words that are irregular, such as “yacht” or “champagne”, where the spellings do not follow the rules, the second process (semantic storage) is employed, wherein the reader looks up the printed word in the mental lexicon and reads the word aloud, and is followed by sound decomposition.

Reading in Hindi



Reading in English



↑ Brain circuit for reading (P- Print | S- Sound | M- Meaning)

Functional magnetic resonance imaging (fMRI), a noninvasive brain imaging technique to measure brain activity in different areas while performing different tasks, has revealed the different regions of the brain involved in reading. (Fig. 2)

Dyslexia

The inability to acquire age appropriate skilled reading, despite adequate intelligence, education and sociocultural opportunity⁴ is termed as dyslexia. Now attributed to a difference in brain wiring, with a possible genetic origin⁵, dyslexia is reported to be the most common form of learning disability across the globe. Recent reports suggest incidence of dyslexia has reached alarming proportions and is believed to be between 10 and 15 per cent of people worldwide⁶. This means that at least 10 individuals in a group of 100 do not possess age appropriate reading skills. Given the importance of reading in today’s world, this can severely impact opportunity for children.

There is robust scientific evidence that early intervention in dyslexia can help children cope with reading deficits. Remediation capitalizes on the “neuroplasticity” of the brain and through continued practice of sound awareness games, children show remarkable improvement. However in order to identify the optimal remediation strategies, it is critical that dyslexia be assessed in the appropriate language and cultural setting. Thus of equal, if not greater, importance is the assessment of dyslexia. As discussed earlier, languages vary in the writing systems that they use to map letter to sound. Consequently, the writing system that a language uses affects reading acquisition because each system is based on a different set of symbolic relations and requires different cognitive skills⁷.

Thus, while there clearly exist common principles/processes for learning to read, since the underlying features and rules for mapping graphic forms of writing sound to



↑ Early identification and intervention in dyslexia are crucial to ensuring a child's educational progression. Every year without proper accommodation is potentially a year of education lost.

the sounds of a language vary, it is crucial that dyslexia assessments are sensitive to these differences. The following section will describe the typical process of a dyslexia assessment and discuss a few key aspects to ensuring reliable and appropriate profiles of children.

Screening and Assessment

If a teacher or parent finds a child struggling with reading in the classroom, the following process may be initiated to assess for dyslexia, namely:

1 Screening for dyslexia

The screening of dyslexia typically consists of an appropriate research-based checklist of symptoms that may include questions on sound awareness, letter knowledge, memory, reading familiar words, sequencing of information, comprehension and sensory issues.

2 Assessment of dyslexia

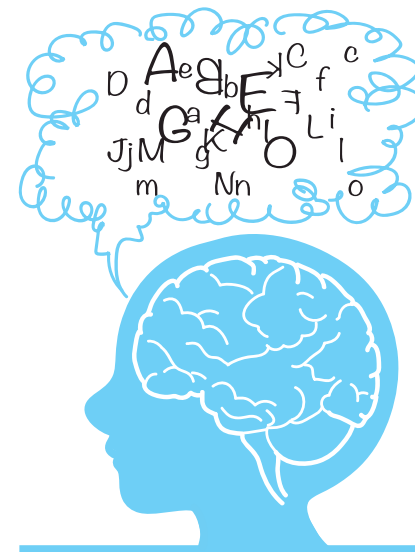
The assessment of dyslexia, on the other hand, must be educationally, cognitively and culturally sensitive. It is crucial that the assessment be functional and detailed.

Functional means it should identify the domains where there are challenges in learning and be detailed enough to provide information on the specific aspect of the domain that needs remediation. For instance, phonological processing is an important predictor of reading and can be assessed via tasks that involve rhyming, manipulating sounds and sequencing sounds. The assessment of dyslexia should be detailed enough to functionally identify “phonological processing” as the domain and rhyming or manipulation or sequencing as the specific feature that requires intervention.

Cultural Sensitivity in Dyslexia Assessment

The smallest identifiable unit of language is a grapheme. A writing system embodies a language by segregating it into a sequence of these graphemes. For instance, the English writing system is phonemic in that each grapheme is mapped to a phoneme. A large body of research has focused on characterizing reading deficits in alphabetic writing systems with a focus on English. These studies from alphabetic systems like English have shown that to acquire basic reading skills one must learn to map alphabetic characters (graphemes) to the basic sound segments in speech (phonemes) that they represent. Alphabetic words thus are predominantly read out by assembling fine-grained phonemic units, i.e., by assembled phonology^{viii} and the best predictors for reading in alphabetic scripts have been phonological awareness and rapid naming.

A second example is Chinese which is morpho-syllabic in nature, that is graphic forms are mapped to syllables and each syllable can correspond to several different morphemes or meaningful units of language^x. The graphic forms of Chinese are also visuo-spatially complex and rely extensively on memorization and visuo-spatial processing.



In the absence of tests in different languages and writing systems, dyslexia assessment is often restricted to English, leading to inappropriate and incorrect assessment of the child.

A third example is Hindi written in Devanagari, which is alpha syllabic, meaning that the basic phonological unit is a syllable mapped to a graphic form called “akshara”. That is, each letter represents a consonant with an inherent vowel. Aksharas in written form contain one or more consonant(s) and vowel that are often symbolically attached to each other by matras also called diacritics. These matras often precede and follow the core consonant and have an impact on visual manipulation of phonological units^x. Research has shown that reading in Hindi is predicted by vocabulary and letter knowledge.

It is important that dyslexia assessments be developed such that they assess both the cognitive processes necessary for reading across languages – such as phonological awareness and vocabulary – yet also accommodate the features of specific writing systems. This is especially important as the cultural environments in which literacy and reading are acquired vary considerably around the globe. With increasing immigration, multilingualism is now a global phenomenon^{xi}, resulting in an educational milieu in which literacy is acquired in multiple languages that belong to distinct writing systems. One such phenomenon is biliteracy, which is the acquisition of literacy skills in two or more distinct languages. Populations in such circumstances are required to learn to read a non-native language in addition to their native language. For instance, in a number of South Asian countries, educational policies dictate learning English along with the native language in school^{xii}.

In most cases, the native language of the child rarely shares the writing system with English. In India for example, all children learn to read Hindi and English, and so for Indian children it is crucial that they be assessed in both languages. In the absence of tests in different languages and writing systems, dyslexia assessment is often restricted to English, leading to inappropriate and incorrect assessment of the child.

An attempt in this direction was recently made in India where the National Brain Research Centre developed dyslexia assessment batteries for the Indian languages Hindi, Marathi and Kannada. Known as the Dyslexia Assessment for Languages of India (DALI)^{xiii}, this battery consists of screening tools and dyslexia assessment batteries in Hindi, Marathi and Kannada, and will ultimately be extended to include all the languages of the Indian Constitution. It was supported by the Department of Science and Technology of the Government of India. Given that appropriate dyslexia assessment is the right of every child, it is important that such initiatives be undertaken as part of government policy. Only then can we work towards a world of universal literacy.

ⁱ Education for All Global Monitoring Report (2006). Retrieved from <http://www.unesco.org/en/efareport/reports/2006-literacy/>

ⁱⁱ Dehaene S, Cohen L. Cultural recycling of cortical maps. *Neuron*. 2007;56(2):384-98.

ⁱⁱⁱ Coltheart, M. (1985). Cognitive neuropsychology and the study of reading. In M. I. Posner and O.S. M. Marin (Eds.), *Attention and Performance X1* (pp. 3-37). Hillsdale, NJ; Erlbaum.

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^v Eden, E., and Moats, L., (2002), The role of neuroscience in the remediation of students with dyslexia, *Nature Neuroscience*, Vol. 5 (1080-1084).

^{vi} Norton, E., S., Beac, S., D., and Gabrieli, J., D., (2015) Neurobiology of dyslexia, *Current Opinion in Neurobiology*, 20 (73-78).

^{vii} Coulmas, F., (1989) The writing systems of the world. *Journal of Linguistics*, 26(1), 275-290.

^{viii} Coltheart, M., Curtis, B., Atkins, P., and Haller, M. (1993). Models of reading aloud: Dual route and parallel-distributed processing approaches, *Psychological Review*, 100, 589-608.

^{ix} Tan, L. H., Liard, A. R., Li, K. and Fox, P. T. (2005). Neuroanatomical correlates of phonological processing of Chinese characters and alphabetic words: A meta-analysis, *Human Brain Mapping*, 25, 83-91.

^x Rao, C. and Singh, N., C. (2015). Visuospatial complexity modulates reading in the brain. *Brain and Language* (141) 5-61.

^{xi} Agnihotri, R. K., & McCormick, K. (2010). Language in the material world: Multilinguality in signage. *International Multilingual Research Journal*, 4, 55-81.

^{xii} Deterding, D., & Kirkpatrick, A., (2006). Emerging South-East Asian Englishes and intelligibility. *World Englishes*, 25 (3), 391-409.

^{xiii} Dyslexia Assessment for Languages of India (2015), National Brain Research Centre, India.

Embracing Dyslexia

Crossing the chasm and saving lives



Michael Hart, Ph.D. is a child psychologist with 25 years of experience in teacher training, clinical psychology and the diagnostic assessment of a full range of learning differences, including dyslexia. He is the founder and owner of www.drmmichaelhart.com and is currently providing webinars, online courses and onsite presentations and training regarding the proper educational care of dyslexic students.

Most recently, Dr. Hart gave the keynote address for the UNESCO MGIEP Learning Differences workshop in New Delhi, India.

Michael enjoys mentoring other professionals and is intensely focused on supporting teachers, specialists and parents as they become better informed and more experienced in the effective treatment of students who learn differently.

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The Dilemma

The term dyslexia was coined in the late 1880's and comes from the Greek roots *dys* – meaning difficult – and *lexia* – meaning reading: *difficulty in reading*. One hundred years later, scientists had made great strides in understanding the causes as well as best practices in assessing and treating this most common, specific learning difference.

Now, 145 years later, we continue to refine our understanding of the underlying neuroscience and our educational interventions. Yet, we are still lagging in appreciating and embracing the profound social and emotional impact of dealing with this “invisible” disability.

Even today, a dyslexic child from a very early age often spends six or seven hours a day, five days a week, nine months

out of the year in an environment that relentlessly pummels her with messages that there is something wrong with her, that she is a failure, or “stupid”. This disconnect, between the reality of her environment and her educational and emotional needs, often results in horrible anxiety, confusion and shame.

For undiagnosed adults, the anxiety, shame and fear may continue – often for the rest of their lives. They spend their lives attempting to avoid being exposed as illiterate, mentally deficient or unable to learn. They lose their jobs, relationships suffer, their health may even suffer. The shame, anger and confusion that dyslexics often feel can lead to social withdrawal or aggressive acting-out. On an intimate emotional and social level, the costs are often significant. On a cultural level, the costs are massive.

For undiagnosed adults, the anxiety, shame and fear may continue – often for the rest of their lives.

Martin's Story

Martin is one of those students who spent nine months out of the year for over twelve years feeling fearful, ashamed and confused. Unfortunately, he chose to deal with it by becoming aggressive, and by cheating in school. He cheated on exams, changed his grade reports and lied to his parents for years. Anything to provide the illusion that he was not “stupid”. No adults understood his dilemma and he had nowhere to turn.

Early on in school education officials identified Martin as a “bad seed”. He was constantly fighting and getting suspended from school. This went on for years. All that time, Martin could not figure out why he just did not “get” learning to read and write. A part of him felt that he wasn't “stupid” but he was so confused and terrified of being exposed that he chose the mask of anger to hide. He bobbed and weaved like a boxer to avoid detection.

In truth, Martin was and is a very sensitive person. His sensitivity intensified his anger and aggression because he felt he had no other option. Finally, in his last year of high school Martin again got into a fight, the last straw for his school, and one which prevented him from graduating.

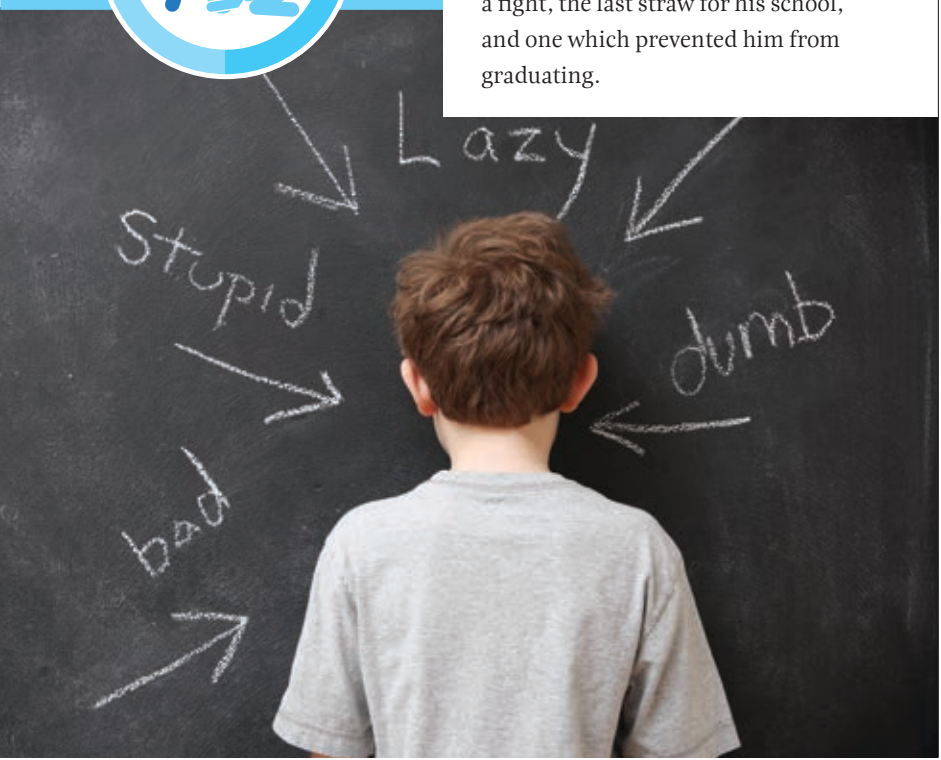
He was at his nadir. After losing a full year, Martin, now 19 years old, begged and pleaded to be allowed to return to school. He was given one last chance. It was here where he was able to turn the corner. Not because of anything he really did (in the beginning anyway) but because one single teacher saw something in him. Martin was beaten, broken and lost but she looked behind that and carefully cultivated a trusting relationship. With trust came the opportunity to help him with his academic work after school. She helped him acquire study skills and pass college exams and ultimately gave him the confidence and capability to succeed in college and law school.

Like millions of children all over the world, Martin suffered needlessly for many, many years. Now in his seventies, the arc of his life completely changed because of that one teacher. He was one of the lucky ones. With help from his friends in college and his wife of almost 50 years, Martin has achieved considerable personal and professional success. But that feeling of never being good enough, the feelings of anger and depression are still sometimes with him. Fifty years after he suffered so needlessly, in spite of his subsequent success, Martin still sometimes feels those wounds.

The Cultural Impact

The research is clear that approximately 10 per cent of the global population has dyslexia. The reading disorder is neurobiologically-based and hereditary. Dyslexia knows no boundaries regarding gender, culture, geography or language. Incidence rates are amazingly consistent around the globe.

In the US, two-thirds of students who cannot read proficiently by the end of the 4th grade will end up in jail or on government subsistence. If a dyslexic receives help for reading in prison, there is a 16 per cent chance of returning to prison. If they don't, there is a 70 per cent





Undiagnosed dyslexics are four times more likely to drop out of school

In the US, two-thirds of students who cannot read proficiently by the end of the 4th grade will end up in jail or on government subsistence.

chance they will be incarcerated again.

Undiagnosed dyslexics are four times more likely to drop out of school. In the United States, the lifetime impact of lost wages due to dropping out of school is over USD 100 billion.

The Fundamental Issue

The fundamental question is why, if we know so much now about the diagnosis and treatment of dyslexia, do so many children still suffer?

The answer lies in the disconnect between what the science of reading tells us, and

what educators are still taught in university programmes and professional development courses. The science of reading reflects what we know about the science of language development. Capacity for language mastery deeply informs a person's ability to read and write. And yet the majority of teachers are not trained to understand language development and the connection to reading proficiency.

In the US, three out of four elementary teacher preparation programmes still do not educate teachers about how children learn to read. Virtually no secondary school preparation programmes include curricula about reading and written language instruction, in spite of the fact that dyslexia is a lifelong issue.

How can we expect teachers to be able to address the needs of dyslexic children when they aren't provided the education, training and resources to do so? The short answer is that we cannot. And if teachers are not sufficiently educated about language development and reading, they will not be able to understand and appreciate the social and emotional consequences for dyslexic children who are chronically misunderstood.



We need to cross this chasm between what we know from the science of reading, and how our teachers are taught and prepared for their work.

A Call to Action

The worldwide call to action is clear. We need to cross this chasm between what we know from the science of reading, and how our teachers are taught and prepared for their work. We need to provide proper educational support and training during and after formal education. In addition to the science of reading and language, we need to sensitize educators to the oftentimes life-altering social and emotional damage and needless suffering that our dyslexic children and adults endure.

Largely due to the emergence of social media, there is global momentum in this direction. The silos are being broken down

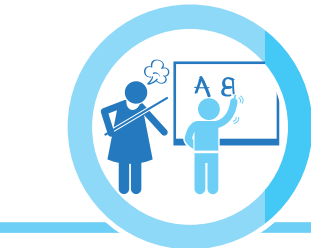
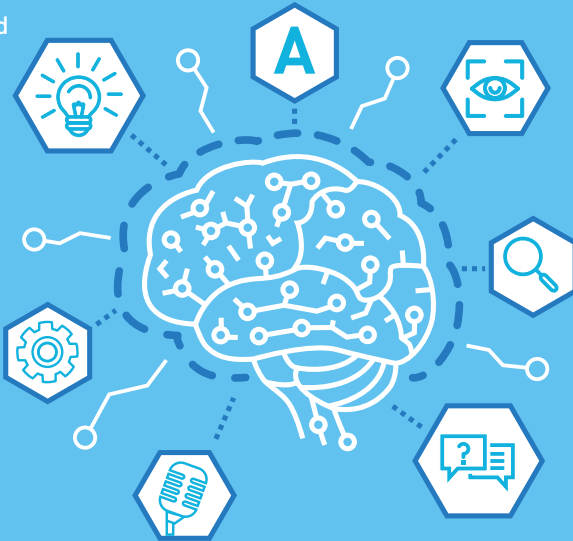
and more and more people are becoming aware of the pervasiveness of dyslexia, and the personal and societal implications of misunderstanding and inaction.

Let us leverage this global momentum. Let us leverage the scale of UNESCO in addressing this issue worldwide. Let us make sure that in addition to educating others about the science of dyslexia, the social and emotional impact is given proper attention as well.

A person's social and emotional development so deeply informs how they make choices in life, how they interact with friends and loved ones, how they succeed in all aspects of their lives. It is our responsibility as leaders to understand and appreciate not only the science of dyslexia but the social and emotional toll as well.

What is Dyslexia?

- Dyslexia is a specific learning disability that is neurobiological in origin. That is, you're born with it. It's how your brain is wired.
- It is characterized by difficulties with accurate and/or fluent word recognition and by poor spelling and decoding abilities (the ability to sound out words).
- These difficulties typically result from a deficit in the phonological component of language (your understanding of the sounds of language), the underlying language processes involved in rapid automatic naming (poor fluency and comprehension), weak orthographic mapping (quickly recognizing how letters look) or any combination of those three.
- That is often unexpected in relation to other cognitive abilities and the provision of effective classroom instruction.
- Secondary consequences may include problems in reading comprehension and reduced reading experience that can impede growth of vocabulary and background knowledge.



...the majority of teachers are not trained to understand language development and the connection to reading proficiency...If teachers are not educated about language development and reading, how should they be able to understand and appreciate the social and emotional consequences for dyslexic children...



From Awareness to Action: The Parent's Journey



Deborah Lynam is the Director of Partnerships & Engagement at AIM Institute for Learning & Research in the United States. She is the parent of three children, two of whom are dyslexic. She was awarded the Outstanding Achievement Award by the New Jersey Branch of the International Dyslexia Association in 2013 and is a founding member of the parent-led grassroots movement, Decoding Dyslexia.

Parenting a child with learning differences can feel confusing, overwhelming and often lonely. A mother or father may need to work through deeply personal feelings, including frustration or grief, and may become disillusioned with educational professionals that can't offer quick fixes. There is much to learn, and an overwhelming amount of information to absorb and understand about a specific child's unique learning needs. It's important for parents to map out a path from awareness to advocacy, which includes information on a child's rights, resources for remediation

and accommodation, and strategies for collaborating with teachers and administrators.

Parents who have been through this journey know the road can be bumpy and challenging. It often starts with a sense that our child is not progressing as she (or he) should be and we set out to find answers. This effort will take time, persistence and tenacity – but it is well worth it. The overall goal should be to secure the most appropriate learning environment for our child, so that she can become a well-rounded, confident, independent learner. Without our advocacy and investment, we know she may miss that chance.

To be an effective advocate, you will need to understand the legal landscape, as well as acknowledge that you also have important responsibilities.

Understanding Your Rights and Responsibilities

It is vitally important to research and learn all you need to know about your school's policies, and any relevant educational mandates or laws that may impact your child's right to an appropriate education. To be an effective advocate, you will need to understand the legal landscape, as well as acknowledge that you also have important responsibilities. As a parent, you know your child best. It is imperative that you engage with your child's teachers to share your insights and perspectives of her learning needs. The best outcomes for students with learning differences are realized when families and educators work together. Building your own knowledge base about the learning challenge, and preparing yourself to actively participate in parent-teacher meetings and discussions, are key steps.

Identifying Resources and Supports

One thing you can do as a parent is ask direct questions about potential resources in your school or community that may be helpful in meeting your child's needs.

Children who learn differently will need support in a few distinct areas: remediation, accommodation, and self-advocacy. If your child is not making progress with the general curriculum or traditional teaching methodology, then she will need an instructional intervention designed to remediate her areas of weakness. You can ask your school what types of specialized programmes are available in reading, writing or mathematics. Or you might visit a local tutoring center in your community to identify services available for your child outside of the school day.

When it comes to accommodations, you can speak to a technology specialist at the school, or search the Internet for information on assistive technology tools that would help your child access information and demonstrate knowledge without being held back due to isolated areas of weakness. Your child may benefit from using audiobooks or text-to-speech technology if they have difficulty decoding written text. Or perhaps writing or spelling challenges could be overcome with the support of a volunteer scribe or dictation software. The goal is to keep your child progressing in grade-level content by supporting her specific needs. Assistive technology tools and other accommodations – such as extra time for exams – can be extremely helpful.



A therapist uses visual aides to teach the alphabet



↑ The best outcomes for students with learning differences are achieved when families and educators work together toward solutions. Active participation in parent-teacher meetings, for instance, can go a long way to ensuring a child receives the support and services she needs.

Connecting to others that have personal knowledge of learning differences can help you and your child weather the emotional ups and downs, and eliminate feelings of isolation.

While it is important to focus on these academic strategies and supports, it is equally important to keep an eye on your child's social and emotional well being. Many children with these types of learning struggles may suffer from low self-esteem or anxiety. Teaching and supporting the development of self-advocacy skills should become a top priority. Children need to be able to request assistance and explain what they need to learn in many different settings. Parents can look to identify programmes or seek the support of caring teachers who can help the child learn these skills, build self-confidence and gain an understanding of his or her own specific learning profile.

Communicating and Collaborating

The better you can communicate your concerns about your child's needs and build consensus among the teachers and staff members who will be working with her, the faster you can move your child towards the supports and services she needs. You may feel frustrated or even angry at times that issues are not being

addressed in a timely manner, or that the process feels confusing or disjointed. At these times it can be helpful to stay focused on your child. Instead of getting into uncomfortable conversations based on subjective measures or opinions, ask to discuss your child's progress data and focus discussions on why your child may need a specific intervention or support, rather than just making general requests or demands. Talk to your child's teachers about why you are seeking certain supports or solutions and clearly explain why they are important to you and your child.

Building Support Networks

Finding supportive peers in which to confide and share the journey can bring a tremendous sense of relief for you as the parent, as well as for your child. You are not alone. Learning differences are very common. While many families may feel it is stigmatizing to share with others, there are many others that realize it is not. It can be liberating to share stories of your child's unique learning needs, and to find that other parents share similar experiences

Parents can . . . seek the support of caring teachers who can help the child learn these skills, build self-confidence and gain an understanding of his or her own specific learning profile



Becoming a persuasive and courageous advocate takes work, but it is well worth the effort.

with their own children. Connecting to others that have personal knowledge of learning differences can help you and your child weather the emotional ups and downs, and eliminate feelings of isolation. Talk to your child's teacher, tutor or specialized service provider about whether they have information about local parent or family support groups. You might also try attending a workshop or conference on related educational issues to meet like-minded parents. If it's difficult to find groups already in existence, perhaps you could organize something at your school or in your community for families of children just like yours.

Adopting a Strengths-Based Perspective

There are many myths and misconceptions out there about learning differences. We must of course help our child understand her areas of deficit; just as importantly, we must encourage her to see and celebrate her areas of strength. All children will have things

they struggle with and other things they are good at or that they especially enjoy. Helping your child feel good about herself by finding opportunities to be successful will help her establish a healthy self-image, and will build resilience to persevere when certain tasks are difficult. It is our responsibility as parents to help educate others about our children. By sharing accurate information about learning differences with teachers, professionals and members of our communities, we can help others not only accept, but also embrace, diversity.

Becoming a persuasive and courageous advocate takes work, but it is well worth the effort, both at an individual and systems level. Many parents who have successfully advocated for their own children soon find they are able to help others avoid some of the pitfalls and challenges typically experienced along the way. You can get involved with local education groups or non-profit organizations focusing on improving education for all children. While you may start out on the path to support your own child, you may ultimately find yourself in a position to speak out to a broader audience about systemic change.





Geet Oberoi with a doctorate in efficacy of remedial intervention in Learning Disabilities has been working in the field of special education for over 23 years. She focuses on the assessment and remediation to children with special needs and professional development courses primarily for instructors. In recent years she has delved in research to enhance the concept of inclusion in the Indian education system. She is an active member of numerous national committees and the founder of Orkids, a pioneering organization in India in the field of Learning Disabilities and Inclusive Education.

She was awarded the 2010 Guruvar Award for “Outstanding Indian Teacher of Children with special needs” and the 2012 “Women Achiever Award” for putting the education of the disabled on the road map.

Geet Oberoi has initiated a collaborative research programme under Prof. Catherine Snow at Harvard Graduate School of Education, addressing the issue of how cognitive processes of phonology and orthography contribute differentially to native language and second language.

Learning Disabilities

WHAT, WHY AND HOW?

Only a decade ago, the term “Learning Disability” was virtually absent from the educational system in India. Even today, most teachers have of course seen it in the classroom, but unfortunately only a small number understand how serious it is, or know how to deal with it. Having a child with a learning disability (or “LD”) in the classroom can make a trained qualified teacher seem inadequate, and leave child and parents feeling bewildered, frustrated, overwhelmed and angry.

It is extremely important to reach out to the lakhs of teachers who deal with children afflicted by a form of LD in regular schools. They are the first professionals able to screen the children who are struggling in their classrooms, and a child’s chance for early assessment and support hinges on the ability of teachers to successfully identify it. All research in the fields of neurological development and education puts tremendous emphasis on the importance of early intervention; hence arming regular teachers with the ability to screen children “at risk” is critical.

Although there has not been an exhaustive study, the incidence of LD in India is likely at least between 10 and 12 per cent of the school going

population. This roughly means that in a given Indian classroom there are at least four children with LD. If not addressed, we stand to lose out on a significant chunk of the literate population from the future productive work force of the country.

The biggest challenge that early identification of LD faces is that it is a “hidden disability,” presenting no physical manifestations or sensory markers. It’s not surprising that this often leads to bafflement as teachers and parents fail to recognize the signs in such children, and are unable to manage the internal struggles the child goes through as he or she stumbles to learn, adapt and socialize. The lack of awareness, fear of stigma of being labeled “disabled”, and shortage of sufficient equally distributed support and resources further compound the process of identification and screening.

One of the simplest and effective ways to expand and create awareness is by empowering teachers to be able to identify the early warning signs. Having said that, LD being relatively newly-recognized in India, there are still no clear-cut and commonly-accepted assessment procedures, policies or indigenous tools to diagnose LD in India. The problem is compounded by India being a multilingual country, and



One of the simplest and effective ways to expand and create awareness is by empowering teachers to be able to identify the early warning signs.

↓ The Hon’ble Minister for Science & Technology and Earth Sciences, Dr. Harsh Vardhan releases DALI (Dyslexia Assessment for Languages of India)



one in which basic education facilities are not available to a sizeable portion of the population.

In practice, most of the LD assessment and diagnosis follows the definition by the United States Government stipulated in Public Law 94-142 of Learning Disabilities.

“ Specific Learning Disabilities means a disorder in one or more of the basic psychological processes involved in understanding or in using language, spoken or written, which may manifest itself in an imperfect ability to listen, speak read, spell or to do mathematical calculations. The term includes such conditions as perceptual

handicaps, brain injury, minimal brain dysfunction, dyslexia and developmental aphasia. The term does not include children who have learning problems which are primarily the result of visual, hearing or motor handicaps, or mental retardation, emotional disturbance or environmental, cultural or economic disadvantages.

Federal Register, 1977, p.65083 (Karanth, 2002).

In India, the National Brain Research Centre has developed the Dyslexia Assessment for Languages of India, or DALI. DALI is a package that contains screening tools for school teachers and assessment tools for psychologists to identify dyslexia in the context of Indian languages. The DALI includes two screening tools for dyslexia (for school teachers) namely the JST (Junior Screening Tool) for classes (1-2) and the MST (Middle Screening Tool) for classes (3-5) in four languages, Hindi, Marathi, Kannada and English.



↑ In order to guarantee early intervention, it is crucial to reach out to teachers and instructors who deal with children potentially afflicted by learning differences on a daily basis.

Other formal assessments for learning disabilities include DST (Dyslexia Screening Test), NIMHANS Index for SLD and Behavior Checklist for Screening the Learning Disabled developed by Swarup and Mehta (1991).

The informal assessments, which can be performed by teachers and special educators, include recommendations on screening observation schedules, checklists, interviews and work samples, as well as curriculum-based assessments.

Screening Guidelines

With focus on teachers who can be the first level in the identification of children with LD, the following common types of LD along with their symptoms are listed.

To prevent over-diagnosis – as many children with normal learning abilities will struggle at some time or the other with academics for a variety of reasons – these symptoms must be considered with caution. The symptoms must also be consistently present over at least a period of six months. It is not necessary for each child to show all the listed symptoms. However, a minimum of 60 per cent of the symptoms should be present to assess the child to be at-risk. The manifestation

of the symptoms will vary with age of the child, so a child with reading disability may struggle with learning the alphabet in primary school and reading comprehension later in middle school. There should be substantial observation of the child and his work during the period of screening. Information should be gathered from as many sources as possible to rule out bias. The child's relevant background information regarding medical history, family background and past performance should be taken into account.

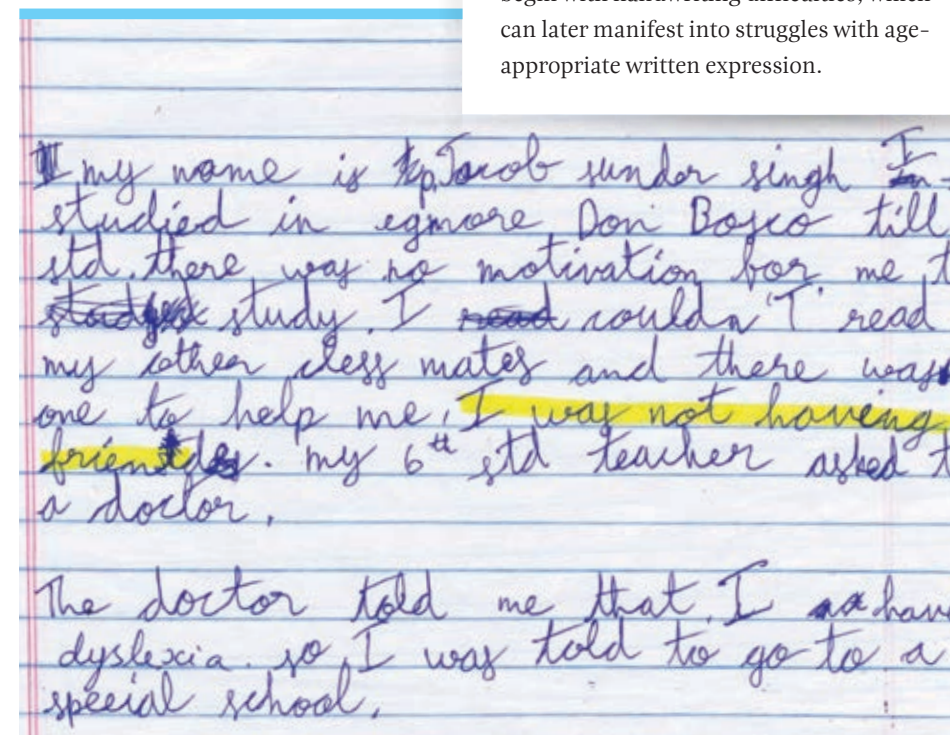
LD is a broad term. There are many different kinds of learning disabilities. Most often the academic difficulties fall into three broad categories:

- 1 Reading disabilities (often referred to as dyslexia)
- 2 Written language disabilities (often referred to as dysgraphia)
- 3 Math disabilities (often called dyscalculia)

Dyslexia (difficulty reading)

- Dyslexia is characterized by difficulties with accurate and/or fluent word recognition and by poor spelling and decoding abilities.
- It can present early as a delay in speaking and acquiring language
- The child may find learning simple nursery rhymes hard as they cannot distinguish rhyming words
- Learning the alphabet in sequence, and later the letter—sound association, such as b says /buh/ as in ball, will be difficult.
- The child may be unable to work with sounds to blend as in /c/ /a/ /t/ = cat, or decoding sad into /s/ /a/ /d/.
- Reading is slow and laboured, and the child avoids reading.
- The child may tend to substitute similar-looking words, horse-house, from-form, clear-clean
- Misreads, or even adds small function words, such as an, a, from, the

A child with dysgraphia may begin with handwriting difficulties, which can later manifest into struggles with age-appropriate written expression.



- Omits or changes suffixes, saying need for needed
- Letter and word reversals while reading, b/d, was/saw
- Spelling is more difficult for the child, even when copying off their board or from a book.
- Most spellings are phonic approximations such as, fon/phone, tabl/table, cud/could, etc.
- Misspells high frequency sight words such as because (spelt “becoz” or “becos”, for example).
- Reading comprehension in middle school poses a problem, as required reading frequency and accuracy is absent. As a result all the subjects will be affected as comprehension requires command over the reading and simultaneously deriving meaning from what is read.

Dysgraphia (difficulty writing)

Writing too involves several brain areas and functions, including networks for vocabulary, grammar, hand movement, and memory. A child with dysgraphia may begin with handwriting difficulties, which can later manifest into struggles with age-appropriate written expression.

Handwriting Difficulties

- The child may dislike colouring and drawing tasks, as applying consistent pressure to colour and stay within boundaries may be a challenge.
- Handwriting is untidy, both in block letters and cursive.
- Poor letter formation, reversals, spacing and line alignment are common. The memory for letter strokes may also be poor. Reversals or mirror images of letters and numbers such as b/d, u/n, w/m, p/q and numbers 6/9, 2/5, 7, 3. Writing may look crowded with spacing between letters and words absent, or it may look scattered with too much spacing. Writing within lines or formation of letters from the right line placement (e.g., for “ascenders” such as h, t, k, and l, one needs to touch the top line, whereas for “descenders” such as p, g, q, and j, one needs to start in the middle and go down).
- The child may show strange wrist, body or paper position and grip, and apply too much pressure while writing. Writing tasks will be avoided or will tire out the child quickly.

Written Expression Difficulties

- Mechanics of written expression, punctuation, spellings, grammar is a problem. E.g., “We goed to zoo last Sunday”.
- They may come up with ideas which they may share orally, but do not know how to organize the same in writing.
- Remembering and using age appropriate vocabulary, knowing the spelling of words they wish to use may be difficult so they tend to repeat the same stock of words such as good, nice, like, love to express themselves.
- Punctuation may mostly be non-existent, with no full stops and capitals; disregard for question marks and commas.
- The grammar rules to write sentences and make them meaningful with correct placement of parts of speech are difficult for the child.

Even before numbers are introduced the child may find it difficult to match, sort, group by size, shape and colour different objects such as beads, wood cut outs and other manipulatives

Dyscalculia
(difficulty with mathematics)

Arithmetic involves recognizing numbers and symbols, memorizing facts, aligning numbers and understanding abstract concepts such as place value and fractions. Any of these may be difficult for children with developmental arithmetic disorders, also called dyscalculia. Problems with numbers or basic concepts are likely to show up early, whereas disabilities that appear in the later grades are more often tied to problems in reasoning.

Pre-Maths Concepts

- Even before numbers are introduced the child may find it difficult to match, sort, group by size, shape and colour different objects such as beads, wood cut outs and other manipulatives.
- Understanding comparative concepts such as big/small, tall/short, more /less will be challenging.
- One-to-one correspondence, which is the basis of counting, will not be firmly established.

Number Concepts

- The child may later find the concept of numbers confusing, such as a number

name, the symbol or the quantity it represents. E.g., “3” is written with a numerical symbol, pronounced and spelled “three”, and it may mean three pencils, three boys or three mangoes.

- The child may struggle with number order; before/after, in between and sequencing.
- Estimation with numbers will be difficult.
- Concept of place value is not clear, e.g., that in 54, 5 stands for 5 tens, and in 45, it stands for 5 ones, will not be clear.

Slowness and Accuracy

- One of the biggest challenges children face with mathematics is they cannot keep up the pace of working of their peers, which is highly demotivating.
- Remembering steps and facts is not automatic, so it slows them down.
- Mathematics is also about accuracy and precision; if a single step or quantity is wrong, the rest of the operation will be affected.

Language of Mathematics

- May not remember terms like difference, product, quotient.
- Word problem comprehension is difficult.



⬆ Dyspraxia manifests itself in difficulty in planning and completing fine motor tasks, from simply waving goodbye, to more complex tasks such as brushing teeth.

Difficulties with spatial awareness

- Number reversals seen. (21/12)
- The child may be confused with the direction of working, as for addition, subtraction and multiplication it starts from the right, and division begins from the left.
- Construction activities in geometry and plotting in graphs will be challenging.
- Concept of fractions in pictures will not be grasped.

Time, Money and Measurements

- Telling time from a clock with hands is a spatial activity which the child may find difficult to figure.
- Time management will be poor, as they may not be able to appropriately plan their activities.
- Money concepts such as giving back change, the buying power of their pocket money and budgeting will be limited.
- Estimation skills with different measurements and materials will be difficult, as it is so varied.

Memory

- Mathematics requires remembering number “facts” of addition/subtraction

Apart from academic skills being affected in children with LD, two other areas are in motor skills and in overall ability to self organize in areas of decision making, giving priority, planning, attention and problem solving

and multiplication tables; this is an area where the child may get stuck early.

- Memory for sequence of working and formulas is difficult.
- When not using a particular operation, the child may not recall later how it needs to be done.

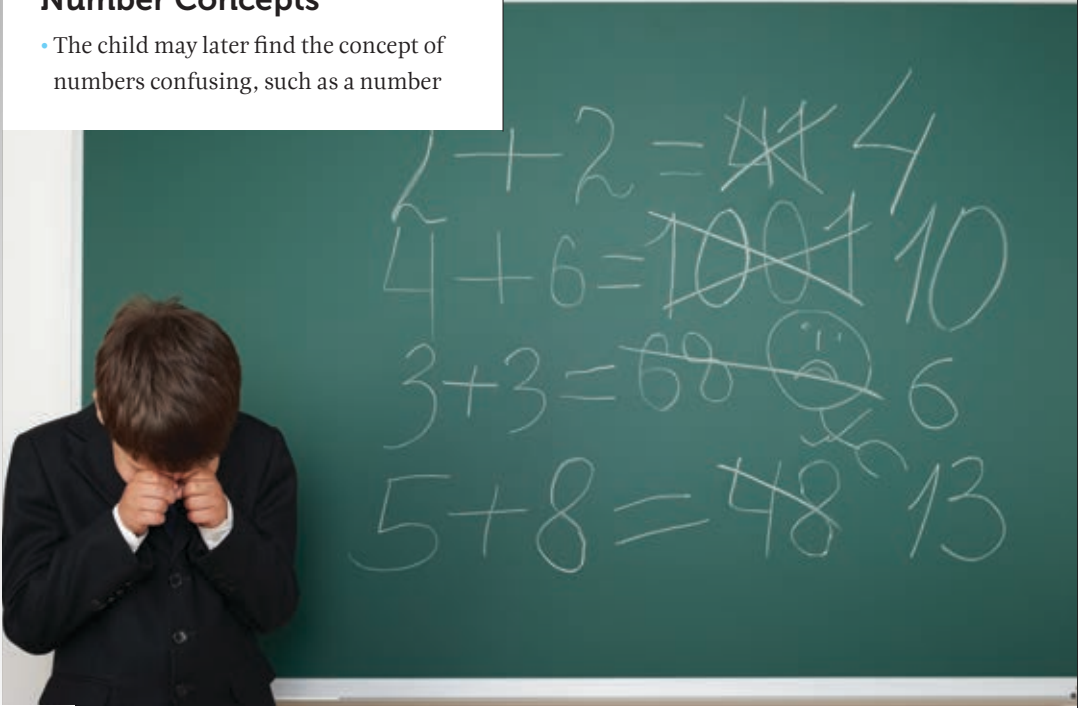
Apart from academic skills being affected in children with LD, two other areas are in motor skills and in overall ability to self organize in areas of decision making, giving priority, planning, attention and problem solving. They are known as dyspraxia and non verbal learning disability (NVLD).

Dyspraxia
(difficulty with motor skills)

Dyspraxia is a term that refers to a specific disorder in the area of motor skill development. People with dyspraxia have difficulty planning and completing intended fine motor tasks. Dyspraxia can affect different areas of functioning, varying from simple motor tasks such as waving goodbye, to more complex tasks like brushing teeth.

- Difficulty with eye movements: they may move the whole head instead of just the eyes.
- Difficulty using eating utensils like a spoon and fork or holding a cup while drinking.
- Difficulty walking, hopping, skipping, throwing and catching a ball, riding a bike.
- Delay in using spoken language and speech that is difficult to understand.
- Bumping into objects and appearing to be clumsy.
- Late establishment of laterality (right- or left-handedness).
- Difficulty doing fine-motor activities such as tying shoelaces or buttoning and zipping clothing.
- Difficulty with handwriting.
- Sensitivity to touch: may find clothing uncomfortable; and may find hair-brushing and cutting, teeth-brushing and nail-cutting unpleasant.
- Poor sense of direction.

➡ A child suffering from dyscalculia may find recognizing numbers and symbols confusing and have difficulties memorizing facts, aligning numbers and understanding abstract concepts.





↑ While many children and young people with NVLD have excellent memory and oral expression skills, their social skills are often poor making it difficult for them to build and maintain friendships.

Non Verbal Learning Disabilities (NVLD)

Nonverbal learning disabilities can be tricky to recognize and diagnose. Children with this disorder are unable to recognize and translate nonverbal cues, such as tone of voice and expressions. They will have problems with organization, and at the same time may have assets which help them through early years in school.

- Children with NVLD often have an atypically extensive vocabulary and oral expression
- The child will have excellent memory skills, so remembers words and facts well
- They have attention to detail, but miss the bigger picture (they may notice a butterfly

but not that it is sitting on a rose bush).

- They have trouble understanding reading, their comprehension skills are poor.
- The same difficulty will be present with math, especially word problems.
- They come across as physically awkward with poor coordination.
- Most have messy and laborious handwriting.
- Trouble with nonverbal communication, such as body language, facial expression and tone of voice.
- Due to poor social skills, they find it difficult making and keeping friends, and are loners.
- As they are poor on planning and decision making they fear new situations and have trouble adjusting with changes.

What do you do?

What do you do if, as a teacher, you find a child meeting at least the 60 per cent criteria of the symptoms persistently?

The first step is to inform the school's counselor (if there is one), as well as the child's parents. The parents can be guided to an educational clinic, a learning support centre, or a qualified private practitioner, such as an educational or clinical psychologist.

Our aim as teachers should be to screen the child at risk, as early as possible – before precious time is needlessly lost. In case of younger children, effective intervention should be started even before formal assessment is complete. Time is a precious commodity, and with the right kind of one-on-one help, many children may overcome milder problems. At the same time, teachers need to be judicious in screening children, and not alarm parents unless there is sufficient evidence of LD. May the vast resource of our teachers be our strongest allies in the awareness of Learning Disabilities.



UNESCO MGIEP

Knowledge Commons

www.kcommons.org

A social network for social change



The Knowledge Commons (KC) is a global community of people who wish to change the status quo, in order to create a more peaceful and sustainable world. Developed by UNESCO MGIEP, the online platform brings together people, especially youth, from diverse backgrounds, ideologies, and domains to talk about issues that concern us all.

The users join various communities and projects, based on their individual interests and the platform enables users to discover new content which has been curated by a

community. Users can then share opinions, polls, news, infographics and videos in order to discuss and debate important issues.

The Knowledge Commons has a number of thriving communities and projects with very active discussions. Artificial intelligence has been deployed to bring to users the latest happenings in the fields of education, climate change, and other topical issues. The platform is completely web responsive and can be accessed from all devices.

To sign up and contribute, please go to www.kcommons.org

AMA

Ask me anything

AMAs are free flowing conversations on Knowledge Commons (KC) between an invited guest and the users. We encourage experts from different walks of life to share with us their journeys, their learnings, their work and their lives. We set aside an hour for this session, and the users are free to raise a question of their choice. The personal insights shared by the experts give us a rare glimpse of their knowledge and experience.

The following AMA sessions were conducted between several experts on difference learning and users who wanted to know more about the issue, the stigmas associated with it, existing assistive technologies that can be used and the types of policies and accommodations that are in place for people suffering from learning differences, among others.



MASARRAT KHAN ON DYSLEXIA ACROSS LANGUAGE



MadHatter

In your opinion, should students with dyslexia have separate schools or should regular school cater to them?



Masarrat

MadHatter – Not Special Schools please!



Devesh

Masarrat- Why?



Masarrat

Devesh- Because they can be mainstreamed. It is the Education System that needs to be changed to embrace them with their differences.



Archana

You mention “Dyslexia is across languages. However, the severity is not as much as is with English.” I understand this to mean that people have lesser dyslexic problems in other languages when compared to English. Is this a correct interpretation of what you mean? What do you attribute this to?



Masarrat

Archana- Yes. The reason being that Chinese for example is pictorial and each symbol is unique. The Devanagari script is very phonetic, i.e. you write what you say. This is not so with the English Language. There are 26 letters, but 45 phonemes (speech sounds) which makes it complex.

It is the education system that needs to be changed to embrace students with their differences.



Masarrat Khan
CEO, Maharashtra Dyslexia Association

JEROME SCHULTZ ON THE NEED FOR INCLUSIVE EDUCATION



Jared

Do you support inclusion or do you think special school for LD's is the need of the hour. It's a bit of dilemma at our family thinking about this. If we put our child in special school, he may be stigmatised for all his life; if we don't do that then we fear that he will not get the quality education. What do you recommend?



Jerome

I support inclusion philosophically, but unless the child who is integrated into a more typical environment (e.g., a regular class) has all the supports and special accommodations that he needs, then “inclusion is delusion!” Too many kids with serious LD are not being served adequately in a gen ed environment and are falling into trouble, ending up in jail sometimes. If the public school cannot or will not be responsive and provide a sufficiently specialized education then some time spent in a specialized school (IF IT IS WELL RUN) can be a gift; it can open new doors and new horizons. A good private school should work on removing stigma and replacing it with pride.



Kushan

I come from Colombo, Sri Lanka. Education facilities are really poor and even if there is awareness, the cost of action to help these kids is extremely high. I have Dyslexia. My kid has Dyslexia and some forms of ADHD. Very costly to find a consultant for this. I assume we should try embedding within school. But not sure how to convince the school to do so. When I start telling them about Dyslexia and why it needs attention, they get really confused with its technicalities. How to go about it? What to tell?



Jerome

If you could only find one person, a school leader or politician who “Gets it” or has LD or a kid with LD, then maybe you can make inroads. In a culture where disabilities are misunderstood it's hard to change mindsets. If people are willing but don't know HOW to do this, then they need to expand their learning. Buying books about LD for a small group of teachers who want to learn would be good. Creating a curriculum of some of the best web-based training would also be good. Some LD schools in the states have teams that go into motivated schools to re-train staff. Hope you can find some help for this.



Anantha

I think we must not associate Difference learning with ADHD - they don't go hand in hand or am I wrong - you would be in a better position to respond.



Jerome

First a word about words (like “difference learning”) We all learn in different ways. We all don't have learning disabilities (like dyslexia). I understand the use of Difference Learning and it's fine if we know what that means. But some people are opposed to the term learning DISABILITY because of the potential for shame and stigma. But whatever you call it, it's there, it's neurologically based, it's treatable, with the potential for a good outcome, if done well; done correctly. 30 to 50 percent of kids (statistically) with LD have co-existing ADHD and vice-versa. They are related conditions which have reciprocal impact on each other, but they cannot and should not be equated.

Some people are opposed to the term learning DISABILITY because of the potential for shame and stigma . . .



Jerome Schultz
Clinical neuropsychologist, lecturer on psychology, Harvard Medical School

Teacher bias and perception is huge in education, when it comes to ethnicity, class, gender, and learning differences.



Jules Csillag
Licensed speech language pathologist

JULES CSILLAG ON DYSLEXIA AND SENSITISING EDUCATORS



Gerald

What words do you use to describe such kids? I have heard – disabled, Learning disability, Difference learners. Today you used Diverse learners. Is there any rationality behind using these many words? Don't you think it just shows the confusion of people working in this space?



Jules

In my daily life, I use Specific Learning Disability (SLD) since in the US, that is the only legally accepted term, which makes students eligible for services (e.g. special education services, language services, etc.)
“Learning differences” can mislead, as everyone learns differently, this has often been associated with the often-disproven “learning styles theory,” and that term fails to acknowledge the difficulties that come with having an SLD. I used “diverse learners” today since I wasn't sure if I was solely going to focus on students with Specific Learning Disabilities or talk about ALL types of learners (including those without a diagnosed disability)



Anantha

Interesting response to the term used. Would not be using the term SLD seen as the tyranny of the majority? As you said, everyone learns differently but there seems to be a gravitation towards a majority having some homogeneity.



Manish

If you have to do one thing that is necessary but still not done in this space, what it will be?



Jules

Making research accessible in every sense of the word: forget the jargon, forget paywalls to access articles. Many educators do not have the time or skills to read research articles BUT if we overly simplify research, then it fails to be as useful. I guess on a related note, teaching educators to be critical readers & thinkers is essential so that educators do not fall for the latest fad...



Jules

And secret second answer: reducing stigma! Teacher bias and perception is huge in education, when it comes to ethnicity, class, gender, and learning differences... There is a lot of research to show that lower teacher expectations = lower achievement & that is terrible disservice to students from various communities.



Vinny

Do you tell these kids about their rights? If yes, at what stage do you tell them and which rights you talk about?



Jules

Slight departure- I think it is never too young to tell someone about how they learn best and how that may be different from the norm. I am a huge advocate for helping students recognize where they may need help & what may help them. At younger ages, I provide students with role models with dyslexia, info about the positives that come with it, etc.

When it comes to their rights, I think that is often not necessary until middle and high school once students begin to self-advocate and become members of their learning support communities (i.e. be in meetings that talk about what they are legally eligible for & why).

JAMES JACKSON ON DYSLEXIA / ADHD



Anjali

What are some silly questions asked to you about Dyslexia / ADHD that irritates the shit out of you? Initially were you nervous or angry or just calm?



James

People always ask what do I “see?” Or “what’s it like to see letters move?” This bugs me just because it’s a very persistent idea and I always have to explain that Dyslexia for most people is about how our brains interpret what we see.



James

I try to be really calm in these circumstances. I know that people aren't very knowledgeable and I'd rather have the opportunity to talk to them about it.



James

The things that bug me about how people understand or think about ADHD are usually more subtle. Like they might think it means that I don't interact with people well and sometimes they think they should interact with them for me. This bugs me because interacting with people is the thing I'm best at.



James

I also hate it if I'm at a restaurant and people try to read the menu to me. This isn't helpful and it usually means that they are more in control over what things on the menu I get to learn about than I am!



Subhendu

How was your school days?



James

School was difficult. I didn't get as good of grades as I would have otherwise. But I decided really to focus on learning rather than getting good grades. This was really helpful in terms of developing skills and learning things, but often my grades held me back. For instance, I wasn't admitted into the Honors program when I was in elementary school.



Anantha

Hi: I want to push you here a bit on your earlier answer about school. If given a choice, would you have now looking back think you could have excelled if in a school –like any school- but with the special attention paid to children with difference learning. And given the tools you now know are useful for learning. I like what you said- focus on learning than on “damn” grades!



James

I really don't know what it would have been like. Having more knowledge is always helpful, but most of the things that are most useful to me I learned on my own.

I also hate it if I'm at a restaurant and people try to read the menu to me.



James Jackson
UX designer & proud dyslexic with ADHD



Experts at the UNLEARN workshop

UNLEARNWORKSHOP on Difference Learning

09-10 April 2016, New Delhi

With an approximate number of one billion people across the world suffering from some form of language-based learning difficulty, the need for inclusive education has never been direr.

Against this backdrop, UNESCO MGIEP is working towards generating awareness among instructors about learning differences, and advocating for difference learners by mobilizing young people to join forces with policy makers and leaders to induce change on national and global levels.



Karanpreet Kaur

Associate National Executive
Officer, Research and Futures
Programme, UNESCO MGIEP

Seventy five million adults across the world lack basic reading and writing skills. 15 to 20 per cent of the population, that is, approximately one billion people, have some form of a language-based learning

difficulty. Although efforts are being undertaken by the United Nations and other development agencies to reduce the disparity in access to education and providing equal learning opportunities to all, there is still much work to be done.



To this end, the UNESCO Mahatma Gandhi Institute of Education for Peace and Sustainable Development (MGIEP) aims to contribute towards Sustainable Development Goal (SDG 4) by working for the often ignored community of children with learning differences.

Difference Learning applies to one in six people worldwide who struggle with the basics of reading, writing and spelling and require specialized educational materials, teacher delivery and learning assessments to cater to their needs. These children, sometimes known as difference learners (4Ds – dyslexia, dyspraxia, dyscalculia and dysgraphia) whose educational needs, if not addressed early, can result in frustration, marginalization and even long-term economic distress – rather

than the successful, tax-paying members of society they easily could have been with some slightly adapted educational experiences.

Realizing this gap in imparting education, UNESCO MGIEP's Inclusive Education programme aims to implement literacy testing in the mother tongue, in order to provide remedial learning for improving the functional literacy rate of all students, including children with learning differences.

As part of the programme, UNESCO MGIEP, in partnership with the Indian Institute of Technology (IIT-D) organized the UNLEARN Workshop on Difference Learning on 09 and 10 April 2016 at IIT, Delhi. The workshop was attended by nearly 400 participants, including 300 teachers, special educators and administrators from government and private schools in the Delhi region. The workshop was aimed at generating awareness among instructors about learning differences and providing them with simple techniques to make classroom teaching more inclusive and effective.

The workshop focused on six learning differences – dyslexia, dyscalculia, dysgraphia, visual processing disorder, auditory processing disorder and auditory processing disorder (SID/dyspraxia).



International and national experts from organizations such as the Australian Dyslexia Association, Decoding Dyslexia, National Brain Research Centre, Maharashtra Dyslexia Association and Alpha to Omega Centre were invited to participate in discussions to inform the audience about learning differences and asking them to question the conventional understanding within conventional learning systems that only success correlates with intelligence. The sessions focused on the definition, diagnosis, treatment and limitations of assistive technologies in a multi-lingual society. Several myths were tackled, and it was reinforced that the ability to read does not reflect a child's intelligence. Further

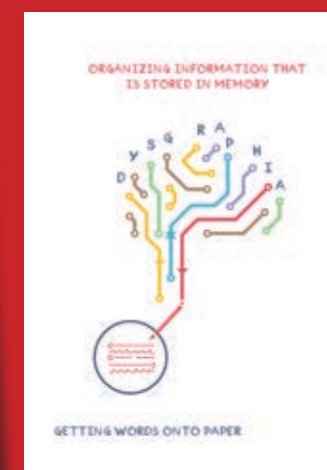
in-depth discussions were conducted on evaluation and assessment models, the leveraging of available support systems, and tips on classroom accommodations for difference learners. To substantiate the information being imparted by the panels, two activity workbooks – the MakeSpace Theory Book and the MakeSpace Practical Book – were provided to instructors. They explored the definitions and included innovative teaching methodologies and comprehensive exercises for the teachers.

As an outcome of the two-day long discussions, the following observations were made, which need to be addressed to accommodate difference learners within educational institutions:

- 1 An alarming disconnect was realized between extensive evidence-based research and existing practices in the area of difference learning and in literacy, in general.
- 2 An urgent need for universal screening for K-2 primary classrooms was recognized, not only to address students with learning differences, but also to improve literacy of all students.
- 3 A vacuum in the support systems, the relevant products and enabling frameworks for parents, teachers, policy makers and the individual learners.



Difference learning applies to one in six people worldwide who struggle with the basics of reading, writing and spelling and require specialized educational materials, teacher delivery and learning assessments to cater to their needs.



... two activity workbooks – the MakeSpace Theory Book and the MakeSpace Practical Book – were provided to instructors, which explored the definitions and included innovative teaching methodologies and comprehensive exercises for the teachers.





Dr. Anantha K Duraiappah giving a talk at the Involved session, UNLEARN workshop

Based on these discussions, the participants listed five immediate interventions required to enable difference learners and to progress as a society:

- 1 Developing an enabling legislation or a policy framework which recognizes that to achieve the 2030 SDG on education, transformative education system measures inspired by difference learning will need to be applied to all learners.
- 2 Building a global online community to provide stakeholders with updated information and to support and share knowledge on best practices in inclusive education.

Developed by the National Brain Research Centre in India, the Dyslexia Assessment in Languages of India (DALI) is a package that contains screening tools for school teachers and assessment tools for psychologists in Indian languages to identify dyslexia.



Dr. Nandini Singh, NBRC talking about the DALI test

- 3 Creating and sustaining a network that is easily accessible to educational and research institutes, parents and experts, and allows them to collaborate on various projects.
- 4 Expanding the reach of multi-format assessment tools in the mother tongue that allow for a culturally appropriate, systematic and reliable diagnosis for children whose first language is not English.
- 5 Producing resource toolkits and programmes for the extensive capacity building of pre-service and in-service teachers, standards development and certification of screening/testing organizations and the private sector-led development of reading materials.

Developed by the National Brain Research Centre (NBRC) in India, the Dyslexia Assessment in Languages of India (DALI) is a package that contains screening tools for school teachers and assessment tools for psychologists in Indian languages to identify dyslexia. The tools are available in Hindi, Marathi, Kannada and English.

UNESCO MGIEP aims to extend the DALI test in other regional languages in India and the Asia Pacific region for early detection and diagnosis of learning difficulties. In addition, UNESCO MGIEP is developing a cost-free online website called SixthSpace, that will be an open source, digital one-stop repository of all information, tools and advice related to learning differences for parents, teachers and students.



Concept and design: Devesh Kumar, White Shark

Difference learners are exceptional minds with an excellent visual capacity to “think outside-the-box”. Their ability to tackle obstructions with innovative solutions is a trait that will be invaluable in a rapidly-changing global future.

Reading-based education systems not only hinder their cognitive capacities, but also bring to light the ineffectiveness of such a system. Emerging assistive technologies are gradually removing the barriers that learners face.

The need-of-the-hour is a learner-based system that builds on a child’s gifts and talents. The modern world requires a youth population that has been empowered with the capacity of adaptation, innovation, critical analysis and problem-solving.

The UNLEARN workshop was a step in this direction to educate and empower the youth, particularly the special minds in our society.

**GLOBAL
CITIZEN**
india

CLOSE TO

28,000
Global Citizens
support MGIEP's campaign
for inclusive education

.....
✍ **Radhika Bhatnagar**
Public Information Officer, UNESCO MGIEP
.....

In the run up to India's first Global Citizen India Festival, approximately 28,000 young people took part in MGIEP's action journey to support inclusive education for difference learners

Global Citizen India Festival

The much-anticipated first edition of the Global Citizen India Festival, held in Mumbai on November 19, 2016, saw 80,000 young people from across India join forces with political representatives and leaders to bring about real change to India and the world.

Leaders from the local, state and federal governments came together on stage at the festival, as well as in video appearances and in messages to address Global Citizens watching around the world and motivate them to commit to realizing the Sustainable Development Goals (SDGs)

on Quality Education (SDG 4), Gender Equality (SDG 5) and Clean Water and Sanitation (SDG 6). Those physically present at the festival represented the voice of a much larger community – in just two months, more than 500,000 youths in India took more than 200,000 actions calling on political, religious and business leaders along with celebrities to be more accountable on the issues of education, gender equality, and water and sanitation. Festival attendees represented the most active of these youths, with tickets being issued only to those who had earned enough points by completing various action journeys.




Learning difficulties, unlike physical disabilities, cannot be easily seen and detected hence, we call this **The Seen Unseen**

Inclusive Education Journey

UNESCO MGIEP partnered with Global Citizen India to create a unique SDG 4 Inclusive Education Journey to advocate for difference learners – those one in six people worldwide who require educational materials, teacher delivery and learning assessments to be different from standard education models and practices. Difference learning includes the following diagnoses (also known as the “Four Ds”): dyslexia, dyspraxia, dyscalculia and dysgraphia. Learning difficulties, unlike physical disabilities, cannot be easily seen and detected hence, we call this **The Seen Unseen**.

The MGIEP journey required them to sign a petition to the Ministers of Education asking them to include the needs of different learners in the New Education Policy as well as tweet to them the following:

 **#EducationMinistersofIndia. Please recognize the need for universal screening tests and trained teachers for different learners.**

The difference learning programme at MGIEP plans to bolster its commitment towards inclusive education in a number of ways. Among them will be the soon to be launched “Sixth Space”, a free, online resource aimed at providing parents, teachers and students with information, tools and advice related to learning differences. The unique platform aims to close information gaps that exist due to limited certified and credible resources available. There is lack in information:

- 1 About the issue
- 2 About doctors, psychologists, assessments and tests that are available
- 3 About facilities and technological interventions that are available
- 4 About relevant policies and government actors.

Sixth Space will be an open source, digital one-stop repository of all information related to difference learning, and will have the following features:

- 1 **Research-based content** – to develop and distribute innovative, high-quality, evidence-based, open-source materials for diagnosis, intervention and assessment.
- 2 **Allies through training** – to mainstream high-quality content by training educators, families and other supporters of difference learners to use it.
- 3 **Community through communication centres** – Establish a network of communication centres to be hubs of information and support around difference learning.
- 4 **Stronger schools and teachers** – Encourage educators and school leaders to find innovative methods of reaching and teaching difference learners.
- 5 **Youth voice** – Create and promote a network of students trained to advocate for their rights and for their peers.
- 6 **Polices and institutions** – Pass policies at the international, national and local level that strengthen support for difference learners.

UNESCO MGIEP will also be hosting a webinar by Dr. Michael Hart on **Dyslexia: Beyond Phonological Awareness** in February/March 2017





What Eye Tracking Data Tells Us About Dyslexia

THE TECHNOLOGY BEHIND THE TECHNOLOGY

 The D Labs team

The D Labs is an organization operating out of Bangalore, India with offices in San Francisco, USA and Berlin, Germany. It works in the areas of education technology and hardware. The D Labs have created a software-hardware combination to detect dyslexia at an early stage, for which they were awarded the Microsoft Imagine Cup Worldwide in 2012 as well as the UNICEF Global Health Award in 2013.

The Need

Over the past four decades, scientists have become more and more aware of the fact that eye tracking methodologies are a valuable tool when it comes to investigating different aspects of human cognitive processing. While up until the last decade no one thought of using this tool to diagnose dyslexia, the high number

of presently approximately one billion dyslexics around the world has made it become inevitable.

Dyslexic readers exhibit significant differences compared to normal readers with regard to reading eye-movement measures. It is quite common for children living with dyslexia to complain about the words or lines moving in front of their eyes when reading, and for them

Before going further, it is important to note that dyslexia is not a visual impairment or eye movement problem. It stems from difficulties in phonological processing and word decoding. These difficulties, however, are reflected in disruptive eye movement patterns during reading, which makes eye tracking a useful method for identifying individuals at risk.



to regularly skip over the smaller words such as is, if, at, a, I etc.

While reading a text, we make very abrupt jumps, called **saccades**, which take the gaze of our eyes to the next part of the text. During these fast abrupt movements our brains plug in the holes, as relatively no visual material is registered.

Amid these actions, the majority of word processing arises, the so-called **fixations**. Throughout a fixation we distinguish letter identities, classify the relative place of each letter and activate a word in our

cerebral vocabulary that best matches the visual input. This entire process takes place within 200 milliseconds.

In reality, we actually skip over and not fixate at all on some words, as this makes our reading more efficient. On the other hand, when we are truly having trouble comprehending words, we often re-fixate on parts of text in order to re-read them. Tracking and evaluating eye movements – and in the process saccades, holes and fixations – provides us with a great opportunity to understand dyslexia.

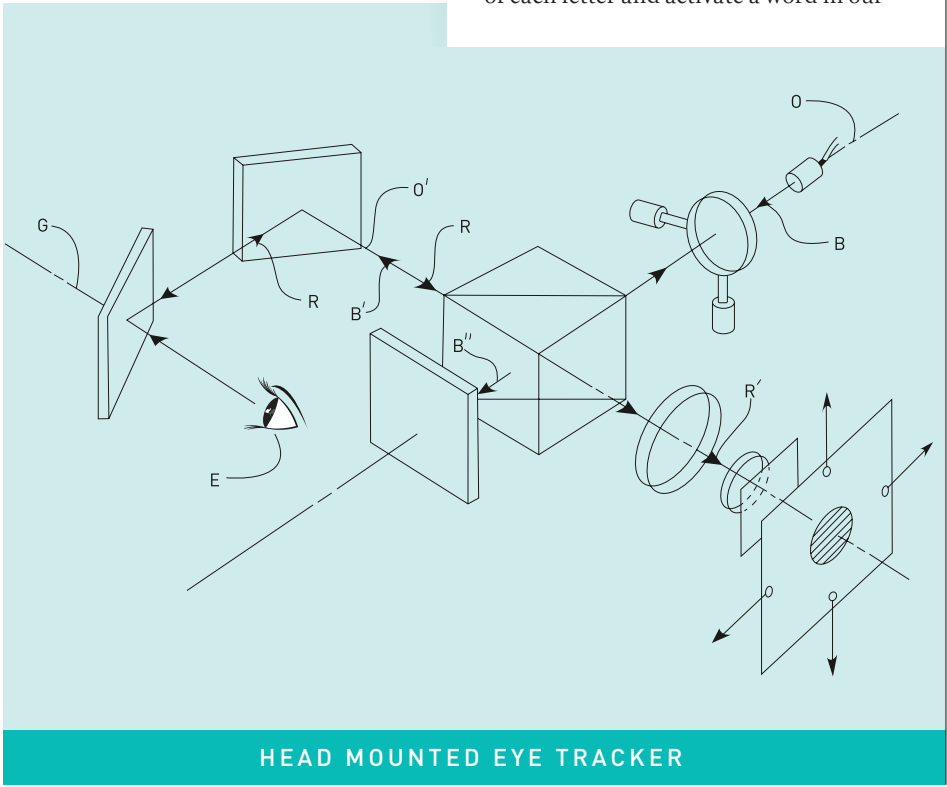
The Design

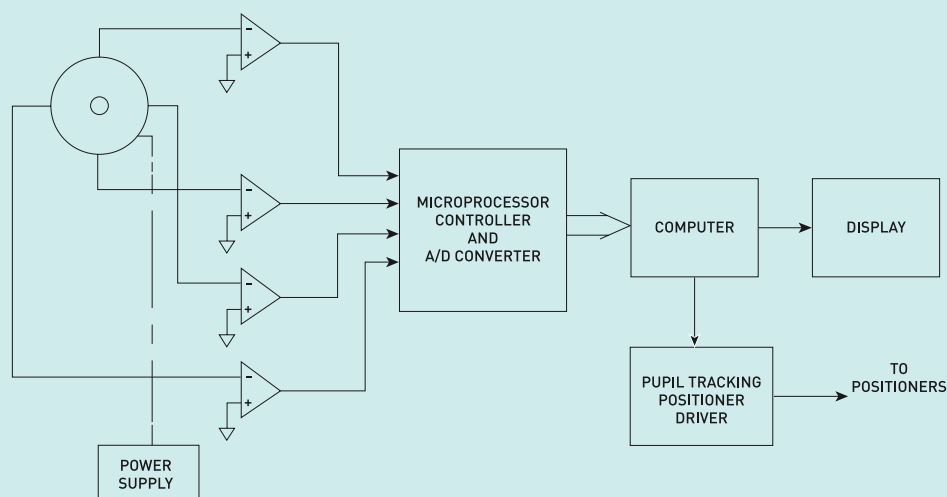
Designing an eye tracking device specific for this need is the most complex part. There are two ways of designing an eye tracker:

1 A head mounted eye tracker

This is a system of measuring the angular gaze position of the human eye, by directing an infrared light beam along an optical axis into the eye, and displaying the reflected optical light distribution on a position sensing detector to determine eye position and create a heat map based on this.

It is a complex system head mounted on a child or adult during the reading time. Here is a sample design for the same on the left.





HEAD MOUNTED EYE TRACKER

2 Several eye trackers mounted on a screen

A head mounted tracker has its own benefits. It is portable and thus able to track data at all times. However, it is hard to design well for kids with dyslexia. That is why a few of have put two to four eye trackers at each corner of a computing device. Screen size and positioning of the device is important here. This method allows high fidelity as well as ease of alignment and calibration.

A sample design for the same can be found on the left.

The Output

1 Heat maps tell us about the words a reader has concentrated on. For example, the following map shows that the reader has not concentrated enough on regular words such as “the” or “and”. This means that he or she has formed a blank image for those words. Moreover, after these words are encountered, the reader’s concentration increases by one time. That is why in this example, the dyslexic reader is concentrating twice as much on words such as “stone” and “fence” and three times as much on “through” and “pasture”.

2 The order that the reader has followed to read a sentence tells us about the image

formation in their mind. When looking at the order of words read within the sentence it becomes clear that even though words such as “horse” and “stone have a higher concentration level, they were not re-read; telling us that the reader has already formed a mental image for the same.

Apart from letters, the experiment found, for instance, that developmental dyscalculia is associated with a subtilizing deficit, that is the inability to quickly enumerate small sets of up to three objects.

Eye tracking devices provide the latest piece in the puzzle for identifying and treating dyslexia.

The brown horse jumped
over the stone fence and
ran through the pasture.

The brown horse jumped
over the stone fence and
ran through the pasture.



Karanpreet Kaur and Aditi Pathak
UNESCO MGIEP

MGIEP's Difference Learning Programme

A step toward inclusive education

Education 2030

Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all



Few countries in the world recognize and devote adequate resources to diagnosing early and effectively treating children with LDs, leaving a procipitous population of young people (and future generations) to fend for themselves.

In the Universal Declaration of Human Rights, adopted by the United Nations (UN) in 1948, is enshrined the right to *free and compulsory education for all*, at least at elementary level and fundamental stages of learning. The 4th Sustainable Development Goal (SDG) binds Members States to “ensur[ing] inclusive and equitable quality education and promote lifelong learning opportunities for all” by 2030. Still, today nearly 17 per cent of the world’s adult population, and an estimated 122 million young people, are illiterate. Literacy is in most circumstances worldwide a fundamental element to leading a happy, healthy and successful life. Governments, together with a range of actors such as the United Nations, multilateral development agencies, NGOs and others, are working to reduce gender disparities in access to education. Efforts are also being made to ensure equal learning opportunities to the less-privileged, as well as to people with disabilities. However, a significant, yet

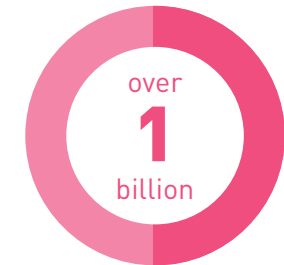
often unidentified, community remains left out – difference learners.

Difference learners, who make up 5 to 15 per cent of the world’s total population, suffer from one or more neuro-developmental disorders characterized by severe and persistent difficulties in learning. These difficulties may be limited to reading, writing or performing mathematical calculations, or they may include all three; they are present despite exposure to conventional instruction, intact hearing and vision, adequate motivation and sufficient socio-economic and cultural opportunity.

There are four main types of learning differences (or LD):

- 1 dyslexia
- 2 dyspraxia
- 3 dysgraphia
- 4 dyscalculia

The causes of LD are neurobiological and genetic, and as such may be transferred from one generation to the next.



over 1 billion people in the world have some form of learning difference (LD)



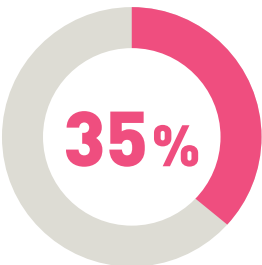
nearly 10 million Africans suffer from a form of LD



nearly 700 million people suffer from dyslexia



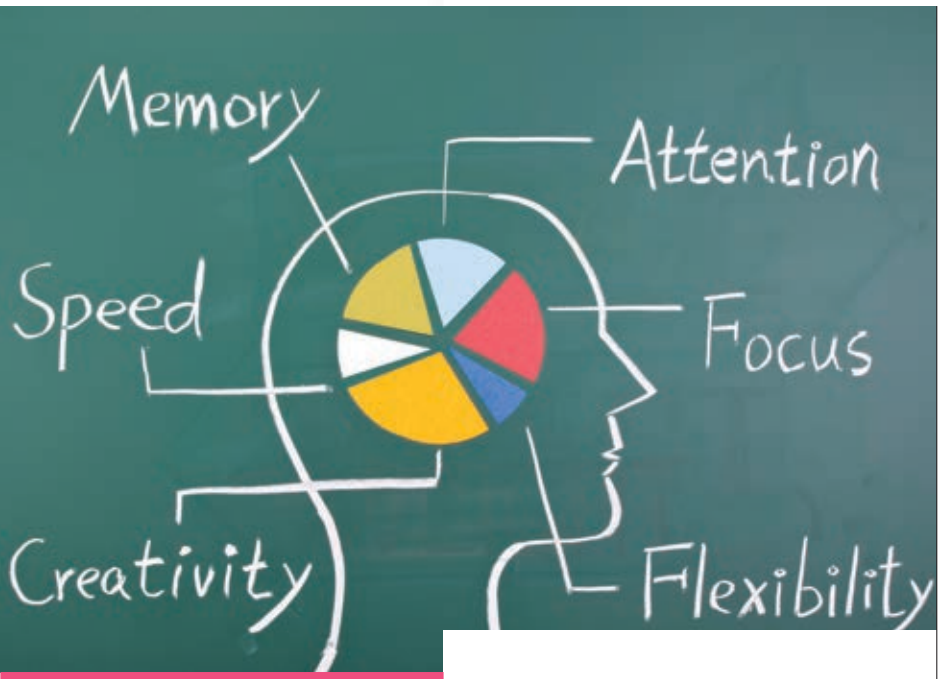
50% of students in special education programmes in public schools in the US suffer from a LD



35% of students identified with a LD drop out of high school



up to 60% of adolescents involved in substance abuse in the US were found to have a LD



Persons living with learning differences often have average to above-average IQ levels and excel in creative endeavours.

Teachers and educators need scientifically-accredited training in fields relating to how children learn and develop.



un-employability, substance abuse and criminal activities.

Yet most school teachers do not receive formal training in identifying, understanding and teaching students with LDs. They are unable to recognize early symptoms and indicators or provide timely intervention. Students often fall prey to myths related to LDs, which can result in needlessly losing out on years of education. Further challenging to many is the fact that most diagnosis and treatment toolkits for LDs are available only in English or another major language, leaving out many children whose first language is not covered.

LDs are in no way a reflection of cognitive capacity or intelligence. In fact, people with LDs are known to have typically average to above-average intelligence quotient (IQ) levels. People with LDs tend to think in visual-spatial terms, following a three-dimensional “global logic”, as opposed to the two-dimensional sequential thought processes typical of people without LDs. This unique ability enables them to excel in various creative endeavours, and to be able to think critically, solving problems before they arise. As a result of this creative ability, many people with LDs find a home in a wide range of creative careers: architects, entrepreneurs, artists, sculptors, medical doctors, astronomers, astrophysicists, motivational speakers, politicians, teachers, project managers, spies, mathematicians, musicians, producers and designers, among others. Given the right conditioning and a conducive environment, they are invaluable members of society.

New research and science have transformed how we understand learning and learning difficulties. Treating dyslexia, for instance, requires both effective instruction and powerful intervention support. Teachers and educators need scientifically-accredited training in fields relating to how children learn and develop, including learning difficulties.

Difference Learning Programme

A step toward inclusive education

Most laws do not recognize learning differences; thus, there are few policies and legislations to support people with LDs. Although the United Nations are working on a wider disability paradigm under the *UN Partnership to Promote the Rights of Persons with Disabilities* (UNPRPD) programme, not much work has been done in this niche field. The UNESCO Mahatma Gandhi Institute of Education for Peace, Sustainable Development and Global Citizenship (MGIEP), as a research institute working towards inclusive and quality education, aims to contribute towards SDG 4.7 by focussing on this significant – yet often ignored – community of children with difference learning. UNESCO-MGIEP’s Difference Learning programme aims to implement screening and assessment of students in the regional languages of India and the Asia Pacific region, so as to enable early remedial learning and improve the functional literacy rate of all students, especially those with LDs.

In April 2016, UNESCO MGIEP, in partnership with the Indian Institute of Technology Delhi (IIT-D), organized the UNLEARN workshop for teachers in New Delhi. The aim of the workshop was to build awareness about difference learning, and to encourage more inclusive educational opportunity in classrooms and beyond. Nearly 400 teachers, special educators and administrators from schools in and around Delhi participated and contributed to discussions in the 2-day workshop.

UNESCO MGIEP has also partnered with the National Brain Research Centre (NBRC) in India to expand the reach of the *Dyslexia Assessment in Languages of India* (or DALI) test. DALI is a package of screening and assessment tools to help schoolteachers and psychologists identify dyslexia across a multitude of languages. The tools are available in Hindi, Marathi, Kannada and English. UNESCO MGIEP aims to extend the DALI test to include other regional languages in India and the Asia



UN-LEARN

WORKSHOP FOR INSTRUCTORS
ON DIFFERENCE LEARNING

9 – 10 April, 2016
IIT Delhi, India

THE
INVISIBLE
VISIBLE

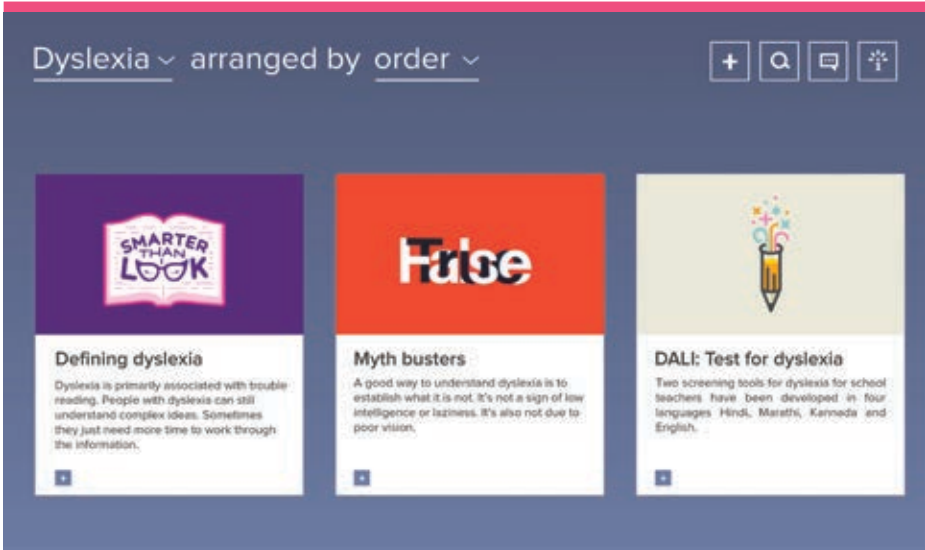


Pacific region. In addition, the Institute is developing a free online resource portal called SixthSpace (www.sixthspace.org), which will provide parents, teachers and students with crucial information, tools and advice related to learning differences.

The UN Convention on the Rights of Persons with Disabilities came into existence in 2006. In February 2016, 161 out of 193 member states ratified the treaty. It is important to note that SDG 4 on Quality Education clearly describes an objective to “ensure inclusive and equitable quality education, and promote lifelong learning opportunities for all”. Target 4.5 recognizes all forms of disabilities, and focuses on eliminating gender disparities in education, and ensuring equal access to levels of education and vocational training for the vulnerable, including persons with disability, indigenous people and children in vulnerable situations. Target 4.A focuses on building and upgrading facilities that are child-, disability- and gender sensitive and providing safe, non-violent, inclusive and effective learning environments for



UNESCO MGIEP has a global mandate to help countries achieve Goal 4.7, which seeks to ensure learners are provided with knowledge and skills to promote sustainable development.



The Sixth Space online platform developed by UNESCO MGIEP offers research based content related to learning differences.

all. UNESCO MGIEP has a global mandate to help countries achieve Goal 4.7, which seeks to ensure learners are provided with knowledge and skills to promote sustainable development. This should be achieved through education for sustainable development and sustainable lifestyles, the provision and protection of human rights, through gender equality and the promotion of cultural diversity and cultural contribution to sustainable development.

Many countries are already making significant strides toward achieving SDG 4 through national measures. For example, the Indian Parliament passed in 2014 the Right to Disability Bill, which codifies in law the right of persons with disabilities to equality and nondiscrimination. The bill is a huge step toward equal rights for students with learning differences, as for the first time LDs are acknowledged as a disability cluster (along with 18 other conditions). The law empowers millions of students suffering from LDs; at the same time, it presents a herculean challenge in mandating a conducive environment to students with LD, at a time when most educators and school systems in the country are ill-equipped to identify LD students. Current data suggests that the less than one per cent of students with LDs are successfully screened and diagnosed in schools. Contributing to this challenge is a lack of awareness about LDs among parents, which is likely the biggest roadblock to successful screening, assessment and support to students with LD.

To achieve SDG 4 and fully realize the potential of populations worldwide, we need better and more comprehensive strategies and approaches to address the needs of students with LDs. There is an immediate and urgent need to engage with educators, parents and policy makers to work toward crafting and mainstreaming these approaches. MGIEP’s Difference Learning Programme aims to both facilitate this engagement, as well as contribute to practical tools that will help those who suffer from LDs gain the recognition and support they need to thrive.

Youth Voices

from schools around the globe

Students with learning differences talk about struggles in school and overcoming challenges, giving firsthand insight into the impact of family and educators along the way.



I've had difficulty with numbers ever since I can remember. While to some people, it seemed to come effortlessly, I felt as though I'd been asked to go into a room full of unknown people and make conversation with them – it made me anxious, on edge, and was inexplicably frightening. I felt threatened by the numbers, as if they were monsters that were going to leap out of the page.

Fortunately, my parents were quick to recognize the signs, and I had to undergo a psychoeducational evaluative assessment, which revealed that it was nothing but a learning disability: dyscalculia. Their timely intervention led me to Orkids, a special education centre, where I was a student for four years. Under the able tutelage of the teachers, I started being less apprehensive and tried my best to be more receptive to difficult maths problems that were prescribed in the textbook. Ultimately, though, I had to drop maths in Class X because I found it too incomprehensible and stressful – and needless to say, this did have a negative influence on my self-worth – but I'm glad I took that step of learning to recognize what was not working for me. I was relieved to be rid of maths; it was like a toxic relationship that I had to sever ties with in order to focus on myself and what was really important. Of course, it is never easy to overcome challenges... but that is where the reward lies.

I will always be grateful to Dr. Geet Oberoi, whose gentleness and warmth shaped a significant part of my personality into what it is today.



Shreya Iyengar
22 years, Orkids

For me, the major difficulty before going to the Gow School would be keeping up with the work from class and comprehending assigned readings. This was the biggest obstacle since I was unable to do the work properly. Gow taught me how to tackle problems differently to suit my needs by managing my work and using the skills I learned in Reconstructive Language class to breakdown words to better understand what I'm reading.

Now I am doing my majors in Chemistry from Mount Allison University, Canada. To young students with learning differences, I would like to say that a learning difference does not impede your intelligence and by slowly working with it you are no different from anyone else.



Bishma Duraippah
24 years, Mount Allison University, Canada

I would say that having a learning disability, although frustrating at times, can be advantageous. I see the world differently and, therefore, I am able to approach problems in a unique way. This gives me an advantage over my peers. It has also instilled in me the values of diligence and perseverance. So my advice to those living with learning disabilities is to find what you are passionate about and pursue it. Don't let anyone say you can't do something, because with your unique approach you can change the world.



Jeff Kempler
24 years, London School of Economics



I felt sad when I first knew that I had learning disability. I found it difficult to learn my lessons. I did not get good marks and my friends used to tease me.

My parents were very supportive and admitted me to Travancore National School. Now, I am comfortable with the teaching methods, I am able to read and learn better and am scoring good marks. It gives me immense confidence and I am enthusiastic to learn more. I am confident that I will be able to do well in life and be successful.

Ganga
15 years, Travancore National School,
Thiruvananthapuram, Kerala, India

I felt uncomfortable when I realized that I was dyslexic. But then I consoled myself thinking that "No man is perfect". My family members were supportive. In my old school, I was put in a lower class, but still I couldn't read. I never opened up to my friends about my problem. At Travancore National school, my reading improved and I feel confident to learn more. In the future, I would like to choose a career which I am comfortable in.



Adithya Kiran
15 years, Travancore National School,
Thiruvananthapuram, Kerala, India



I felt relieved to come out of my old school because I couldn't read and write like others. Though my father scolded and advised me when I got low marks, my mother was very supportive. I felt sad at heart to know that I had a learning disability.

Though I got teased by some of my friends in the neighbourhood, most of them were supportive. I am a lot happier in my new school where I have plenty of friends. Remedial teaching has helped me to read better. My ambition is to become a professional photographer and do social work.

Niranja
14 years, Travancore National School,
Thiruvananthapuram, Kerala, India



In my old school, I always used to get low marks for my exams. My teachers scolded me, but my friends were supportive. My father used to scold me initially but realized my disability later.

I then changed schools and adapted well to the new situation. The new teaching techniques made me more confident, and all my teachers and friends are supportive. Now, I don't face any problems in learning. My ambition is to become a Malayalam teacher in a big institution.

Bhadra
12 years, Travancore National School,
Thiruvananthapuram, Kerala, India



Though my mother was supportive, I felt sad when I learnt that I was dyslexic. In my old school, I was given projects of lower level which made me feel bad. Much of the homework we had to do was impossible for me to complete.

I love my new school because I am able to read and write better. I have made many friends and enjoy my time there. I am 95 per cent confident that I can become a computer engineer.

Azad
12 years, Travancore National School,
Thiruvananthapuram, Kerala, India

I didn't consider my learning disability a great problem. Given a choice I would like to forget the days in my old school. I was scolded by the teachers for not reading properly and not being able to write my mother's name. My family and friends remained very supportive to me. My parents started this school for me and children like me. Here, I gained more confidence as the teaching methods help me to read and write better. I find learning a pleasant experience now. My ambition is to join the Indian Army.



Tejas Prajin
10 years, Travancore National School,
Thiruvananthapuram, Kerala, India

My family and I felt very sad when we knew that I was dyslexic. My parents were very supportive and gave me all the confidence I needed. In my old school, I could not keep up with the vast syllabus and was not able to score well. The children of my school isolated me. Now, in my new school, I have made a lot of friends and am very happy. I gained confidence and can read and write better. The methodology used here helped me to learn better. I wish to become a fashion designer.



Dhiya
15 years, Travancore National School,
Thiruvananthapuram, Kerala, India

I started having difficulty with my studies when I was in 4th grade. Though my teachers and students of my old school were supportive, it was difficult for me to cope with the syllabus. My whole family supported me – my mother even quit her job to be there for me. While I am comfortable with the syllabus and teaching methods at Travancore National School, I sometimes still find difficult to remember my lessons. I wish to pursue my studies in biology, but I don't feel confident enough...



Nandu
17 years, Travancore National School,
Thiruvananthapuram, Kerala, India

The Gow School

for Dyslexia and Learning Disabilities

I would say Gow has allowed me to have a better relationship with my parents. Before, we would always be arguing about school and my grades. Since coming here, we no longer argue and can talk about things other than my grades in school.

Before I came to Gow I had to bear people telling me that I would fail at anything I attempted to do. I came here, was accepted to college, and dared to be something more.

I have always loved sports, but as my classes got tougher, I couldn't play sports anymore. I needed tutors to help me and I would come home straight from class, meet a tutor and then after they left would spend the rest of the night working on homework. Coming to Gow has allowed me to have a "normal" high school experience.

Founded in 1926, the Gow School started out as the first school for dyslexics in the US. The college-prep boarding and day school is located in South Wales, New York, and is attended by students from grades 7 to 12 with dyslexia and similar language-based learning disabilities.

These are excerpts from students of The Gow School, USA. At the request of the Gow School, we have not included the names and photographs of the students.

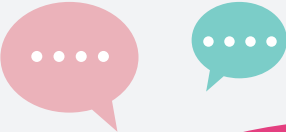
Before Gow, I felt embarrassed by always having to go to another room for help. All of my friends would be in art class or gym and I would have to go to a resource room for tutoring. It made me feel isolated and different. Going to Gow, where we all learn the same, that stigma has been lifted.

At my previous school none of my friends even knew I was dyslexic. I didn't want them to think of me as the "dumb kid in class". I would often work for five or six hours a night on a homework assignment that would take them an hour and so I missed out on a lot with my friends to be able to keep up.

Sankalp

The Open School and
The Learning Centre

Sankalp – The Open School & The Learning Centre was created in 1999 and is currently running institutions at three locations in Chennai, India. Applying new ways of teaching, Sankalp provides a differentiated learning environment to over 220 children with learning challenges and cognitive difficulties.



Kevin Paul B
I AM Kevin Paul
I am studying in 8 standard
old school
I can't understand what they are teaching
or telling
The old school there is a OT. but they
were not proper.
In 3 standard. I shifted to Sankalp.
In Sankalp I understand better, what they
teaching.
In Sankalp I know to read better.

Kevin
Standard VIII, Sankalp
Chennai, India

I am Krish.
Pursuing my 12th standard at
Sankalp Open School in Shenoy Nagar.
When I was studying in 4th standard in my old
school, my teachers noticed that I had difficulties in
the areas of reading and spelling. It was mainly my
math teacher who spotted the difficulty. My parents
were informed about this, and I was admitted to
Sankalp Open School. Here, I slowly became better at
reading and writing and gained a lot of
confidence in being able to get along with society.
I was able to complete my 10th
standard independently.

Krish
Standard XII, Sankalp
Chennai, India

My name is Jacob.
I studied in Don Bosco till
7th standard. There was no motivation
for me to study. I couldn't read like my
other classmates and there was no one to
help me. I was not having friends.
In my 6th standard, my teacher asked that
I see a doctor. The doctor told me that
I had dyslexia, so I was told to go to
a special school. I am improving in
my reading and have many friends
and I am happy.

Jacob
Standard VIII, Sankalp
Chennai, India



WHAT WE'VE BEEN UP TO AT UNESCO MGIEP

International Society for Technology in Education

26-29 June, Denver, USA



UNESCO MGIEP was represented at ISTE, one of the largest and most prestigious education technology conferences in the world. Ms. Aditi Pathak of the Innovations Programme at UNESCO MGIEP presented at the conference on the design of the "Transformative Learning Labs" programme. She also shared some of the key findings from the preliminary analysis of primary data collected by UNESCO MGIEP. The pilot study was conducted in New Delhi from July 2015 to April 2016. The conference helped raising the profile of the institute and networking with educators and practitioners globally.

Aditi Pathak and the audience at Colorado Convention Center

International Workshop on Embedding | 28-30 June, Bangalore



UNESCO MGIEP organized an international workshop on embedding concepts of peace, sustainable development and global citizenship in textbooks of core subjects. Subject and embedding experts in the domains of maths, science, languages and geography got together to discuss the development of an International Guidebook on Embedding for textbook authors and curriculum developers. Academics, policy makers, publishers and development professionals from around the world including the universities of Arizona, Toronto, Tsukuba, James Cook, New York, Delhi, South Wales and organizations such as SEAMEO RECSAM and the Georg Eckhardt Institute, prepared preliminary drafts of the guidebook. The workshop also saw conversations and discussions transformed into cartoons.

YESPeaceNetwork, Campus Ambassadors | 6-7 September

UNESCO MGIEP, together with the university partner Symbiosis School of International Studies, Pune, India, selected the first cohort of six Campus Ambassadors as a part of a higher education initiative on intercultural dialogue



Staff of UNESCO MGIEP and Symbiosis School together with the first Campus Ambassadors

of the same name. The students will spearhead on-campus activities to foster intercultural understanding and design and implement activities with other students across the globe. Focus of the activities will be the promotion of spaces for inter-cultural dialogue within Institutes of Higher Education. The Campus Ambassadors participated in the UNESCO International Conference on Preventing Violent Extremism through Education and also the YESPeace International Workshop in September. They also participated in the "Imbizo Workshop: Creating innovative spaces for Dialogue" facilitated by Ms. Lezerine Mashaba from ACTIVATE! Change Drivers, South Africa, on 22 September 2016. The workshop provided them with the opportunity to learn the "how" of creating innovative spaces for dialogue as well as the concept of traditional dialogue which has been combined with digital media to foster greater impact and acceptance in the community.

Youth-led Monitoring of the SDGs | 16 September

In September, UNESCO MGIEP, within the framework of the MGIEP Youth-led Monitoring (YLM) Project, signed a partnership agreement with Rhodes University, South Africa, for the T-Learning (Transformative, Transgressive Learning in Times of Climate Change) Project. The goal of T-learning



is to research the emergence and qualities of T-learning processes, and their role and contribution to sustainability transformations at the food-water-energy-climate-social justice nexus in diverse niche level settings. The project makes use of generative research that produces practical, theoretical and methodological outcomes. UNESCO MGIEP's youth-led monitoring project is MGIEP's contribution to the T-learning project.

Through the YLM Project, MGIEP aims to:

- ❶ Develop digital tools for building a "taxonomy of global indicators" for Sustainable Development Goal (SDG) 4.7 through a bottoms-up crowd-sourced approach and to foster youth capacities to be agents of a data revolution for the SDGs.
- ❷ Empower local communities to monitor the issues they face, and how the actions trigger those changes.

UNESCO International Conference on Prevention of Violent Extremism through Education: Taking Action

19-20 September, New Delhi



Senior education policy makers with the youth delegates at the international conference

UNESCO MGIEP co-hosted the first international conference violent extremism, "International Conference on Prevention of Violent Extremism through Education:

Taking Action" together with UNESCO Headquarters on 19-20 September 2016 in New Delhi, India. Over 200 senior education policy-makers, experts, as well as youth advocates in the field, from close to 70 countries came together for the 2-day conference. The aim of the conference was to build a common understanding and vision of the required educational interventions and approaches needed to ensure that education systems contribute appropriately and effectively to the prevention of violent extremism.

Critical Inquiry, Mindfulness and Moral Courage- Key Competencies to Prevent Violent Extremism

19-20 September, New Delhi



Participants of the session on "Building key competencies for Prevention of Violent Extremism"

As part of UNESCO's International Conference on Preventing Violent Extremism (PVE), MGIEP'S Libre team organized a concurrent session on "Building key competencies for Prevention of Violent Extremism" on day 2 of the conference.

The session was aimed at putting learners at the centre of educational interventions for PVE, and explored the skills, competencies and attitudes that are necessary to build the defences of peace in the minds of students. It was moderated by

TAG^e | 19 September, New Delhi



Young leaders participating in the first TAG^e in New Delhi

As a follow up to TAG (Talking Across Generations) New Delhi, MGIEP hosted the first TAG^e on 19 September 2016 in New Delhi as part of the

larger International Conference on the Prevention of Violent Extremism through Education (19-20 September 2016). It provided a global platform for 45 bright youth leaders to interact directly with over 200 decision-makers and policy-makers from ministries of education on how to transform education systems to foster a culture of peace and sustainability. The TAG^e Delhi called for the formation of the *Global Youth Collective on Education* to produce the completely youth-led Youth Guide to Preventing Violent Extremism through Education by 2017. The TAG^e discussion was live-streamed, and received a very enthusiastic response on social media with the #PVEConf hashtag trending on Twitter in India generating over 23 million impressions during the TAG^e session.

renowned reformist Islamic writer and speaker Ms Irshad Manji from the University of Southern California, founder of the Moral Courage project. Linguist and educator Professor K. P. Mohanan spoke about the nature and need for Inquiry Oriented Education in order to build the learners' capacity to desist any form of indoctrination and propaganda. Professor Marilee Bresciani from San Diego State University focused on the role of Integrative Inquiry or mindfulness which allows learners to recognize and come to terms with their own thought process while encouraging self-reflective practices.

In addition, the session explored how these competencies could be useful to deal with the complex challenges of violent extremism in this age of globalization and hi-tech connectivity. The deliberations of the session will inform the Institute's Libre Programme.

YESPeace Network

21 September, New Delhi



Youth leaders from different countries and backgrounds coming together in the YESPeace Workshop

The YESPeace International Workshop held on 21 September 2016 brought together 34 youth leaders from 30 countries and various backgrounds. They were invited to convene and forge ideas to create a more peaceful and sustainable world.

The workshop was initiated in August 2016 with extensive discussions held on social media and the MGIEP's *Knowledge Commons* Online Platform. Together the young people worked on streamlining their ideas and designed five action projects to engage, equip and empower youth through education.

SCOPExL | 4-5 October

UNESCO MGIEP conducted the first Partners Meeting at UNESCO Headquarters in Paris to initiate the development of a curriculum for its executive youth leadership project, SCOPExL (Sustainable Development, Global Citizenship and Peace for Excellence in Leadership). The three learning domains of the curriculum are Online, Academic (classroom) and Experiential learning and organized around inquiry-orientated learning (critical thinking), socio-emotional and moral courage to change.

UNESCO MGIEP will establish partnerships with the University of California Los Angeles, the Indian Institute of Management Ahmedabad, Friedrich-Schiller-University Jena, École Normale Supérieure de Lyon and Pravah for designing and implementing this leadership project. SCOPExL will reach out to young professionals between 28 to 35 years from diverse fields of civil society, media, corporates, civil services and military training academies. The first cohort is targeted for 2017.

Ahinsa Lecture | 6 October

On 6 October 2016, UNESCO MGIEP, in partnership with the Permanent Delegation of India to UNESCO and UNESCO Headquarters, organized the Inaugural *Ahinsa* Lecture at UNESCO Headquarters, Paris. As part of the Distinguished



Dr. Scilla Elworthy speaking at the Ahinsa Lecture

Lecture series, MGIEP launched the *Ahinsa* lecture series to commemorate Mahatma Gandhi's birth anniversary, also observed as the International Day of Non-Violence, with the aim to emphasize on the relevance of Gandhian principles of *ahinsa* or non-violence in the 21st century. The distinguished speaker for the first *Ahinsa* Lecture was Dr. Scilla Elworthy, three-time Nobel Peace Prize nominee and recipient of the Niwano Peace Prize. Dr. Elworthy highlighted conflicts and wars as part of human experiences and presented a Business Plan for Peace based on assumptions concerning power and cost effectiveness for the prevention of armed conflict; and profitability of peace from a business point of view. The audience at the lecture comprised of High Commission Officials, members of delegations to UNESCO, entrepreneurs, NGOs, academicians, and researchers.

UNESCO MGIEP's Innovations in Education at the UN Day Celebrations in India

24 October



An SDG pyramid was part of an exhibit to celebrate 71 years of the UN

To commemorate 71 years of United Nations, this year's celebrations in India called for showcasing innovative approaches to achieving the 17 Sustainable Development Goals (SDGs). UNESCO MGIEP's games for education and *Knowledge Commons* were nominated as the innovations in the field of education, representing SDG 4. The exhibit invited delegations from various countries, ministries, private organizations, media and other UN organizations to play-test our work and interact with UNESCO MGIEP's on the vision and mission behind the approach.

TAG^e Quebec: Internet and the Radicalization of Youth

30 Oct to 1 Nov



Participants of TAG^e Québec discuss the radicalization of youth

Post TAG^e New Delhi, UNESCO MGIEP and the Centre for the Prevention of Radicalization Leading to Violence hosted the 3rd Talking Across Generations on Education (TAG^e Québec) in Québec City, Canada. Held within the UNESCO International Conference on "Internet and the Radicalization of Youth: Preventing, Acting and Living Together" from 30 October to 1 November 2016, the TAG^e Québec brought together 30 carefully chosen youth and 15 policy-makers from around the world in an informal, open setting. Most participants agreed that the Internet was not the reason but only a vector for radicalization. Closing the conference, the Prime Minister of Quebec, Philippe Couillard, emphasized a multisector approach and expertise sharing to address this challenge.

Distinguished Lecture Series, Professor K. P. Mohanan "Education, Blind Faith, and Societal Violence"

2 December



Professor K. P. Mohanan

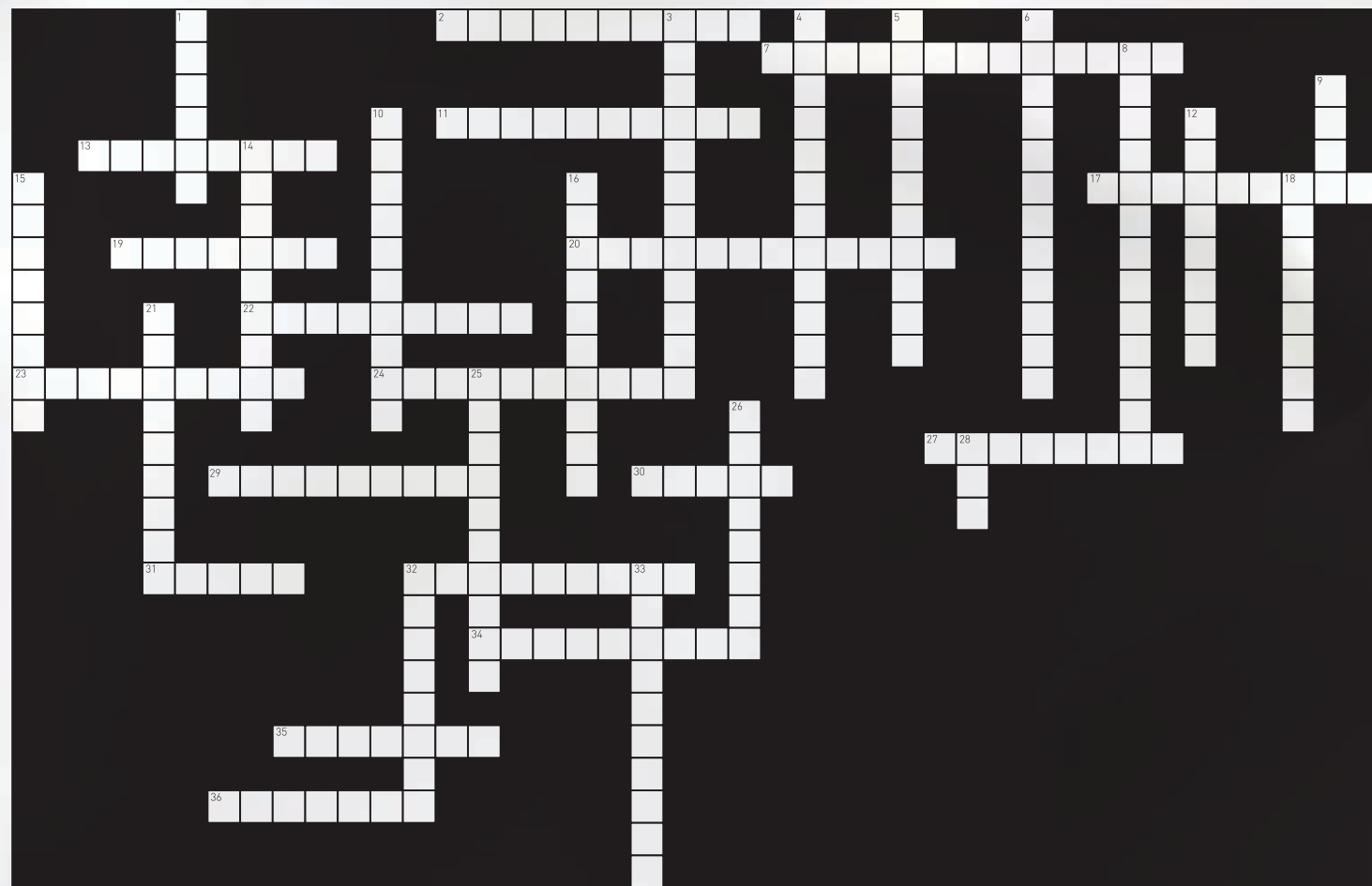
UNESCO MGIEP hosted a talk by linguist and educator Professor K. P. Mohanan as part of its Distinguished Lecture series on 2 December 2016. Aimed to spark transformative ideas for our shared future, the talk was co-organized by the University of Chicago Centre in New Delhi at its venue.

In his talk, Professor Mohanan highlighted the nexus between schooling, blind faith and collective violence. He established how mainstream

education typically produced pliant and "schooled" individuals with degrees and certificates, who could be easily manipulated and indoctrinated by governments, corporations, and religious fanatics—again because of blind faith in authority. One of the results of such manipulation was the obscuring of the nature of collective violence. He argued that if we could go beyond mere schooling to develop systems of real education that would build critical abilities in the learners to resist the indoctrination by politicians, corporations, and religious leaders, there would be a reasonable chance of significantly reducing these forms of violence.

Free as a word

Follow the clues on **Inclusive Education**



Across

2. Utterance
7. Diverse, wide-ranging
11. Ranking by a set of standards
13. Learn by heart
17. Therapist's concern
19. Meet in the middle?
20. Patterning of speech sounds in a language, adj.
22. Director of Jaws
23. Aristotle's "best provision for old age"
24. Learning technique
27. More than a few words
29. Work out
30. Pool contents
31. Just the same
32. Influence opinion in advance
34. Teacher's workplace
35. Auditory perception
36. They're sometimes grand

Down

1. Optometrist's concern
3. Get involved, noun
4. Dealing with disorders of the nervous system, adj.
5. Set of conventions for writing a language
6. One's capacity for logic
8. Comprehension
9. What language is made of, sing.
10. Word fund
12. Part of personal development
14. Students with special educational needs learn together with non-disabled students
15. UNICEF works for them
16. Collection of humans
18. Element 99 is named after him
21. Motivational impetus to action
25. Can be achieved through many years of practice
26. Entire extent
28. Take steps
32. High-level plans
33. Course of study

* CHECK OUR WEBSITE (mgiep.unesco.org/bluedot/) FOR THE SOLUTION.



Dyscalculia

Dyslexia

Dyspraxia

Dysgraphia

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- 2 Allies through training
- 3 Parent community and communication centres
- 4 Stronger schools and teachers
- 5 Youth voices
- 6 Polices and institutions

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solutions
from
disruptive thinkers



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that makes you curious
that concern you



DISCUSS IDEAS

that force you to think
that ask tough questions
that engross you



ACT ON

collaborative projects
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