

**A COMPARATIVE ANALYSIS OF IMPLEMENTATION  
STRATEGIES FOR SUPPORTING STUDENTS WITH  
DYSLEXIA IN CBSE & ICSE WITH INTERNATIONAL  
BACCALAUREATE CURRICULA IN DELHI NCR**

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under the guidance and supervision of

**Dr. Manan Dwivedi**

Submitted by

**Brigadier Amandeep Singh Dhodi**

**Roll No 5004**



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NEW DELHI**

## CERTIFICATE

It is hereby declared that this dissertation is my original piece of work and to the best of my knowledge and belief, it contains no material previously published or written by any other person. I am aware of the University's norms and regulations regarding plagiarism including the disciplinary action that it may invite. Any use of the works by any other author, in any form, is adequately acknowledged at their point of use or in the Bibliography.

Date: 20 Mar 2025

(Amandeep Singh Dhodi)

Brigadier

Place: New Delhi

Roll No : 5004

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I have the pleasure to certify that Brigadier Amandeep Singh Dhodi, has pursued his research work and prepared the present dissertation titled '*A Comparative Analysis of Implementation Strategies for Supporting Students with Dyslexia in CBSE & ICSE with International Baccalaureate Curricula in Delhi NCR*', under my guidance and supervision. The same is the result of research done by him/her and to the best of my knowledge; no part of the same has been part of any monograph, dissertation or book earlier. This is being submitted to the Panjab University, Chandigarh, for the purpose of Master of Arts in Public Administration and Public Policy in partial fulfilment of the requirement for the Advanced Professional Programme in Public Administration (APPPA) of Indian Institute of Public Administration (IIPA), New Delhi.

I recommend that the dissertation of Brigadier Amandeep Singh Dhodi is worthy of consideration for the award of Master of Arts degree of the Panjab University, Chandigarh.

Date: March 2025

**(Manan Dwivedi)**

Place: New Delhi

Indian Institute of Public Administration,  
New Delhi-110002

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Date: 20 Mar 2025

(Amandeep Singh Dhodi)

Brigadier

Place: New Delhi

Roll - 5004

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## **ABBREVIATIONS**

DAI	Dyslexia Association of India
IDA	International Dyslexia Association
CBSE	Central Board of Secondary Education
CISCE	Council for the Indian School Certificate Examinations
IB	International Baccalaureate
NEP	National Education Policy
SWOT	Strengths , Weakness, Opportunities, Threats
ILP	Individualized Learning Plans
NCERT	National Council of Educational Research & Training

## **EXECUTIVE SUMMARY**

Dyslexia is a widely recognized but often misunderstood learning disability that significantly impacts a child's ability to read, write, and process language. Despite global advancements in inclusive education, the support structures for dyslexic students in India remain inconsistent, particularly within the CBSE, CISCE, and IB curricula. This research conducts a comparative analysis of the strategies employed by these three educational boards in Delhi NCR to support dyslexic students. The study identifies policy gaps, evaluates implementation effectiveness, and provides recommendations to improve inclusivity and learning outcomes.

The study begins by defining dyslexia and its various manifestations across age groups, highlighting the importance of early intervention and the necessity for individualized educational accommodations. The research further explores the current policy landscape in India, demonstrating the need for structured dyslexia support. Global prevalence rates are analyzed with a particular focus on India and Delhi NCR, revealing the necessity for improved screening mechanisms and intervention strategies. The research objectives aim to assess the effectiveness of existing support systems and suggest policy-level enhancements to improve educational inclusivity.

The methodology employs a mixed-method research design, integrating both qualitative and quantitative approaches. Data collection was conducted through structured questionnaires distributed to schools and education boards, as well as interviews with policymakers and special educators. The study ensures representation by selecting schools that reflect Delhi NCR's diverse educational landscape. Surveys with teachers assess awareness, preparedness, and institutional support for dyslexic students, while interviews with board representatives provide insights into policy provisions and implementation

challenges. Academic performance records of dyslexic students were also analyzed to compare learning outcomes across different curricula.

The findings reveal stark disparities in the implementation of dyslexia accommodations. CBSE, despite having policy provisions, suffers from inconsistent teacher training and a lack of standardized implementation. CISCE grants dyslexia accommodations at the discretion of individual schools, leading to high variability in support structures. IB, by contrast, provides a structured model that includes mandatory teacher training, assistive technology integration, and personalized learning plans, making it the most effective in supporting dyslexic students. A SWOT analysis highlights the strengths, weaknesses, opportunities, and threats faced by each board in implementing dyslexia support mechanisms. Comparative tables and graphical representations illustrate variations in teacher perceptions, student performance, and institutional preparedness.

Based on these findings, evidence-based recommendations are provided to bridge existing gaps in policy and implementation. Policy recommendations for CBSE and CISCE include mandatory annual dyslexia screening for primary students, standardized accommodations such as extra time and scribes, and the integration of dyslexia-focused teacher training in pre-service and in-service education programs. IB best practices such as personalized learning plans, strong integration of assistive technology, and structured monitoring frameworks are suggested for adoption by CBSE and CISCE. At the school level, recommendations include establishing peer support groups, strengthening parent-teacher collaboration, promoting multi-sensory learning approaches, and ensuring access to special educators in all schools. For the Ministry of Education, the study suggests strengthening NEP 2020's provisions by introducing legally binding mandates for screening and accommodations, establishing national dyslexia screening centers, and allocating dedicated financial resources for teacher training and assistive technology.

The study underscores the need for structured interventions to support dyslexic students in India's diverse educational environment. While IB provides an effective model, CBSE and CISCE must enhance policy uniformity, improve teacher training, and implement systematic dyslexia accommodations. Dyslexic students can thrive academically when provided with timely identification, personalized learning plans, and access to assistive technology. By adopting global best practices, strengthening national policies, and ensuring consistent implementation, India can establish a truly inclusive education system that empowers every child to reach their full potential. This research contributes to the broader discourse on educational inclusivity in India, offering practical, data-driven solutions to address existing gaps. Future research should explore longitudinal case studies, assessing the impact of recommended policy changes on dyslexic student performance over time.

## **CHAPTER 1: INTRODUCTION**

Dyslexia is a complex neurodevelopmental disorder that primarily affects an individual's ability to read, write, and spell, often making academic tasks significantly challenging despite normal intelligence levels. It is widely accepted as a learning disability that originates from a deficit in the phonological component of language (Dyslexia Association Of India , 2022.). The International Dyslexia Association (IDA) defines dyslexia as "a specific learning disability that is neurobiological in origin, characterized by difficulties with accurate and/or fluent word recognition and by poor spelling and decoding abilities"(International Dyslexia Association, 2022). This condition is not linked to vision impairment or lack of intelligence but rather stems from differences in how the brain processes written and spoken language.

The term dyslexia is derived from two Greek words: "dys", meaning insufficient or lacking, and "lexicon", which pertains to words or verbal communication. As a result, dyslexia refers to difficulties in acquiring reading skills and processing written language. In earlier times, the term was associated with reading impairments resulting from brain damage. Initially, researchers viewed dyslexia as a condition acquired rather than innate, attributing reading challenges to cerebral diseases rather than direct brain injuries. A later theory proposed that dyslexia stemmed from disruptions in language processing caused by sensory disorientation, suggesting that contradictory sensory signals such as discrepancies between visual perception and balance or movement feedback contributed to reading difficulties..

Over time, scientific studies introduced the dual-route theory to explain how individuals interpret text and convert it into speech. One pathway, known as the

grapheme-phoneme conversion route, allows readers to sound out words by applying spelling-sound correspondence rules. The second pathway, known as the semantic route, enables the recognition of words based on meaning and prior knowledge. The grapheme-phoneme route is particularly effective for decoding regular words that follow standard phonetic patterns, even if they are unfamiliar or fictional. However, difficulties in either of these processing pathways can lead to distinct forms of dyslexia, where individuals may struggle with word pronunciation or text comprehension.

In modern understanding, dyslexia is recognized as more than just a reading difficulty; it encompasses challenges in literacy acquisition, cognitive development, and academic performance. According to the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV), dyslexia is classified as a reading disorder with neurological origins. It falls under the broader category of learning disabilities, where a child's reading, writing, or mathematical abilities are significantly lower than expected based on their age, education level, and cognitive capabilities.

Dyslexia is not an illness but rather a lifelong neurodevelopmental condition that presents uniquely in different individuals. Some children with dyslexia may exhibit strong verbal skills but struggle with vocabulary, speech clarity, or symbol interpretation. Common manifestations of dyslexia include letter reversals (e.g., misreading "b" as "d"), word sequencing errors (e.g., reading "tac" instead of "cat"), and difficulties in aligning numbers properly, which can result in mathematical miscalculations. Nevertheless, many individuals with dyslexia develop adaptive strategies and coping mechanisms to navigate their challenges.

Various terms have historically been used to describe dyslexia, including learning disability, specific learning difficulty, minimal brain dysfunction, neurological impairment, and perceptual disorder. There is ongoing discussion about whether dyslexia should be classified as a singular condition or if it is more appropriate to identify specific learning challenges separately. Some researchers argue that instead of using dyslexia as a broad label, it is more beneficial to pinpoint the precise nature of a student's learning difficulty to ensure targeted educational support and interventions.

Dyslexia manifests in varying degrees of severity, which are commonly classified into mild, moderate, and severe. The impact of dyslexia also evolves as a child grows, often becoming more apparent as literacy demands increase with age. Understanding how dyslexia presents itself at different developmental stages is crucial to formulating effective interventions and support systems (Shaywitz & Shaywitz, 2008).

(a) **Early Childhood (Ages 3-6)**. At this stage, children may experience delayed speech development, difficulty in recognizing and learning nursery rhymes, and struggles with letter and number recognition. Parents and teachers may notice that children find it challenging to follow multi-step instructions or frequently mispronounce words.

(b) **Primary School (Ages 6-12)**. This period marks the transition from learning to read to reading to learn. Children with dyslexia struggle with decoding words, face difficulty in understanding phonemic structures, and may experience poor spelling skills. Many children with dyslexia develop a reluctance to read, leading to frustration and anxiety in classroom settings.

(c) **Adolescence (Ages 12-18)**. The challenges extend beyond reading fluency to comprehension issues. Dyslexic students may struggle with taking notes, organizing thoughts in written form, and keeping up with a high volume of reading assignments. As academic demands increase, these students often experience a decline in self-confidence and motivation.

(d) **Adulthood**. Individuals with dyslexia continue to experience difficulties with reading speed, spelling, and written expression. These challenges may impact professional and daily life, requiring the use of adaptive strategies such as text-to-speech technology and organizational tools. (Snowling & Hulme, 2012).

### **The Need for Accommodations and Specialized Guidance for Dyslexic Students**

**The Role of Schools and Educators**. Educational institutions and teachers play a pivotal role in identifying students struggling with reading challenges, including those with dyslexia. It is their responsibility to provide instruction and intervention tailored to support these students in developing their reading skills. Every school should establish a student support team, comprising teachers, school psychologists, speech-language pathologists, and other specialists. Educators must identify learning difficulties without preconceived biases and acknowledge the obstacles students face in the classroom. When a learning disorder is suspected, the teacher must inform both the parents and the school administration, enabling necessary interventions. If required, parents may be advised to consult specialists for further evaluation (Vasanthi, n.d.). Having a strong understanding of dyslexia enables teachers to provide better support to students facing difficulties related to the condition. Numerous studies highlight the necessity for educators to undergo training on various learning disabilities, including dyslexia, to enhance their awareness and

intervention strategies. The earlier dyslexia is identified, the more effectively children can adapt to learning methods that cater to their unique educational needs.

**Challenges in Addressing Dyslexia** Children with dyslexia are often overlooked, making them more vulnerable to social marginalization and risks, particularly in societies where awareness and support are limited. Experts emphasize that teachers are often the first advocates for educational reforms, urging necessary changes to better support dyslexic students. Schools must be equipped with specialized training to address Specific Learning Disabilities (SLDs), as specified in the Rights of Persons with Disabilities Act of 2016. A common issue lies in the stigmatization of learning disabilities, leading to misconceptions and inadequate intervention. Instead of viewing these challenges as permanent obstacles, educators and policymakers should focus on early identification and appropriate remediation. While accommodations such as extra time, assistance from scribes, and second-language exemptions are useful during public examinations, their effectiveness is often limited due to a lack of awareness among teachers and parents. In accordance with Section 32 of the Rights of Persons with Disabilities Act (2016), five percent of seats in government and government-aided higher educational institutions are reserved for differently-abled students, along with a five-year upper age relaxation for admissions (Government of Tamil Nadu, 2023).

**Understanding Inclusive Education** The concept of inclusive education (IE) refers to an approach that eliminates barriers within the learning environment while addressing the individual needs of all students. As outlined in UNICEF's 2007 guidelines, inclusive education involves placing children in age-appropriate classrooms within their local schools while providing them with personalized support. This framework strengthens the educational system's ability to cater to diverse learners, ensuring equitable learning

opportunities for all students. The foundation for "Education for All" was established at the 1990 Jomtien World Conference on Education in Thailand, emphasizing that everyone, regardless of age, should have access to educational opportunities that meet their fundamental learning needs (Vasanthi, n.d.). Recognizing the necessity for a comprehensive dyslexia policy, Tamil Nadu's Department for the Welfare of the Differently Abled formed a special board to oversee the implementation of dyslexia-related policies. This initiative, led by State Commissioner for Persons with Disabilities, Johnny Tom Varghese, aims to develop clear guidelines for identifying and managing dyslexia within an inclusive legislative framework.

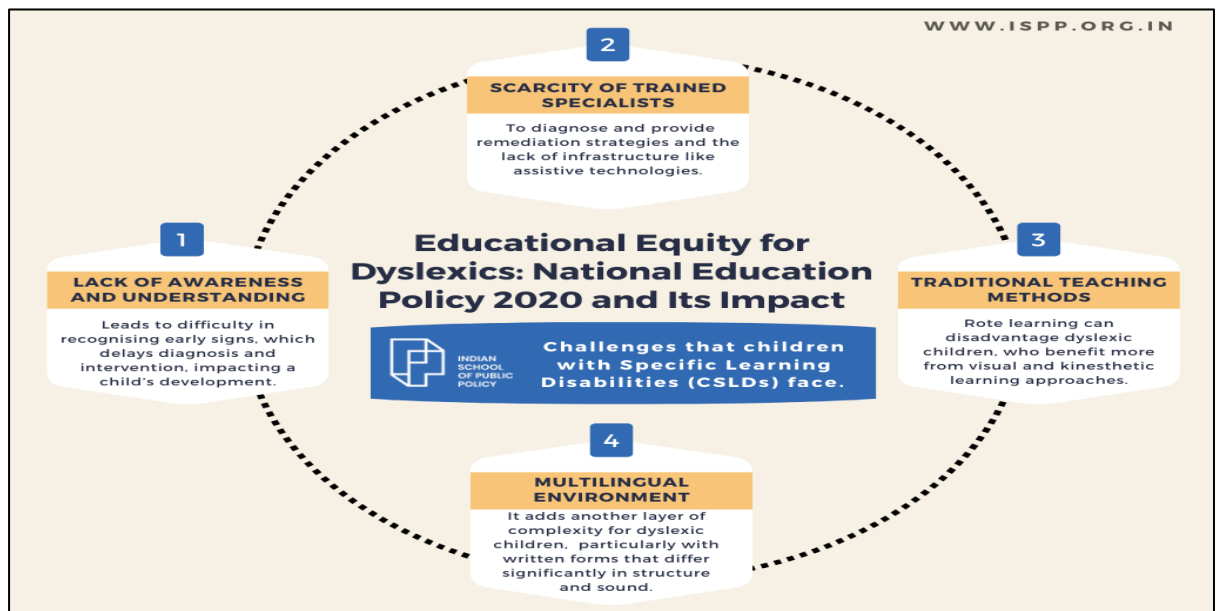
Dyslexia significantly impacts a child's academic performance and self-esteem, necessitating targeted accommodations and interventions. The requirement for specialized support is based on the principle of equitable education, ensuring that all students, irrespective of their learning differences, receive a fair opportunity to succeed. Educational accommodations and interventions for dyslexic students are designed to address specific challenges, ensuring their learning experience is as seamless as possible (National Education Policy Ministry of Human Resource Development Government of India, 2020). These include:-

- (a) **Multi-Sensory Teaching Methods**. Programs like Orton-Gillingham and Wilson Reading System employ auditory, visual, and kinaesthetic-tactile pathways to enhance learning (*Identifying and Teaching Children and Young People with Dyslexia and Literacy Difficulties*, 2009).
- (b) **Extended Test Taking Time**. This provides dyslexic students with the necessary flexibility to process and respond to written material.

(c) **Assistive Technology**. Tools such as audiobooks, speech-to-text applications, and specialized reading software help bridge the learning gap.

(d) **Individualized Education Plans (IEPs)**. Schools develop personalized strategies that focus on the student's strengths while accommodating their weaknesses.

India's National Education Policy (NEP) 2020 emphasizes inclusive education and acknowledges the importance of early diagnosis and intervention for students with learning disabilities. However, the implementation of these provisions varies widely across schools, often leaving students without the necessary support. The International Baccalaureate (IB) curriculum, in contrast, integrates dyslexia accommodations through its inclusive education policies, ensuring that students receive individualized learning plans and assessment modifications.



**Figure 1.1 : Impact of NEP on Educational Equity for Dyslexics**(*Dyslexia & Equity:*

*National Education Policy 2020's Impact, n.d.)*

## **Statistical Overview of Dyslexia in India and Delhi NCR**

Dyslexia is one of the most common learning disabilities, affecting a significant proportion of school-going children in India. Despite its prevalence, awareness and diagnostic rates remain low, resulting in many children not receiving the required interventions (Dyslexia Association Of India , 2022). According to estimates by the Dyslexia Association of India (DAI), the global prevalence of dyslexia ranges between 5-20%, while in India, it is estimated to affect around 15% of students. A report published by The Times of India (January 22, 2013) stated that approximately 228,994,454 students were enrolled in recognized schools at the time, implying that nearly 35 million children in India may be dyslexic. Dyslexia is recognized as the most prevalent learning disability, with approximately 70-80% of students diagnosed with learning disabilities (LD) experiencing difficulties related to reading. Despite having average or above-average intelligence, equal educational opportunities, and adequate instruction, individuals with dyslexia struggle with reading due to a fundamental cognitive processing deficit.

In a landmark ruling on September 5, 2012, the Delhi High Court mandated that all government, private, and public schools must develop the capacity to support students with various disabilities, including those with learning disabilities such as dyslexia. Furthermore, Specific Learning Disability (SLD) has now been included in both the Persons with Disabilities Act and the Diagnostic and Statistical Manual of Mental Disorders (DSM-V), officially recognizing dyslexia as a significant learning disorder requiring structured intervention.

In Delhi NCR, the prevalence of dyslexia aligns with national estimates. A 2022 report by the National Institute for Empowerment of Persons with Disabilities (NIEPD)

indicated that nearly 12% of students in private schools and 15% in government schools in Delhi NCR exhibit signs of dyslexia. The Delhi Commission for Protection of Child Rights (DCPCR) conducted a survey revealing that less than 40% of schools in Delhi NCR have structured intervention programs or trained special educators for dyslexic students. These figures underscore the need for structured, comparative research into how CBSE, ICSE, and IB curricula address dyslexia and provide support mechanisms.

### **Research Objectives.**

This study is designed to conduct a comprehensive inquiry into the institutional and curricular strategies employed by prominent educational boards—CBSE, CISCE (ICSE/ISC), and the International Baccalaureate (IB)—in supporting students with dyslexia across schools located in the Delhi NCR region. The specific objectives are as follows:

(a) To critically analyze the existing implementation strategies and institutional frameworks adopted by CBSE and CISCE-affiliated schools for identifying, accommodating, and supporting students with dyslexia in Delhi NCR. This includes assessing the extent to which policy guidelines are adhered to, the level of teacher preparedness, infrastructural provisions, and the effectiveness of accommodations in practice.

(b) To examine the International Baccalaureate's pedagogical philosophy and curriculum design in the context of inclusive education, with particular focus on how dyslexia is addressed through individualized support plans, the use of assistive technology, teacher training programs, and assessment accommodations.

(c) To compare the relative effectiveness of CBSE, CISCE, and IB models in enhancing academic performance, confidence, and holistic development of dyslexic students. The comparison will be grounded in both qualitative and quantitative evidence gathered from multiple stakeholders, including educators, administrators, and academic data from selected schools.

(d) To identify and synthesize best practices across all three educational boards with the aim of developing a set of policy-level and school-level recommendations. These recommendations will be tailored to enhance dyslexia support mechanisms through early screening interventions, teacher capacity-building, technology integration, and stakeholder collaboration.

### **Research Hypothesis**

It is hypothesized that While both CBSE and ICSE frameworks incorporate dyslexia support under NEP 2020, their implementation strategies vary in effectiveness compared to IB due to differences in:-

- (a) Resource & financial allocation (availability of trained special educators and assistive technology).
- (b) Teacher training programs (professional development in dyslexia-friendly teaching methods).
- (c) Curriculum adaptations (flexibility in assessment, accommodations and individualized learning approaches).

## **Scope of the Study**

This study is geographically confined to the **Delhi NCR region**, which encompasses Delhi and the surrounding urban areas in Haryana and Uttar Pradesh. The decision to focus on this region stems from its diverse educational landscape, comprising a **mix of CBSE, ICSE, and IB schools**, thus providing a suitable comparative framework.

The study will be conducted across six schools, including:-

- (a) Two CBSE schools that are implementing NEP 2020-based dyslexia support prog.
- (b) Two ICSE schools that have incorporated dyslexia interventions within their academic structure.
- (c) Two IB schools that follow globally recognized inclusive education models.

The research will evaluate how dyslexic students are accommodated within each of these curricula, examining teaching strategies, assessment methods, teacher preparedness, and institutional support systems. Additionally, the study will assess the availability of special educators, use of assistive technology, and overall effectiveness of intervention strategies across these educational boards.

## **Research Framework and Data Collection**

This study will employ a ‘mixed-method research design’, comprising:-

- (a) **Quantitative Research.**
  - (i) **Surveys.** Questionnaires distributed among teachers, school administrators, and policymakers to assess perceptions of dyslexia interventions.

- (ii) **Academic Performance Analysis.** Statistical comparison of dyslexic students' academic achievements with their non-dyslexic peers to identify learning gaps.
  
- (b) **Qualitative Research.**
  - (i) **Interviews.** Conducted with special educators, parents, and school administrators to understand challenges and success stories in dyslexia education.
  - (ii) **Observational Studies.** In-class observations to evaluate the effectiveness of multi-sensory learning methods and accommodations.
  
- (c) **Data Sources.**
  - (i) Official reports from educational boards (CBSE, ICSE, IB).
  - (ii) Government policies and NEP 2020 guidelines.
  - (iii) School-level records and student case studies.
  
  - (iii) Literature review of best practices in dyslexia education worldwide.

## **Conclusion**

This chapter has provided an in-depth overview of dyslexia, its impact on education, and the necessity for targeted interventions. By establishing statistical context and outlining research objectives, this chapter justifies the need for a comparative study of dyslexia support strategies in CBSE, ICSE, and IB curricula. The next chapter will review existing literature on dyslexia interventions, educational frameworks, and best practices in inclusive education.

## **Chapter 2: Literature Review**

### **Introduction to the Literature Review**

A literature review serves as the foundation for any academic research, providing a comprehensive analysis of prior studies, theories, and existing policies relevant to the research topic. In this study, the literature review examines the implementation strategies used by CBSE, ICSE, and IB curricula in supporting students with dyslexia in Delhi NCR. Dyslexia, a prevalent learning disability, has been the subject of extensive research in cognitive science, special education, and educational psychology. While developed countries have established well-defined interventions, India faces several challenges in early diagnosis, teacher preparedness, and curriculum adaptability. This chapter aims to synthesize research findings from global and national perspectives to identify best practices, policy gaps, and areas requiring further study.

Dyslexia is a neurological condition affecting reading, writing, and spelling abilities, despite normal intelligence and exposure to proper instruction. The International Dyslexia Association (IDA) defines it as a "specific learning disability that is neurobiological in origin, characterized by difficulties with accurate and/or fluent word recognition and by poor spelling and decoding abilities" (*International Dyslexia Association - ...until Everyone Can Read!*, n.d.). Research in neuropsychology suggests that dyslexia is linked to atypical activity in the left hemisphere of the brain, particularly in the Broca's area, parietotemporal, and occipitotemporal regions, which are responsible for phonological processing and word recognition (The Neurobiology of Reading and Dyslexia | The ASHA Leader Archive). These neurological findings have influenced intervention strategies, leading to the development of multi-sensory learning techniques,

phonemic awareness programs, and assistive technological tools aimed at enhancing literacy skills.

The global prevalence of dyslexia ranges between 5% and 20%, depending on diagnostic criteria and linguistic complexities. In India, it is estimated that 10-15% of school-going children exhibit symptoms of dyslexia, translating to approximately 35 million students (Dyslexia Association Of India, 2022). However, due to societal stigma, lack of teacher training, and absence of standardized regional-language screening tools, many dyslexic students remain undiagnosed. The disparity between private and government schools in India further exacerbates the issue, with urban private institutions being more likely to implement structured intervention programs compared to resource-constrained public schools (NCERT, 2021).

The National Education Policy (NEP) 2020 marks a significant step towards inclusive education, emphasizing the need for specialized interventions for students with learning disabilities, including dyslexia (*Ministry of Education | Government of India, Ministry of Education, n.d.-a*). However, its effectiveness depends largely on the implementation strategies employed by different educational boards. The Central Board of Secondary Education (CBSE), India's largest educational board, has introduced accommodations such as extra time for exams, provision of scribes, and modifications in assessment patterns for students with learning disabilities (*Instructions/Exemptions/Concessions Extended By The CBSE, n.d.*). However, inconsistencies in execution across schools raise concerns regarding equitable access to these accommodations, thereby necessitating this research.

The Indian Certificate of Secondary Education (ICSE) follows a rigorous curriculum that places heavy emphasis on language proficiency and textual analysis, making it particularly challenging for dyslexic students. While ICSE schools have introduced inclusive teaching methodologies, the actual effectiveness of these measures remains largely underexplored. Conversely, the International Baccalaureate (IB) curriculum integrates well-defined inclusive education policies, offering individualized learning plans (IEPs), differentiated instruction, and global best practices for assessment accommodations (Baccalaureate, 2022a). This makes IB schools a valuable comparative framework for evaluating dyslexia support models in India.

Internationally, countries such as the United States, the United Kingdom, and Finland have implemented robust dyslexia intervention programs. In the United States, the Individuals with Disabilities Education Act (Paul Rhodes, 1997) mandates specialized education services, including dyslexia screening and intervention programs for public schools (*Home | U.S. Department of Education*, n.d.). The United Kingdom's Special Educational Needs and Disability (SEND) Code of Practice requires schools to provide accommodations and modifications for students with learning difficulties (*Department for Education - GOV.UK*, n.d.). Finland, known for its inclusive education system, prioritizes early dyslexia screening and intervention, ensuring that students receive individualized support before literacy difficulties escalate (*Home | Education Finland*, n.d.). Studying these international models offers valuable insights into strategies that could be adapted to the Indian educational landscape.

Despite extensive research on dyslexia, significant gaps persist in the Indian context. Limited empirical studies assess the effectiveness of dyslexia interventions in CBSE, ICSE, and IB schools, making it difficult to evaluate their impact on student

outcomes. Additionally, although many schools claim to follow inclusive education principles, the actual implementation of accommodations remains inconsistent. Teacher training programs, while increasingly available, often lack depth, leaving educators ill-equipped to identify and support dyslexic students effectively. These gaps underscore the need for comparative research to assess how different curricula accommodate students with dyslexia and to recommend policy improvements.

Beyond educational policies, socio-cultural attitudes toward learning disabilities play a critical role in shaping dyslexia support systems in India. The stigma associated with learning difficulties discourages parents from seeking formal diagnoses, leading to undiagnosed cases and missed intervention opportunities. Many students are misclassified as "slow learners" instead of receiving targeted support, resulting in academic underperformance and psychological distress. Addressing these challenges requires an integrated approach, combining policy reforms, teacher training, parental awareness campaigns, and community-driven interventions.

This literature review will systematically explore global and national research on dyslexia, assessing intervention strategies across CBSE, ICSE, and IB schools. It will analyze how these curricula accommodate dyslexic students and compare their effectiveness in providing specialized learning support. The review will also examine emerging trends in dyslexia research, including advancements in assistive technology, neuroeducation, and evidence-based teaching methods. By synthesizing these perspectives, this chapter aims to provide a robust understanding of dyslexia intervention in India, serving as a foundation for the subsequent empirical analysis in this study.

## **Theoretical Frameworks on Dyslexia**

Dyslexia is a widely studied neurodevelopmental disorder that affects reading, spelling, and phonological processing despite adequate intelligence and educational opportunities. Several theoretical frameworks have been proposed to explain its underlying causes. These theories offer insights into the cognitive, neurological, and genetic aspects of dyslexia, forming the basis for intervention strategies and educational accommodations. This section discusses the primary theoretical perspectives on dyslexia, incorporating evidence from research studies, books, and scholarly articles.

**Phonological Deficit Theory.** The Phonological Deficit Theory is one of the most widely accepted explanations for dyslexia, suggesting that difficulties arise from deficits in phonological processing the ability to recognize and manipulate speech sounds. This impairment affects a child's ability to decode written words, leading to difficulties in reading fluency and comprehension (*Dyslexia as a Phonological Deficit: Evidence and Implications - Snowling - 1998 - Child Psychology a, n.d.*). Research has demonstrated that individuals with dyslexia struggle with segmenting, blending, and manipulating phonemes, which are essential for word recognition (*The Magnocellular Theory of Developmental Dyslexia. — Department of Physiology, Anatomy and Genetics, n.d.*). Consequently, phonics-based interventions have been widely implemented to support dyslexic learners.

**Magnocellular Deficit Theory.** The Magnocellular Deficit Theory proposes that dyslexia is linked to impairments in the magnocellular visual pathway, which is responsible for processing motion and contrast sensitivity (*The Magnocellular Theory of Developmental Dyslexia. — Department of Physiology, Anatomy and Genetics, n.d.*).

Deficiencies in this neural system can impact eye movement control, letter recognition, and visual tracking, all of which are necessary for fluent reading. Studies have found that individuals with dyslexia exhibit reduced sensitivity to visual motion stimuli, further supporting this theory (*The Magnocellular Deficit Theory of Dyslexia: The Evidence from Contrast Sensitivity - PubMed*, n.d.). Despite its relevance, the role of visual processing in dyslexia remains debated, as phonological impairments are often seen as the primary cause.

**Double-Deficit Hypothesis.** The Double-Deficit Hypothesis suggests that dyslexia results from deficits in both phonological processing and rapid naming ability. Rapid Automatized Naming (RAN) refers to the speed at which individuals can name familiar symbols, such as letters or numbers. Individuals with deficits in both phonological awareness and RAN tend to experience more severe reading difficulties than those with only one of these impairments (*The Double-Deficit Hypothesis: A Comprehensive Analysis of the Evidence - PubMed*, n.d.). Empirical research supports this hypothesis, emphasizing the importance of targeted interventions that address both phonological skills and naming speed.

**Cerebellar Theory.** The Cerebellar Theory proposes that dyslexia is associated with abnormalities in the cerebellum, a brain region traditionally linked to motor control but also involved in cognitive functions such as language processing. This theory suggests that cerebellar dysfunction leads to difficulties in automating reading and writing skills, affecting fluency and coordination. Neuroimaging studies have shown structural differences in the cerebellum of individuals with dyslexia, providing some support for this perspective. However, this theory remains less widely accepted than phonological

explanations (*A Test of the Cerebellar Hypothesis of Dyslexia in Adequate and Inadequate Responders to Reading Int*, n.d.).

**Rapid Automatized Naming (RAN) Deficit.** The RAN Deficit Hypothesis specifically focuses on the difficulties that individuals with dyslexia face in rapidly naming familiar stimuli. Slower RAN speeds have been identified as a predictor of reading difficulties, independent of phonological awareness. Research has demonstrated that RAN impairments affect reading fluency, emphasizing the need for interventions that improve both phonological skills and rapid naming ability (*Rapid Automatized Naming: What It Is, What It Is Not, and Why It Matters - PubMed*, n.d.).

**Visual Theory.** The Visual Theory posits that dyslexia is linked to visual processing deficits that affect the ability to recognize, track, and interpret written text. Individuals with dyslexia may experience visual distortions, difficulty focusing on text, and trouble distinguishing letter sequences. Research has identified abnormalities in the visual pathways of dyslexic individuals, suggesting that some cases of dyslexia may have a visual basis. However, the extent to which visual processing contributes to dyslexia remains debated (*The Visual Deficit Theory of Developmental Dyslexia - PubMed*, n.d.).

**Temporal Processing Theory.** The Temporal Processing Theory suggests that dyslexia is caused by difficulties in processing rapid auditory and visual stimuli, leading to impairments in phonological representation and reading development. Studies have found that individuals with dyslexia struggle to distinguish brief or rapidly changing speech sounds, which may hinder the development of phonemic awareness. This theory aligns with phonological deficit models but extends the explanation to deficits in auditory timing

and perception (*The “Temporal Processing Deficit” Hypothesis in Dyslexia: New Experimental Evidence - PubMed, n.d.*).

**Procedural Learning Deficit Hypothesis.** The Procedural Learning Deficit Hypothesis posits that dyslexia is related to deficits in procedural memory, which is responsible for acquiring skills and habits, including language and reading. Research indicates that individuals with dyslexia have difficulties with tasks requiring implicit learning, suggesting that procedural memory impairments may contribute to reading difficulties. This hypothesis has implications for intervention strategies that focus on developing procedural learning skills alongside phonological training (*Does the Procedural Deficit Hypothesis of Dyslexia Account for the Lack of Automatization and the Co, n.d.*).

**Genetic Influences.** Genetic research has identified multiple candidate genes associated with dyslexia, suggesting that the disorder has a hereditary component. Variations in genes such as DYX1C1 and KIAA0319 have been linked to reading difficulties. Twin studies have demonstrated that genetic predispositions significantly contribute to dyslexia, reinforcing the need for early screening and intervention in at-risk populations (*Genetics of Dyslexia: The Evolving Landscape - PMC, n.d.*).

**Neurobiological Perspectives.** Neuroimaging studies have revealed structural and functional differences in the brains of individuals with dyslexia, particularly in regions associated with language processing, such as the left temporoparietal cortex . Functional MRI scans have shown reduced activation in these areas during reading tasks, highlighting the neurological basis of dyslexia. These findings support the need for interventions that strengthen neural pathways involved in reading (Shaywitz & Shaywitz, 2008).

**Environmental Factors.** Environmental factors, including early language exposure, instructional quality, and socio-economic status, play a significant role in the manifestation of dyslexia. Children from literacy-rich environments tend to develop stronger phonological awareness, whereas those with limited exposure to print and oral language may experience greater reading difficulties. Educational interventions that enhance early literacy experiences can mitigate some of these effects (*Developmental Dyslexia: Environment Matters - PMC*, n.d.).

**Integrative Models.** Integrative models suggest that dyslexia results from the interaction of multiple factors, including phonological deficits, visual impairments, genetic predispositions, and environmental influences. These models emphasize the complexity of dyslexia and the importance of comprehensive assessment and intervention strategies (*Toward an Integrated Understanding of Dyslexia: Genetic, Neurological, and Cognitive Mechanisms - Pu*, n.d.).

Dyslexia is a multifaceted disorder with various theoretical explanations. While the Phonological Deficit Theory remains the most widely accepted, other perspectives such as the Magnocellular Deficit Theory, Cerebellar Theory, and Double-Deficit Hypothesis provide additional insights. A holistic approach that considers multiple interacting factors is essential for understanding dyslexia and implementing effective interventions.

### **Educational Interventions for Dyslexia: A Global Perspective**

Dyslexia, a specific learning disability characterized by difficulties with accurate and/or fluent word recognition, spelling, and decoding abilities, affects a significant

portion of the global population. Educational interventions play a crucial role in mitigating the challenges faced by individuals with dyslexia. This section provides an in-depth analysis of global research on educational interventions for dyslexia, highlighting key studies, methodologies, outcomes, and identifying existing research gaps.

Educational interventions for dyslexia encompass a range of strategies designed to improve reading and writing skills. These interventions often include explicit instruction in phonemic awareness, phonics, fluency, vocabulary, and comprehension. Multisensory approaches, which engage visual, auditory, and kinesthetic modalities, are commonly employed to reinforce learning. Early identification and intervention are emphasized to prevent long-term academic difficulties.

### **Analysis of Five Global Research Studies**

**Forty Years of Reading Intervention Research for Elementary Students with Learning Disabilities: An Analysis of Effect Sizes.** This comprehensive meta-analysis examined reading intervention studies conducted over four decades, focusing on elementary students with learning disabilities, including dyslexia. The analysis revealed that interventions incorporating explicit instruction in phonics and phonemic awareness yielded significant improvements in reading skills. Additionally, interventions of longer duration and greater intensity were associated with larger effect sizes. The study underscores the importance of sustained, evidence-based interventions in supporting students with dyslexia (*Early Intervention in Dyslexia Can Narrow Achievement Gap, UC Davis Study Says* / UC Davis, n.d.).

**Educational Interventions for Primary School Students with Dyslexia: A Systematic Review.** This systematic review analyzed empirical studies on interventions aimed at primary school students with dyslexia. The findings highlighted the effectiveness of interventions that included training in letter-sound correspondence, phoneme awareness, and linking letters and phonemes. The review also emphasized the need for interventions to be tailored to individual student needs and the importance of teacher training in delivering these interventions effectively (*Educational Interventions for Primary School Students with Dyslexia—a Mapping Study: Reading & Writi*, n.d.).

**The Critical Role of Instructional Response for Identifying Dyslexia and Other Learning Disabilities.** This study explored best practices for the identification and treatment of dyslexia within the context of multi-tiered systems of support (MTSS). The researchers emphasized the importance of instructional response in identifying students with dyslexia and highlighted the effectiveness of targeted interventions. The study also discussed the need for ongoing progress monitoring to adjust interventions as needed (*The Critical Role of Instructional Response for Identifying Dyslexia and Other Learning Disabilities - PMC*, n.d.).

**Early Intervention in Dyslexia Can Narrow Achievement Gap.** This research emphasized the significance of early identification and intervention in dyslexia. The study found that identifying children with dyslexia as early as first grade could narrow or even close the achievement gap with typical readers. The findings highlight the critical window in early education where interventions can have the most substantial impact (*Early Intervention in Dyslexia Can Narrow Achievement Gap, UC Davis Study Says | UC Davis*, n.d.).

**Evidence-Based Interventions for Dyslexia.** This study explored various evidence-based interventions for dyslexia, including rhythm-based activities such as clapping, tapping, or drumming. These activities aim to improve phonological awareness and timing skills, which are essential for reading and language comprehension. The study suggests that incorporating music therapy into intervention programs can provide a creative and enjoyable learning experience for students with dyslexia (The Critical Role of Instructional Response for Identifying Dyslexia and Other Learning Disabilities - PMC, n.d.).

**Research Gaps.** Despite extensive research on educational interventions for dyslexia, several gaps remain:-

(a) **Long-Term Efficacy of Interventions.** While many studies demonstrate short-term improvements in reading skills following interventions, there is limited research on the long-term sustainability of these gains. Understanding the durability of intervention effects is crucial for developing programs that provide lasting benefits (*“Evidence Based” But Does It Work? | Dyslexia the Gift Blog*, n.d.).

(b) **Intervention Fidelity and Implementation.** Research indicates variability in the implementation of interventions across different educational settings. Ensuring that interventions are delivered as intended (intervention fidelity) is essential for their effectiveness. There is a need for studies that examine the factors influencing fidelity and strategies to enhance consistent implementation.

- (c) **Individual Differences and Personalized Interventions.** Dyslexia manifests differently among individuals, yet many interventions adopt a one-size-fits-all approach. Research focusing on personalized interventions that cater to individual strengths and weaknesses is limited. Tailored interventions could potentially yield more significant improvements in reading skills.
- (d) **Cultural and Linguistic Diversity.** Most research on dyslexia interventions has been conducted in English-speaking countries. There is a scarcity of studies examining the effectiveness of interventions across different languages and cultures. Understanding how dyslexia manifests in various linguistic contexts is vital for developing globally applicable interventions.

Educational interventions are pivotal in supporting individuals with dyslexia. The analyzed studies highlight the effectiveness of explicit, systematic instruction in phonological skills and the benefits of early intervention. However, addressing the identified research gaps is essential for advancing our understanding and improving intervention strategies. Future research should focus on the long-term efficacy of interventions, ensure fidelity in implementation, personalize interventions to individual needs, consider comorbid conditions, and expand studies to include diverse cultural and linguistic populations. By addressing these gaps, educators and researchers can develop more effective, inclusive, and sustainable interventions to support individuals with dyslexia worldwide.

### **Dyslexia in the Indian Context**

Dyslexia is a significant learning disorder that impacts an individual's reading, spelling, and writing abilities despite normal intelligence and adequate educational

opportunities. In India, dyslexia is often underdiagnosed due to a lack of awareness, standardized assessment tools, and specialized interventions. The education system has made strides in recognizing learning disabilities, but challenges persist in implementing effective interventions in schools. This section reviews five key studies focusing on dyslexia intervention strategies in Indian schools, analyzing their scope, findings, and the existing research gaps.

### **Prevalence of Dyslexia Among Primary School Children in Western Maharashtra.**

(a) **Scope.** This study aimed to determine the prevalence of dyslexia among primary school students enrolled in government and private schools in Western Maharashtra. A standardized dyslexia screening tool was employed to assess 128 students across multiple institutions.

(b) **Findings.** Results indicated that 10.9% of students were identified as dyslexic, 9.3% as vulnerable, and 79.8% as non-dyslexic. The study further highlighted that the majority of dyslexic students (71%) were from government schools, reinforcing the need for targeted interventions in public education (Patil & Mahajan, 2020) (*Dyslexia\_ An Invisible Disability or Different Ability - PMC*, n.d.).

(c) **Research Gaps.** The study was limited to a small geographic area, raising concerns about generalizability across diverse regions of India. Larger sample sizes and comparative analyses across different states could provide a clearer picture of dyslexia's prevalence nationwide .

### **Challenges Faced by Dyslexic Students in the Indian Education System.**

(a) **Scope.** This research explored the systemic barriers preventing dyslexic students from receiving adequate educational support. It focused on the effectiveness of remedial education and the role of early intervention in improving learning outcomes.

(b) **Findings.** The study emphasized that early-stage remedial education yields better results due to the adaptability of young children's neural development. However, it also highlighted that without consistent and sustained intervention, students continued to struggle academically, often being misclassified as "slow learners" rather than being diagnosed with dyslexia (Nidya, 2024).

(c) **Research Gaps.** While the study underlined the importance of early intervention, it did not provide a structured framework for remedial education. Further research is needed to establish standardized intervention models tailored to the Indian education system.

### **Understanding Dyslexia in Indian Children: Screening and Intervention Strategies.**

(a) **Scope.** This study reviewed various strategies for diagnosing and managing dyslexia among Indian schoolchildren, examining existing screening tools, cognitive training programs, and phonics-based interventions.

(b) **Findings**. The research concluded that India lacks a unified approach for dyslexia identification, with schools relying on varied, often non-standardized assessment methods. Cognitive training programs, when implemented, showed promising results in enhancing phonemic awareness and reading fluency among dyslexic students (Understanding Dyslexia In Indian Children: Identification And Intervention Strategies | Journal of P, n.d.).

(c) **Research Gaps**. The study pointed out a shortage of replicative research on dyslexia interventions in India. More longitudinal studies are required to assess the long-term effectiveness of different teaching methodologies for dyslexic students.

### **Management of Specific Learning Disabilities in Indian Schools.**

(a) **Scope**. This study examined the policies and practices in Indian schools regarding specific learning disabilities (SLDs), including dyslexia. It analyzed the extent to which schools comply with existing guidelines for inclusive education.

(b) **Findings**. While awareness of SLDs has improved in India, schools still struggle with implementing structured support programs. The research highlighted the importance of teacher training, the establishment of resource rooms, and the employment of special educators. However, it also found that many schools lack trained professionals to support students with dyslexia effectively (*Managing Specific Learning Disability in Schools in India - PubMed*, n.d.).

(c) **Research Gaps.** A key limitation of this study was its focus on policy compliance rather than practical implementation. Future research should examine how schools can integrate inclusive teaching strategies effectively within mainstream classrooms.

### **Dyslexia Support Systems in Delhi NCR: A Case Study.**

(a) **Scope.** This case study analyzed the support mechanisms available for dyslexic students in Delhi NCR, evaluating the role of specialized learning centers, remedial educators, and parental involvement.

(b) **Findings.** The study revealed that specialized learning centers in Delhi NCR offer individualized intervention programs, including multi-sensory learning techniques, phonics-based instruction, and cognitive therapy. Parents played a crucial role in advocating for accommodations in mainstream schools, with some institutions offering extra time, scribe assistance, and oral testing options (*Dealing with Dyslexia \_ Delhi News - Times of India, n.d.*).

(c) **Research Gaps.** The study was limited in scope as it focused mainly on private institutions, neglecting government schools, where resources are often more constrained. Further research is required to assess the accessibility and effectiveness of dyslexia interventions in public schools across Delhi NCR.

**Identified Research Gaps in Indian Dyslexia Studies.** Despite the progress made in dyslexia research in India, significant gaps remain in policy implementation,

standardized assessment tools, and accessibility to intervention programs. The following are key areas that require further exploration:-

- (a) **Inadequate Large-Scale Data.** Most studies rely on small, region-specific samples, limiting their applicability on a national scale. Large-scale, multi-state prevalence studies are needed to develop national policies.
  
- (b) **Lack of Government-Backed Screening Tools.** India lacks standardized dyslexia screening tools in regional languages. Schools currently use varied diagnostic methods, leading to inconsistent identification and intervention.
  
- (c) **Limited Focus on Teacher Training.** Research highlights the importance of teacher preparedness, yet most studies fail to assess how well educators understand dyslexia. Training programs need to be evaluated for their effectiveness in real classroom settings.
  
- (d) **Insufficient Research on Public Schools.** While private institutions often offer dyslexia accommodations, government schools face significant challenges in implementation. Future studies should explore how public schools can integrate cost-effective intervention strategies.
  
- (e) **Longitudinal Impact of Interventions.** While several studies demonstrate short-term improvements, there is little research on the long-term efficacy of intervention programs in India. Follow-up studies are needed to track dyslexic students' progress beyond primary education.

The reviewed studies provide valuable insights into dyslexia prevalence, intervention effectiveness, and the challenges faced by Indian schools in supporting dyslexic students. However, significant research gaps remain, particularly in long-term intervention outcomes, teacher training effectiveness, and public school inclusivity. Addressing these gaps is essential for developing evidence-based policies and ensuring dyslexic students receive the support they need to thrive in mainstream education.

### **Strategies for Dyslexia Support in Different Curricula**

Dyslexia, a specific learning disability affecting reading and writing skills, requires structured interventions and accommodations to ensure that students receive equitable educational opportunities. Educational curricula such as the Central Board of Secondary Education (CBSE), Indian Certificate of Secondary Education (ICSE), International Baccalaureate (IB), and guidelines set by the Ministry of Education, Government of India, under NEP 2020 outline various approaches to dyslexia support in schools. This section aims to identify the board publications and reports which provide data on the guidelines of how dyslexia is addressed in these curricula, thereby laying foundation for evaluating policies, support mechanisms, implementation strategies, and identifying gaps therein in the next chapter.

**Central Board of Secondary Education (CBSE).** The Central Board of Secondary Education (CBSE) circulars give out substantial efforts by the board to integrate inclusive education policies, ensuring that students with learning disabilities, including dyslexia, receive appropriate academic support. Schools under CBSE must comply with guidelines that prohibit discrimination against students with special needs, mandating that they be given equal access to mainstream education. Provisions include the

availability of assistive technologies, additional examination time, exemption from second language requirements, and access to trained special educators. The CBSE Circular on Inclusive Education (2019) aligns with the Rights of Persons with Disabilities Act (2016), thereby providing a legal framework for educational institutions to implement these accommodations. However, the effectiveness of these measures varies significantly across schools due to inconsistent implementation and a lack of specialized teacher training programs, which limits their ability to provide comprehensive dyslexia support (CBSE Circular, 2018; CBSE Circular, 2019).

**Indian Certificate of Secondary Education (ICSE).** The Indian Certificate of Secondary Education (ICSE) provides accommodations for students with dyslexia, offering exam concessions such as extra time, scribes, and exemptions from certain subjects to alleviate academic pressure. While the Council for the Indian School Certificate Examinations (CISCE) recognizes the necessity for support mechanisms, the execution of these provisions is largely dependent on individual schools, leading to inconsistencies in implementation. Some ICSE schools have incorporated remedial programs and multisensory learning techniques, but many still lack structured intervention frameworks. Furthermore, limited awareness among educators and parents regarding dyslexia-related policies creates obstacles to uniform support. Organizations such as the Madras Dyslexia Association advocate for more standardized policies and greater teacher training to bridge these gaps and ensure a cohesive approach to dyslexia education (Regulations ICSE, n.d.).

**International Baccalaureate (IB).** The International Baccalaureate (IB) curriculum emphasizes an inclusive and individualized approach to education, ensuring that students with dyslexia receive tailored support through structured intervention

strategies. IB schools are required to follow the IB Access and Inclusion Policy, which mandates early identification of learning difficulties and the implementation of Individualized Education Plans (IEPs). These plans provide dyslexic students with accommodations such as extra examination time, alternative assessment formats, and access to assistive technologies like speech-to-text software. Additionally, IB places a strong emphasis on professional development, requiring educators to undergo training in inclusive education methodologies to better support students with learning disabilities. Despite these structured policies, resource limitations in certain IB schools pose a challenge, leading to disparities in implementation depending on the institution's financial and administrative capabilities (Baccalaureate, 2022b).

**Dyslexia Support in the National Education Policy (NEP) 2020.** The National Education Policy (NEP) 2020 marks a transformative shift towards inclusive education in India, addressing the needs of students with learning disabilities, including dyslexia. The policy underscores the importance of early detection, recommending regular screenings to identify learning disabilities at an early stage, thereby allowing for timely intervention. Additionally, NEP 2020 calls for the establishment of specialized resource centers within schools to provide remedial support and individualized instruction. To enhance the competency of educators, the policy mandates compulsory training in inclusive teaching practices, ensuring that teachers can effectively address the needs of dyslexic students. The NEP also promotes flexibility in subject selection, allowing students with learning disabilities to choose alternative subjects in place of traditionally challenging ones, such as mathematics or additional languages. However, challenges persist in fully realizing these objectives, as many government schools continue to struggle with resource shortages, inadequate teacher training, and low levels of awareness regarding learning disabilities (Ministry of Education / Government of India, Ministry of Education, n.d.-a; National

*Education Policy 2020 Ministry of Human Resource Development Government of India,*  
n.d.-a).

The policies implemented by CBSE, ICSE, IB, and the Ministry of Education under NEP 2020 demonstrate a growing commitment to supporting students with dyslexia. While IB provides the most structured and comprehensive approach, CBSE and ICSE offer basic accommodations that vary in their execution across schools. NEP 2020 outlines a progressive framework for dyslexia intervention, emphasizing early identification, teacher training, and curriculum flexibility. However, resource disparities, inconsistent policy implementation, and limited awareness remain key challenges. Addressing these issues through standardization of dyslexia interventions, enhanced teacher training, and increased parental involvement will be crucial in ensuring equitable education for all students with dyslexia.

### **Research Gaps in Existing Research**

Despite growing awareness and policy advancements, the research on dyslexic students in Delhi NCR remains fragmented and lacks a comprehensive comparative analysis of the implementation of support mechanisms across different curricula. The prevalence of dyslexia in India has been documented in several studies, but there is a lack of region-specific data on dyslexic students in Delhi NCR, which is home to diverse school systems, including CBSE, ICSE, and IB schools, along with government institutions following the National Education Policy (NEP) 2020 guidelines. A major research gap is the inconsistent application of accommodations and interventions across these different curricula, leading to disparities in the educational experiences of dyslexic students.

Based on the selected hypothesis, CBSE and ICSE provide some accommodations for dyslexic students, there is no uniform implementation strategy, and the effectiveness of these interventions varies significantly between schools. IB, on the other hand, follows a more structured, standardized approach but is only accessible to a limited number of students due to its higher cost and limited availability in the region. The NEP 2020 has proposed significant reforms, emphasizing inclusive education and early screening for learning disabilities, but implementation challenges persist, especially in government-run and resource-limited schools. There is little research evaluating how effectively NEP 2020 provisions are being translated into practice in Delhi NCR, and whether they bridge the gap between public and private education for students with dyslexia.

### **Need for a Comparative Analysis & Justification of Study**

Given the diverse educational landscape of Delhi NCR, a comparative study of CBSE, ICSE, and IB curricula is essential to identify best practices and challenges in dyslexia support. Each curriculum follows distinct policies and intervention strategies, yet there is no unified framework to assess their relative effectiveness. A structured comparison would provide empirical insights into the success and limitations of different educational models in supporting dyslexic students.

The importance of conducting this research lies in addressing the pressing need for a standardized and evidence-based approach to supporting dyslexic students in Delhi NCR. Without a structured comparative study, policy decisions and school interventions may remain inconsistent, leaving many students without adequate support. This research

aims to bridge the knowledge gap by evaluating how CBSE, ICSE, IB, and NEP 2020-based schools accommodate dyslexic students, identifying areas of improvement, and recommending best practices.

## **CHAPTER 3: RESEARCH METHODOLOGY**

### **Introduction**

The research methodology for this study is structured around a mixed-method approach, which integrates both quantitative and qualitative techniques to provide a holistic understanding of dyslexia support mechanisms in CBSE, ICSE, and IB schools across Delhi NCR. This approach ensures a comprehensive and multidimensional analysis that captures statistical trends while also incorporating personal experiences and qualitative insights from teachers, school administrators, educational board officials, and special educators. The rationale behind selecting this research methodology stems from the need to identify not just quantifiable data on policy implementation but also the lived experiences of dyslexic students and the educators who support them (Quantitative And Qualitative Methods, 2020). This chapter provides an in-depth exploration of the selection criteria for educational boards and schools, data collection methods, and ethical considerations, ensuring a systematic and well-grounded approach to the study. Additionally, three annexures are included, each containing questionnaires for educational boards, schools, and interview participants, along with justifications for the selected questions.

The study focuses on three major educational boards that oversee primary and secondary education in India: the Central Board of Secondary Education (CBSE), the Council for the Indian School Certificate Examinations (CISCE - ICSE), the International Baccalaureate (IB), and in addition the National Education Policy (NEP) 2020 guidelines. These boards were chosen based on their unique educational policies and distinctive approaches toward inclusive education and special needs support, including dyslexia

interventions. Their inclusion in this research allows for a comparative analysis of the effectiveness of dyslexia support across different educational systems.

## **SELECTION OF BOARDS**

### **Central Board of Secondary Education(CBSE)**

The Central Board of Secondary Education (CBSE) stands as one of India's most prominent educational boards, overseeing a vast network of schools nationwide. Established to provide a common framework for education across the country, CBSE has played a pivotal role in shaping India's educational landscape.

**Historical Evolution of CBSE.** The origins of CBSE trace back to 1921 with the establishment of the Uttar Pradesh Board of High School and Intermediate Education, the first educational board in India. This board had jurisdiction over Rajputana, Central India, and Gwalior. In 1929, the Government of India set up the Board of High School and Intermediate Education, Rajputana, which included Ajmer, Merwara, Central India, and Gwalior. This was the precursor to the present CBSE. In 1952, it became the "Central Board of Secondary Education," and its jurisdiction was extended to parts of India. The primary objective was to serve educational institutions more effectively and to be responsive to the educational needs of those students whose parents were employed in transferable jobs (*Our History / Central Board of Secondary Education, n.d.*).

## **Strengths of CBSE.**

- (a) **Uniform Curriculum.** CBSE offers a standardized curriculum across all its affiliated schools, ensuring uniformity in education. This is particularly beneficial for students whose parents have transferable jobs, allowing for a seamless transition between schools in different states (*CBSE - Central Board of Secondary Education, n.d.*).
- (b) **Focus on STEM.** The board places significant emphasis on Science, Technology, Engineering, and Mathematics (STEM) subjects, preparing students for competitive examinations and fostering analytical skills.
- (c) **Continuous Reforms.** CBSE has been proactive in implementing educational reforms. The introduction of the Continuous and Comprehensive Evaluation (CCE) system aimed to assess students' holistic development beyond academics (*CBSE - Central Board of Secondary Education, n.d.*).
- (d) **National Presence.** With a vast network of schools across India, CBSE ensures that a large student population has access to quality education.

## **Challenges Faced by CBSE**

- (a) **Implementation Disparities.** While CBSE sets guidelines, the implementation varies across schools, leading to inconsistencies in education quality.

(b) **Overemphasis on Examinations.** Despite reforms, there remains a significant focus on rote learning and high-stakes examinations, sometimes at the expense of creativity and critical thinking.

(c) **Inclusive Education.** Integrating children with special needs into mainstream education poses challenges, including the need for trained educators and appropriate infrastructure.

**CBSE's Reach in India and Delhi NCR.** As of the latest available data, CBSE affiliates over 20,000 schools across India. In the Delhi National Capital Region (NCR), CBSE's presence is particularly strong, with approximately 1,000 affiliated schools. This accounts for about 5% of its total affiliations nationwide, highlighting the region's significance in CBSE's network . (*CBSE - Central Board of Secondary Education, n.d.*)

**Achievements in Inclusive Education.** CBSE has taken notable strides in promoting inclusive education:-

(a) **Policy Initiatives.** The board has mandated provisions for schools to accommodate children with special needs by stipulating provisions on disability-specific learning aids and infrastructural changes.

(b) **Teacher Training.** CBSE emphasizes training educators to handle diverse classrooms, ensuring they are equipped to support students with varying needs.

(c) **Collaborative Efforts.** The board collaborates with organizations to develop resources and tools that assist in implementing inclusive practices effectively.

CBSE's journey reflects its commitment to providing standardized and quality education across India. While it boasts strengths like a uniform curriculum and a focus on STEM, challenges such as implementation disparities and the need for more robust inclusive education practices remain. Nevertheless, with its extensive reach, especially in regions like Delhi NCR, and its ongoing efforts towards inclusivity, CBSE continues to play a crucial role in shaping the educational experiences of millions of students nationwide (*CBSE - Central Board of Secondary Education, n.d.*).

### **Council for the Indian School Certificate Examinations (CISCE)**

The Council for the Indian School Certificate Examinations (CISCE) is a prominent national-level, private, non-governmental board of school education in India. Established in 1958, CISCE conducts two major examinations: the Indian Certificate of Secondary Education (ICSE) for Class X and the Indian School Certificate (ISC) for Class XII (*CISCE, n.d.*).

**Historical Evolution of CISCE.** CISCE was established to provide an examination in a course of general education, in accordance with the recommendations of the New Education Policy 1986, through the medium of English. The board was established to replace the overseas Cambridge School Certificate Examination and tailor the curriculum to the needs of the nation. Over the years, CISCE has grown to accommodate a diverse range of subjects and has emphasized a balanced curriculum catering to the holistic development of students (*CISCE, n.d.*).

### **Strengths of CISCE.**

- (a) **Comprehensive Curriculum.** CISCE offers a broad and balanced curriculum that encourages analytical thinking and creativity. The syllabus is designed to provide a strong foundation in various subjects, promoting both depth and breadth of knowledge.
  
- (b) **Emphasis on English Language.** The board places a significant emphasis on the English language, which enhances students' proficiency and prepares them for global opportunities.
  
- (c) **Flexibility in Subject Choices.** CISCE provides students with a variety of subject choices, allowing them to tailor their education according to their interests and career aspirations.
  
- (b) **Focus on Practical Knowledge.** The curriculum incorporates project work and practical assessments, ensuring that students gain hands-on experience and develop critical thinking skills.

### **Challenges Faced by CISCE.**

- (a) **Higher Academic Pressure.** The extensive syllabus can lead to increased academic pressure on students, necessitating effective time management and support systems.

(b) **Limited Reach.** Compared to other national boards, CISCE has a relatively smaller number of affiliated schools, which may limit its accessibility to a broader student population.

(c) **Resource-Intensive Implementation.** The emphasis on practical and project-based learning requires substantial resources, which can be challenging for schools with limited infrastructure.

**CISCE's Reach in India and Delhi NCR.** As of the latest available data, CISCE has over 2,750 affiliated schools in India and abroad. In the Delhi National Capital Region (NCR), CISCE's presence is significant, with numerous schools offering ICSE and ISC curricula. While exact numbers vary, CISCE-affiliated schools constitute a substantial portion of the educational institutions in the region, reflecting the board's commitment to providing quality education (CISCE, n.d.).

**Achievements in Inclusive Education.** CISCE has taken notable steps to promote inclusive education (CISCE, n.d.):-

(a) **Policy Framework.** The board has developed policies to accommodate students with special needs, ensuring they receive appropriate support and resources.

(b) **Teacher Training.** CISCE emphasizes the training of educators to handle diverse classrooms, equipping them with the skills necessary to support students with varying needs.

(c) **Collaborative Initiatives.** The board collaborates with various organizations to develop resources and tools that assist in implementing inclusive practices effectively.

CISCE's commitment to providing a comprehensive and balanced education is evident in its curriculum and policies. While challenges such as academic pressure and resource requirements exist, the board's strengths in curriculum design, language emphasis, and inclusive education initiatives position it as a significant contributor to India's educational landscape. With its substantial presence in regions like Delhi NCR and ongoing efforts towards inclusivity, CISCE continues to play a crucial role in shaping the educational experiences of students nationwide.

### **International Baccalaureate (IB)**

The International Baccalaureate (IB) is a globally recognized educational foundation that offers four challenging programmes aimed at developing inquiring, knowledgeable, and caring young people. Established in 1968, the IB has expanded its reach to over 5,500 schools across 160 countries, providing a comprehensive framework that encourages students to think critically, engage globally, and learn across disciplines (*International Education - International Baccalaureate®*, n.d.).

**Historical Evolution of the IB.** The IB was founded in Geneva, Switzerland, with the primary goal of providing a standardized, internationally recognized curriculum for students worldwide. Initially designed for the children of diplomats and international professionals, the IB aimed to facilitate a smooth educational transition across different

countries. Over the decades, the IB has evolved to include four programmes (The History of the IB, 2017):-

- (a) **Primary Years Programme (PYP)**. Introduced in 1997, catering to students aged 3 to 12, focusing on the development of the whole child.
  
- (b) **Middle Years Programme (MYP)**. Launched in 1994 for students aged 11 to 16, emphasizing intellectual challenge and encouraging connections between traditional subjects and the real world.
  
- (c) **Diploma Programme (DP)**. The original programme introduced in 1968 for students aged 16 to 19, renowned for its rigorous assessment and holistic approach to education.
  
- (d) **Career Related Programme (CP)**. Established in 2012, designed for students aged 16 to 19 interested in career-related education.

**Strengths of the IB** (*International Education - International Baccalaureate®*, n.d.).

- (a) **Holistic Education**. The IB emphasizes the development of the whole person intellectually, personally, emotionally, and socially preparing students for life in a globalized 21st century.
  
- (b) **Critical Thinking and Inquiry Based Learning**. IB programmes encourage students to think critically, ask probing questions, and develop research skills, fostering a love for lifelong learning.

(c) **International Mindedness**. The curriculum promotes cultural understanding and respect, preparing students to navigate and contribute to an increasingly interconnected world.

(d) **Consistent and Reliable Assessment**. The IB's rigorous assessment methods are standardized globally, ensuring reliability and consistency in evaluating student performance.

### **Challenges Faced by the IB.**

(a) **Accessibility and Affordability**. IB programmes are often associated with higher costs, making them less accessible to a broader student population, especially in developing countries.

(b) **Curriculum Intensity**. The demanding nature of IB programmes can lead to increased stress among students, requiring effective support systems to manage workload.

(c) **Teacher Training and Resources**. Implementing IB programmes necessitates specialized teacher training and resources, which can be challenging for schools with limited infrastructure.

**IB's Presence in India and Delhi NCR**. The IB has been operating in India since 1976, with over 378 IB programmes across more than 220 schools. These programmes are offered in major cities, including Mumbai, Pune, Bangalore, Delhi-NCR, Hyderabad, Ahmedabad, Bhubaneswar, and Coimbatore. In Delhi NCR, several prominent schools

offer IB programmes, reflecting the region's growing acceptance and recognition of international education standards (*International Education - International Baccalaureate*®, n.d.).

**Achievements in Inclusive Education.** The IB is committed to promoting inclusive education and has implemented several initiatives to support diverse learning needs (IB and Inclusion: An Update Jayne Pletser Curriculum Manager for Inclusive Education, n.d.-a):-

- (a) **Policy Framework.** The IB has established comprehensive policies to ensure that all students, regardless of their learning needs, can access and benefit from its programmes.
  
- (b) **Teacher Support and Training.** The IB provides extensive professional development opportunities for educators to equip them with the skills necessary to support diverse learners effectively.
  
- (c) **Collaborative Initiatives.** The IB collaborates with various organizations to develop resources and tools that assist in implementing inclusive practices effectively.

The International Baccalaureate has significantly influenced global education by providing a rigorous, holistic, and internationally minded curriculum. While challenges such as accessibility and curriculum intensity exist, the IB's strengths in fostering critical thinking, cultural understanding, and consistent assessment have solidified its reputation worldwide. In India, and particularly in the Delhi NCR region, the IB's presence continues

to grow, offering students a valuable alternative to traditional educational frameworks and preparing them to thrive in a globalized world.

### **The New Education Policy (NEP) 2020**

The National Education Policy (NEP) 2020, approved by the Union Cabinet on July 29, 2020, marks a significant milestone in India's educational landscape, aiming to transform the system to meet the demands of the 21st century. Replacing the previous policy of 1986, NEP 2020 envisions an education system rooted in Indian ethos that contributes directly to transforming India into an equitable and vibrant knowledge society (National Education Policy 2020 Ministry of Human Resource Development Government of India, n.d.-b).

**Historical Context.** Prior to NEP 2020, India's educational framework was guided by the National Policy on Education formulated in 1986 and later modified in 1992. Over the decades, significant socio-economic changes necessitated a comprehensive revision to align the education system with contemporary needs and global standards. The NEP 2020 is the result of extensive consultations and aims to overhaul the existing system to make it more holistic, flexible, multidisciplinary, and aligned with the needs of the 21st century (*Ministry of Education | Government of India, Ministry of Education, n.d.-b*).

**Key Features of NEP 2020** (National Education Policy 2020 Ministry of Human Resource Development Government of India, n.d.-b).

- (a) **Holistic and Multidisciplinary Education.** The policy emphasizes a broad-based, multidisciplinary, and holistic education at the undergraduate level,

integrating humanities and arts with STEM disciplines to foster creativity and critical thinking.

(b) **Flexibility in Course Choices**. NEP 2020 introduces multiple entry and exit points in degree programs, allowing students greater flexibility in their educational trajectories.

(c) **Early Childhood Care and Education (ECCE)**. Recognizing the importance of early years, the policy proposes universal provisioning of quality ECCE for all children aged 3-6 by 2025.

(d) **Curricular and Pedagogical Restructuring**. The existing 10+2 structure is replaced with a 5+3+3+4 model, corresponding to age groups 3-8, 8-11, 11-14, and 14-18 years, respectively, to better align with cognitive developmental stages.

(e) **Emphasis on Foundational Literacy and Numeracy**. A National Mission on Foundational Literacy and Numeracy is established to ensure that every student attains foundational literacy and numeracy by the end of Grade 3.

(f) **Assessment Reforms**. The policy advocates for a shift from summative to formative assessment, focusing on competency-based learning and critical thinking.

(g) **Promotion of Multilingualism**. NEP 2020 emphasizes the importance of mother tongue/local language as the medium of instruction at least until Grade 5, promoting multilingualism and cultural preservation.

(h) **Teacher Education and Training**. A four-year integrated B.Ed. degree will become the minimum qualification for school teachers by 2030, with continuous professional development and career progression pathways.

(i) **Use of Technology**. The policy underscores the integration of technology in all levels of education to improve classroom processes, support teachers, and enhance educational access.

**Achievements in Inclusive Education**. NEP 2020 places a strong emphasis on equitable and inclusive education, ensuring that all children have access to quality education regardless of their socio-economic backgrounds (*Ministry of Education / Government of India, Ministry of Education, n.d.-b*):-

(a) **Focus on Socio-Economically Disadvantaged Groups (SEDGs)**. The policy identifies SEDGs and proposes targeted interventions to ensure their inclusion in the educational mainstream.

(b) **Gender Inclusion Fund**. A dedicated fund is established to address gender-based disparities and ensure that girls receive quality education at all levels.

(c) **Inclusive Education for Children with Special Needs (CwSN)**: The policy mandates the integration of children with disabilities into regular schooling, with support mechanisms tailored to their needs.

(d) **Use of Assistive Technologies.** NEP 2020 encourages the development and deployment of assistive technologies to facilitate learning for differently-abled students.

(e) Special Education Zones (SEZs). Regions with significant populations from disadvantaged groups will be designated as SEZs to focus additional resources and attention.

**Challenges and Criticisms.** While NEP 2020 has been lauded for its comprehensive vision, certain challenges and criticisms have emerged:-

(a) **Implementation Hurdles.** The ambitious reforms require substantial infrastructural and financial investments, posing challenges in uniform implementation across diverse regions.

(b) **Language Policy Concerns.** The emphasis on mother tongue instruction has raised apprehensions about its practicality in urban and diverse linguistic settings.

(c) **Centralization vs. Autonomy.** The establishment of centralized bodies for regulation has sparked debates about the autonomy of educational institutions.

(d) **Equity in Access.** Ensuring that marginalized communities benefit equally from the proposed reforms remains a significant challenge.

The National Education Policy 2020 represents a transformative approach to reimagining India's education system, aiming to make it more inclusive, flexible, and

aligned with global standards. Its successful implementation requires collaborative efforts from all stakeholders to overcome challenges and realize the vision of an equitable and vibrant knowledge society.

### **Selection of Schools**

The selection of schools was undertaken with meticulous consideration to ensure a representative and diverse sample that reflects the broad spectrum of educational approaches implemented across CBSE, ICSE, and IB curricula in Delhi NCR. The process was designed to ensure that the selected schools provide meaningful insights into the existing dyslexia support structures, the effectiveness of accommodations, and the challenges faced by students, educators, and administrators in implementing inclusive education policies.

**Selection Criteria.** The selection criteria included the following key aspects:-

- (a) **Inclusion Policies.** Schools that have established and actively implement inclusive education frameworks were prioritized. Institutions that have documented policies for dyslexia support, resource allocation, and intervention strategies were considered to ensure a meaningful evaluation of existing accommodations and their practical implementation.
  
- (b) **Availability of Special Educators.** The presence of trained special educators was a critical factor in school selection. Schools that employ certified special education professionals, speech therapists, learning disability specialists,

and psychologists were included to assess their role in assisting dyslexic students with personalized learning plans, behavioral strategies, and remedial instruction.

(c) **Use of Assistive Learning Resources.** Schools that utilize assistive technologies, modified teaching methodologies, and flexible assessment patterns for dyslexic students were prioritized. These include the use of audiobooks, speech-to-text software, individualized education plans (IEPs), and additional time provisions in assessments.

(d) **Diversity in School Management.** The study sought to incorporate a mix of private, public, and international schools to ensure a comprehensive understanding of how different institutional setups approach dyslexia interventions. This diversity allows for a comparative analysis of state-supported, privately-funded, and internationally-governed educational models.

(d) **Willingness to Participate.** The study involved direct collaboration with school administrators, educators, and students. Therefore, schools that exhibited openness and willingness to engage in the research, provide necessary documentation, and allow for classroom observations were prioritized.

**Selection Process.** For the CBSE and CISCE boards, the respective board authorities were formally approached and requested to nominate schools that have demonstrated a commitment to implementing dyslexia support programs. The nominated schools were then further evaluated based on the criteria listed above, ensuring that only institutions with verifiable inclusion policies and structured intervention frameworks were selected for the study. For the IB curriculum, two prominent schools Pathways World

School and The British School, Delhi were chosen. These institutions were selected based on their international reputation for academic excellence, well-documented inclusive education frameworks, and their implementation of comprehensive support mechanisms for students with dyslexia.

By incorporating schools affiliated with CBSE, CISCE, and IB curricula, this study ensures that the findings will provide a well-rounded perspective on the strengths and gaps in dyslexia interventions across different educational models. The selected schools allow for a comparative analysis of the effectiveness of policy implementation, the challenges encountered in real-world application, and the best practices that can be recommended for nationwide adoption.

### **Data Collection Methods : Mixed-Method Data Collection Approach**

To ensure a comprehensive and well-rounded analysis, this study employs a mixed-method research design, integrating quantitative and qualitative data collection techniques. This dual approach is critical in capturing both numerical trends and subjective experiences, enabling a deeper understanding of how dyslexia interventions are perceived, implemented, and their impact on students across different curricula (QUANTITATIVE AND QUALITATIVE METHODS, 2020).

**Qualitative Data Collection: Interviews with Key Stakeholders.** A core component of this study is the semi-structured interviews conducted with nominated representatives from CBSE, CISCE, IB, and government education authorities overseeing NEP 2020 implementation. These interviews aim to extract firsthand insights into the

formulation, execution, and challenges of dyslexia-related policies within each board. The Questionnaire for the Interview is given at **Annexure A**.

(a) **Participants**. Officials from each board responsible for academic accommodations, special education policies, and curriculum modifications for students with learning disabilities.

(b) **Methodology**. The interviews follow a semi-structured format, allowing for open-ended responses while maintaining a standardized framework for comparative analysis.

(c) **Key Data Collected**.

(i) **Policy Frameworks**. Understanding the guidelines each board follows to integrate dyslexia accommodations.

(ii) **Implementation Gaps**. Identifying challenges in executing board-level policies at the school level.

(iii) **Training and Capacity Building**. Assessing the extent of teacher training programs and their effectiveness.

(iii) **Resource Availability**. Evaluating the infrastructural and technological support provided by educational boards.

- (iv) **Future Strategies.** Exploring proposed reforms or initiatives aimed at strengthening inclusive education.

**Quantitative Data Collection: Online Survey for Teachers.** To gather broad-based statistical data, an online questionnaire is distributed among teachers of the selected schools (CBSE, ICSE, and IB-affiliated institutions). This survey is designed to capture trends in policy implementation, teacher preparedness, and real-world challenges in supporting dyslexic students. The Questionnaire for the teachers is given at **Annexure B.**

- (a) **Participants.** The survey is circulated among general education teachers, special educators, and academic coordinators working in the selected schools.
- (b) **Methodology.** The questionnaire consists of Likert-scale items, multiple-choice questions, and open-ended responses to allow for both quantitative and qualitative insights.
- (c) **Key Data Collected.**
- (i) **Awareness and Training.** Evaluating teacher familiarity with dyslexia and their exposure to training programs.
- (ii) **Classroom Accommodations.** Understanding the extent to which instructional modifications and assistive technologies are used in teaching dyslexic students.

(iii) **Assessment Adjustments.** Measuring the prevalence of accommodations such as extended time, alternative assessment formats, and differentiated instruction.

(iv) **Challenges in Implementation.** Identifying the most pressing difficulties faced by educators in executing board-mandated dyslexia interventions.

(v) **Teacher Perceptions:** Assessing the overall sentiment of educators regarding the effectiveness of current policies and possible areas for improvement.

**Inclusion of Official Letters for Data Collection Assistance.** As part of the research process, six formal letters were written to CBSE, CISCE, Dyslexia Association of India, Pathways World School, and The British School, Delhi. These letters formally requested:

(a) Nomination of two CBSE and CISCE schools that actively implement dyslexia support policies.

(b) Facilitation of interviews with board representatives responsible for policy formulation and execution.

(c) Forwarding of online questionnaires to nominated schools to maximize participation among educators.

- (d) Encouragement of IB school teachers to participate in the survey, contributing insights on dyslexia accommodations under the IB curriculum.

**Ethical Considerations.** This research adheres to strict ethical standards to ensure the protection of participant data and voluntary participation. The following measures are implemented:-

- (a) **Informed Consent.** Prior approval from participants, including teachers, administrators, and parents of dyslexic students.
- (b) **Confidentiality.** All data collected is anonymized, ensuring that student identities remain protected.
- (c) **Right to Withdraw.** Participants can choose to withdraw from the study at any stage.

This chapter outlines the comprehensive research methodology adopted in this study, detailing the selection of boards and schools, data collection strategies, and ethical safeguards. The combination of qualitative and quantitative methods ensures a well-rounded understanding of dyslexia interventions, leading to evidence-based recommendations for strengthening inclusive education practices in Delhi NCR schools.

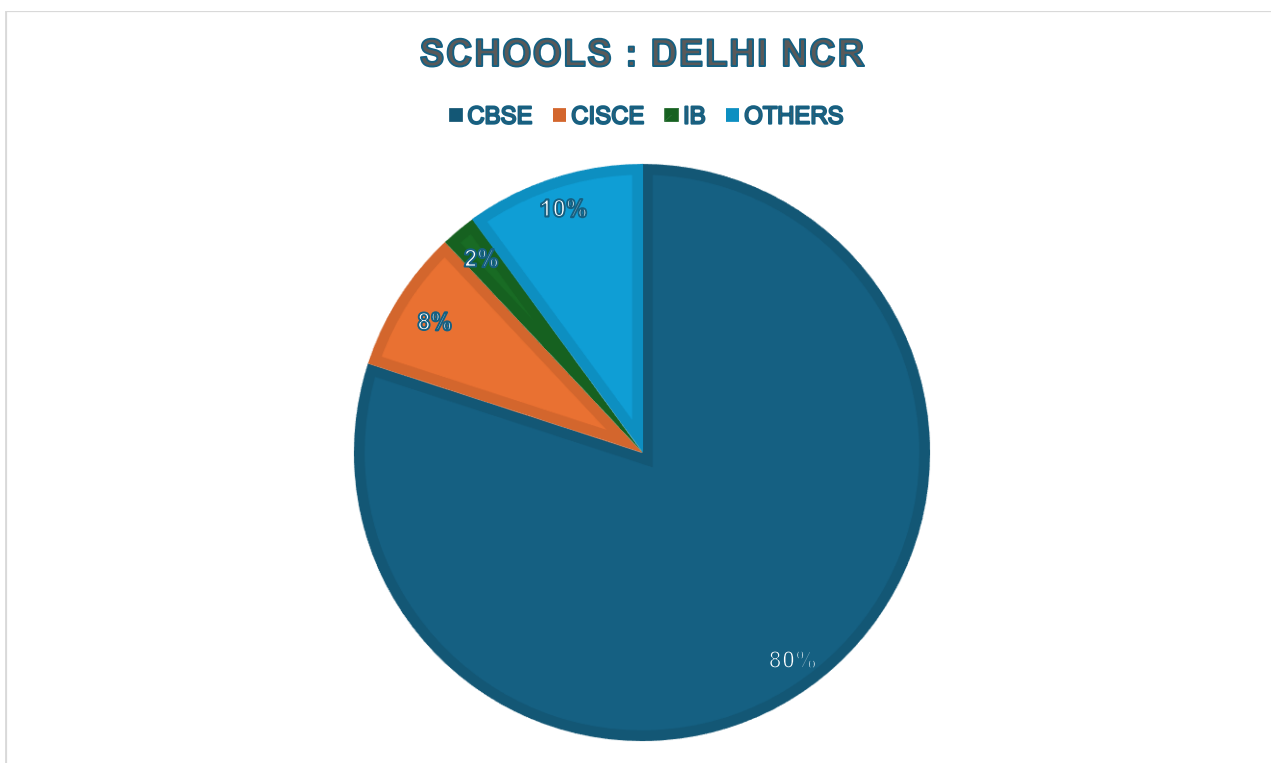
## CHAPTER 4

### ANALYSIS & INTERPRETATION

#### Introduction

Education systems worldwide are evolving to accommodate diverse learning needs, with dyslexia being one of the most commonly recognized learning disabilities requiring special support mechanisms. In India, the Central Board of Secondary Education (CBSE), Council for the Indian School Certificate Examinations (CISCE - ICSE & ISC), and the International Baccalaureate (IB) follow different approaches toward inclusive education, particularly in supporting dyslexic students. This chapter presents a comparative analysis of the accommodations, policies, and intervention strategies employed by these boards in Delhi NCR, evaluating their effectiveness in fostering an inclusive learning environment.

Delhi NCR houses a vast number of schools affiliated with these educational boards, providing an extensive dataset for comparative study. Approximately 80% of schools in Delhi NCR follow the CBSE curriculum, comprising over 3,500 schools and a student population exceeding 1.5 million. The CISCE (ICSE & ISC) board has a comparatively smaller share, with about 300+ affiliated schools, constituting roughly 8-10% of the total schools in the region. In contrast, the International Baccalaureate (IB) curriculum, though widely recognized for its international pedagogy, is implemented in fewer than 50 schools in Delhi NCR, primarily due to its high cost, resource-intensive model, and specialized teacher training requirements (*Dealing with Dyslexia \_ Delhi News - Times of India*, n.d.).



**Figure 4.1: Schools In Delhi NCR**

The increasing demand for inclusive education has led to significant policy reforms and pedagogical adjustments within these educational boards. CBSE, being the largest board in the region, has introduced mandated accommodations such as extra time during examinations, scribe facilities, and teacher training programs. However, implementation inconsistencies remain a major challenge. CISCE schools operate under greater institutional autonomy, meaning accommodations for dyslexic students vary significantly from school to school, leading to an inconsistent level of support. IB schools, by contrast, follow a structured inclusive education model, integrating personalized learning plans, assistive technologies, and progressive assessment techniques, resulting in a higher compliance rate with global inclusive education standards.

This chapter aims to analyze the extent to which these curricula support dyslexic students, identifying strengths, weaknesses, and areas for improvement. The study is structured into comparative tabulations, SWOT analyses, and survey-based evaluations, ensuring a data-driven and qualitative interpretation of how inclusive education is operationalized in CBSE, CISCE, and IB schools in Delhi NCR. The findings of this chapter will serve as a foundation for further recommendations on improving dyslexia intervention strategies within Indian school education policies.

Broad differences between the three boards are given in Table 4.1 below (*CBSE vs ICSE vs IB: Which Is Better? | Leverage Edu, n.d.*):-

<b><u>Feature</u></b>	<b><u>CBSE</u></b>	<b><u>CISCE (ICSE &amp; ISC)</u></b>	<b><u>IB</u></b>
<b>Mandatory Subjects</b>	English	English + SUPW (Socially Useful Productive Work)	Creativity, Activity, Service (CAS), Theory of Knowledge (TOK), Extended Essay (EE)
<b>Availability of Schools</b>	Very High across India.	Moderate, mostly in urban areas.	Limited, only available in major Tier 1 cities.
<b>Suitability for Parents with Transferable Jobs</b>	Highly suitable due to uniform syllabus nationwide.	Moderately suitable, limited school availability.	Not suitable, IB schools are not widely available.
<b>College Acceptability in India</b>	Widely accepted by Indian colleges and universities.	Recognized, but varies based on institutions.	Scores not widely accepted by most Indian colleges.
<b>Availability of Tuition &amp; Course Books</b>	High availability of tuition teachers and reference books.	Moderate availability of tutors and resources.	Low availability of private tutors and course books in India.

<b><u>Feature</u></b>	<b><u>CBSE</u></b>	<b><u>CISCE (ICSE &amp; ISC)</u></b>	<b><u>IB</u></b>
<b>Curriculum Difficulty Level</b>	Low. More scoring possible, less in-depth concepts.	Moderate. Rigid scoring, advanced-level concepts.	High. Demanding curriculum, multiple assessment criteria.
<b>Cost of Education</b>	Moderate	High	High
<b>Learning Approach</b>	Focus on rote learning and memorization.	Application-based learning with conceptual understanding.	Research-oriented, application-based learning.
<b>Curriculum Focus</b>	Mainly Science & Mathematics, minimal focus on Arts, Language, and Literature.	Balanced focus on Science, Arts, Language, and Literature, including spoken English.	Extensive focus on Literature, Mathematics, Social Science, Arts, and Language.
<b>Syllabus Type</b>	Pre-prescribed list of textbooks.	Pre-prescribed textbooks, but with more variety.	Combination of pre-prescribed textbooks and recommended readings.
<b>Subject Selection</b>	No flexibility, fixed subjects.	Students can choose subjects based on preference.	Students can select one subject from six different groups.

**Table 4.1 : Comparison of Boards**

**SWOT Analysis of Policies and Accommodations offered by CBSE Board**

The SWOT analysis of the policies and accommodations offered by CBSE is shown in diagrammatic form in Figure 3 below (Accommodations CBSE, n.d.; Page | 1 CBSE Exemptions/ Concessions Rules Applicable For Both Class X & XII Board Examinations, n.d.):-

<p><b>S</b> Strengths</p>	<p>Inclusive Education Policy framework</p> <p>Standardised accommodation</p> <p>Subject Flexibility</p> <p>Compensatory Time</p> <p>Nationwide Availability</p>	<p><b>W</b> Weaknesses</p>	<p>Inconsistent Implementation</p> <p>Lack of Specialised Teacher Training</p> <p>Limited awareness among "STAKEHOLDERS"</p> <p>Limited technology integration</p>
<p><b>O</b> Opportunities</p>	<p>AI as a tool.</p> <p>Facilitates wider adoption of best practices</p> <p>Teacher Training under NEP 2020</p> <p>Parental Awareness initiatives</p>	<p><b>T</b> Threats</p>	<p>High Stake Examination System</p> <p>Over Reliance on 'Rote' learning</p> <p>Financial &amp; Resource crunch in Govt and rural schools</p>

**Figure 4.2 : SWOT Analysis CBSE**

**Strengths.** CBSE has made notable advancements in fostering inclusive education by implementing various accommodations and support mechanisms for dyslexic students. The key strengths include:

- (a) **Inclusive Education Policy Framework.** CBSE aligns with the Rights of Persons with Disabilities Act, 2016, ensuring equal educational opportunities for students with dyslexia.
- (b) **Standardized Accommodations.** The board provides extra time, scribe assistance, flexible subject choices, and alternate question formats for dyslexic students, helping them perform at their best during examinations (CBSE, 2019).

(c) **Subject Flexibility.** CBSE allows students with dyslexia to opt out of a third language and instead focus on core subjects that suit their abilities. This enhances learning outcomes and academic success (CBSE Circular, 2018).

(d) **Compensatory Time & Assistive Tools.** CBSE has mandated extra time for exams (up to 60 minutes for a 3-hour paper) and allows the use of magnifying glasses, screen readers, and computers for writing answers (CBSE Circular, 2019).

(e) **Nationwide Implementation.** Since CBSE operates across more than 27,000 schools in India, the policy has wider outreach and influence compared to other educational boards.

**Weaknesses.** Despite its well-intended policies, CBSE's approach has significant gaps that affect the effective implementation of dyslexia accommodations: -

(a) **Inconsistent Implementation Across Schools.** Many schools, particularly private institutions, lack uniformity in following CBSE's accommodations. While policies exist, enforcement remains weak, leaving students without necessary support (CBSE Circular, 2018).

(b) **Lack of Specialized Teacher Training.** There are no mandatory training programs for teachers on handling dyslexic students. Most schools rely on general educators who lack expertise in learning disabilities (CBSE, 2019).

(c) **Limited Awareness Among Stakeholders.** Many parents, students, and even educators are unaware of the exemptions available under CBSE's framework.

This results in underutilization of available accommodations (CBSE Circular, 2018 ).

(d) **Limited Technological Integration.** CBSE has not mandated assistive technology for dyslexic students. While tools like text-to-speech software and audiobooks exist globally, their adoption in CBSE schools is minimal.

**Opportunities.** CBSE can leverage new educational advancements to strengthen its dyslexia support mechanisms: -

(a) **AI Driven Learning Support.** Integration of AI-based learning tools, text-to-speech software, and adaptive learning platforms can significantly improve learning outcomes for dyslexic students (CBSE, 2019).

(b) **Wider Adoption of Best Practices.** Any measures introduced by CBSE in collaboration with NCERT and EdTech firms will have wider reach to dyslexic children.

(c) **Strengthened Teacher Training Programs under NEP 2020.** Implementing NEP 2020 and the mandatory teacher training on inclusive education under it will help bridge knowledge gaps and equip educators with the skills needed to effectively support dyslexic students.

(d) **Parental Engagement Initiatives.** CBSE can introduce parent workshops and awareness programs, ensuring parents actively participate in their child's learning journey and avail existing accommodations.

**Threats.** CBSE's policies face certain external challenges that may limit their effectiveness:

(a) **High-Stakes Examination System.** CBSE's exam-oriented system remains a significant hurdle. Dyslexic students struggle with the rigid assessment pattern, which relies on memorization rather than conceptual understanding (CBSE, 2019).

(b) **Over-Reliance on Rote Learning.** Despite policy shifts, rote learning methods dominate CBSE schools. This is detrimental to dyslexic students who benefit from application-based and interactive learning approaches.

(c) **Financial & Resource Constraints in Rural Schools.** Many government CBSE schools lack funds to implement accommodations such as special educators, assistive technologies, and structured dyslexia programs.

CBSE has taken significant steps toward inclusive education for dyslexic students by introducing exemptions, compensatory time, scribe facilities, and subject flexibility. However, inconsistent implementation, lack of teacher training, and minimal technology integration remain key challenges. Strengthening teacher awareness programs, leveraging AI-driven learning tools, and improving monitoring mechanisms can enhance the effectiveness of CBSE's dyslexia policies.

## SWOT Analysis of Policies and Accommodations offered by CISCE Board

The **Council for the Indian School Certificate Examinations (CISCE)** provides a range of accommodations for students with dyslexia, ensuring inclusivity in education. However, the implementation of these policies varies across schools. Below at Figure 4 is a **SWOT (Strengths, Weaknesses, Opportunities, and Threats) analysis** that evaluates the effectiveness of these policies (*CISCE Concessions - LDExplained, n.d.*):-

<b>S</b> Strengths	Extra time for exams Subject Waivers Use of Scribe & Readers Flexibility in Exam Format	<b>W</b> Weaknesses	Lack of Uniformity in implementation Lack of Mandatory Special Education Framework Limited involvement of "STAKEHOLDERS" Limited technology integration
<b>O</b> Opportunities	AI as a tool for empowerment Friendly for tech integration and adoption Stronger Monitoring and Compliance Network Parental Awareness initiatives	<b>T</b> Threats	Poor cost benefit analysis for initiatives Written Exam centric approach Limited research & skill based approach to learning

**Figure 4.3 : SWOT Analysis CISCE**

**Strengths.** The CISCE board has implemented several inclusive education measures to support dyslexic students. Key strengths include:

- (a) **Extra Time for Exams.** CISCE provides 20 minutes of extra time per hour for students with dyslexia to ensure they have ample time to complete their assessments (Regulations ICSE Origin, 2023.).

(b) **Subject Waivers for Dyslexic Students.** Students diagnosed with severe dyslexia can drop the second language requirement. This allows them to focus on other core subjects without additional academic pressure (CISCE Concessions).

(c) **Use of Scribe and Reader Assistance.** Dyslexic students can avail a scribe during board examinations, ensuring they are not disadvantaged due to difficulties in writing. The question paper may also be read aloud to them for better comprehension (REGULATIONS ICSE Origin, 2023.).

(c) **Flexibility in Exam Formats.** Some ICSE-affiliated schools offer oral assessments and modified question papers to cater to the learning needs of dyslexic students (*CISCE Concessions - LDExplained*, n.d.).

**Weaknesses.** Despite the inclusive policies, gaps in implementation and systemic issues persist, which limit the impact of these accommodations: -

(a) **Lack of Uniformity in Policy Implementation.** Unlike CBSE, CISCE does not enforce a uniform implementation of accommodations across all its affiliated schools. Schools have discretion in applying these policies, leading to inconsistent support for dyslexic students. (REGULATIONS ICSE Origin, 2023.).

(b) **Lack of a Mandatory Special Education Framework.** The board does not mandate the presence of a special educator in all schools. Many ICSE schools lack trained professionals who can provide targeted intervention for dyslexic students.

(c) **Limited Technological Integration**. Unlike IB schools, which actively use AI-based learning tools, CISCE schools do not mandate assistive technologies, making it harder for dyslexic students to utilize digital learning aids.

(d) **Limited Involvement of Stakeholders**. Many parents are not informed about the accommodations available for dyslexic students. As a result, students do not always receive the benefits they are entitled to.

**Opportunities**. CISCE can strengthen its approach by adopting emerging educational practices and technology-driven solutions: -

(a) **Mandatory Teacher Training on Dyslexia and SLDs**. Introducing board-mandated teacher training programs on dyslexia and other learning disabilities will help educators identify and assist dyslexic students effectively.

(b) **Friendly for Integration of Assistive Technology**. Implementing text-to-speech software, audiobooks, and digital assessment tools will enhance learning accessibility for dyslexic students.

(c) **Stronger Monitoring and Compliance Framework**. A centralized reporting and evaluation system should be established to ensure all CISCE schools comply with inclusive education policies.

(d) **Parental Engagement Initiatives**. Conducting awareness workshops for parents will ensure better access to accommodations for students with dyslexia.

**Threats.** Several external factors challenge the effective execution of CISCE's dyslexia support policies: -

- (a) **Poor Cost Benefit Analysis for Initiatives.** The ICSE syllabus emphasizes written assessments, which can be challenging for dyslexic students despite accommodations.
  
- (b) **Written Exam Centric Approach.** The ICSE syllabus emphasizes written assessments, which can be challenging for dyslexic students despite accommodations.
  
- (c) **Limited Skill & Research based Approach to Learning.** Like CBSE, CISCE too is based on defined curriculum with defined textbooks and reference material. This encourages rote learning and book specific answering thereby discouraging creativity.

CISCE has implemented inclusive education policies, such as extra exam time, scribe assistance, and subject exemptions, to support dyslexic students. However, inconsistent implementation, lack of teacher training, and minimal monitoring mechanisms have weakened the effectiveness of these accommodations.

### **SWOT Analysis of Policies and Accommodations offered by International Baccalaureate**

The International Baccalaureate (IB) is recognized globally for its comprehensive approach to inclusive education, particularly in supporting students with dyslexia and

other learning disabilities. The IB Access and Inclusion Policy (2022) establishes a structured framework to ensure equitable learning opportunities for all students. Below is a SWOT (Strengths, Weaknesses, Opportunities, and Threats) analysis of IB's accommodations for dyslexic students. (Baccalaureate, 2022c)

<p><b>S</b> Strengths</p>	<p>Well defined Policies Mandatory Teacher Training Personalised Learning Plans Integration of Assistive Tech Extra Time &amp; Flexible Assessment</p>	<p><b>W</b> Weaknesses</p>	<p>High Costs of IB Schools Complex Assessment &amp; Documentation School Discretion in Implementation</p>
<p><b>O</b> Opportunities</p>	<p>Expansion of IB Schools in India Sharing of Best Practices AI tools for learning Support Teacher Training Collab with Indian Boards</p>	<p><b>T</b> Threats</p>	<p>Limited Reach in India High Demand of IB certified Teachers Adaptation Challenges for Indian Schools</p>

**Figure 4.4 : SWOT Analysis IB**

**Strengths.** The IB framework for dyslexia support is the most advanced among global education systems, offering a structured, student-centric model. Key strengths include:-

- (a) **Well-Defined Inclusive Education Policy.** IB mandates that all IB World Schools follow the Access and Inclusion Policy, ensuring that students with dyslexia receive consistent and equitable accommodations (Baccalaureate, 2022c).
- (b) **Mandatory Teacher Training on Learning Disabilities.** IB requires all teachers to undergo professional training to support students with dyslexia and

other learning disabilities. This ensures that educators are well-equipped to handle diverse learning needs (Baccalaureate, 2022c)

(c) **Individualized Learning Plans (ILPs)**. IB emphasizes Individualized Learning Plans (ILPs), ensuring that each dyslexic student receives a tailored approach suited to their strengths and challenges (Baccalaureate, 2022c).

(d) **Strong Integration of Assistive Technology**. IB supports speech-to-text software, audiobooks, word processors, and AI-based assessment tools, ensuring that dyslexic students can access content in a way that best suits their learning style (Baccalaureate, 2022c).

(e) **Flexibility in Assessments and Examinations**.

(i) **Extra time accommodations**. Up to 50% additional time is granted depending on the severity of the learning disability.

(ii) Use of scribes and speech-to-text tools is permitted.

(iii) Alternative assessment methods such as oral presentations instead of written exams are available (Baccalaureate, 2022c).

**Weaknesses**. Despite its progressive framework, IB faces challenges in execution, particularly regarding accessibility and affordability.

(a) **High Cost of IB Schools**. IB schools charge significantly higher fees compared to CBSE and CISCE, making it difficult for students from lower-income backgrounds to access its inclusive education framework.

(b) **Complex Assessment and Documentation Requirements.**

(i) Schools must submit detailed documentation to IB for approval of accommodations, creating bureaucratic delays in providing timely support.

(ii) IB requires psychological and medical reports from specialists, making the process lengthier than in CBSE or CISCE.

(c) **School Discretion in Implementation.** While IB mandates inclusive education, the quality of implementation varies depending on the school. Some schools do not proactively offer accommodations unless parents specifically request them.

**Opportunities.** IB sets a benchmark for other curricula in terms of inclusive education. Future improvements could include: -

(a) **Expansion of IB Schools in India.** Given IB's superior accommodations for dyslexic students, expanding IB's presence in India, especially Delhi NCR, would enhance access to inclusive education.

(b) **Sharing of Best Practices.** IB's individualized learning plans, structured teacher training, and assistive technology integration could serve as a model for Indian education boards looking to improve dyslexia accommodations.

(c) **Integration of More AI-Based Learning Solutions.** IB can further expand its use of AI-driven learning platforms to create more adaptive learning models for dyslexic students.

(d) **Teacher Training Collaboration with Indian Boards.** IB could collaborate with CBSE and CISCE to offer training programs in inclusive education, helping to bridge the gap in dyslexia accommodations across different curricula.

**Threats.** Despite its strengths, IB faces several external challenges that may limit its impact: -

(a) **Limited Reach in India.** IB schools account for less than 1% of total schools in Delhi NCR, restricting access to its superior dyslexia support system. CBSE and CISCE have a much larger footprint, making IB's impact on dyslexic students comparatively lower.

(b) **High Demand for IB-Certified Teachers.** The requirement for specialized IB teacher training creates a shortage of IB-trained educators, leading to potential quality disparities in implementation.

(c) **Adaptation Challenges for Indian Schools.**

(i) IB's rigorous curriculum structure may be difficult for Indian schools to adopt in its entirety.

- (ii) Cost constraints may prevent some CBSE and CISCE schools from replicating IB's best practices.

The International Baccalaureate (IB) is a global leader in inclusive education, particularly in supporting dyslexic students. Its structured accommodations, emphasis on teacher training, and assistive technology integration set a gold standard for dyslexia-friendly education. However, accessibility remains a major concern, given IB's limited reach in India and high costs. If CBSE and CISCE can adopt some of IB's best practices, India's education system can become significantly more inclusive for dyslexic students.

**Comparative Table.** The SWOT analysis of CBSE, CISCE (ICSE & ISC), and IB has revealed significant differences in their approach to dyslexia accommodations. While CBSE and CISCE provide some structured support through extra time, subject exemptions, and scribe facilities, their implementation remains inconsistent, and teacher training is not mandatory. In contrast, IB has a well-defined inclusion policy, making teacher training compulsory, offering extensive technological integration, and providing highly flexible assessment formats such as oral exams and personalized learning plans (ILPs). One of the major weaknesses in CBSE and CISCE is the lack of uniform monitoring, whereas IB ensures rigorous compliance with accommodations. However, IB's high cost and limited availability in India restrict accessibility, whereas CBSE and CISCE have a much wider reach. The Table 4.2 below provides a comparative overview of how each board accommodates dyslexic students, focusing on subject choices, extra time, assistive technologies, and exam format flexibility.

<b>Accommodation</b>	<b>CBSE</b>	<b>CISCE (ICSE &amp; ISC)</b>	<b>IB</b>
<b>Concessions in Subject Choice</b>	Allows students to drop a third language and replace it with other academic subjects.	Allows students to drop a second language in severe cases.	Full flexibility with <b>Individualized Learning Plans (ILPs)</b> ; students can select subjects based on abilities.
<b>Additional Language Choice</b>	Exemptions for dyslexic students from the third language.	Exemptions from the second language upon approval.	No mandatory language requirement; second language exemptions are case-based.
<b>Extra Time for Exams</b>	<b>Up to 60 minutes extra for a 3-hour paper.</b>	<b>20 minutes extra per hour</b> of examination.	<b>Up to 50% extra time</b> depending on the severity of dyslexia.
<b>Scribe Considerations</b>	Allowed; student can either bring their own scribe or school can arrange one.	Allowed; scribe can be arranged by school or provided by student's family.	Allowed; IB mandates that schools provide trained scribes upon request.
<b>Technological Integration and Use During Exams</b>	Limited use of <b>magnifying glasses, computers, and screen readers</b> for specific cases.	Very limited <b>use of technology</b> , mostly dependent on individual school policies.	<b>Extensive integration of assistive technologies</b> , including <b>speech-to-text software, audiobooks, and AI-based assessment tools</b> .
<b>Alternative Formats for Examination</b>	Standard question papers with <b>minor modifications</b> for dyslexic students.	Some schools allow <b>oral exams or modified assessments</b> .	<b>Highly flexible</b> —students can choose <b>oral exams, visual presentations, or alternative coursework instead of written exams</b> .
<b>Assessment &amp; Evaluation Modifications</b>	No modifications to grading patterns; extra time and scribe provisions available.	Some flexibility in internal assessments, but no major modifications in board exams.	<b>Customized evaluation criteria</b> based on student needs.
<b>Parental Awareness and School Involvement</b>	<b>Limited awareness</b> among parents; implementation varies between schools.	Parents need to request accommodations; <b>some schools proactive, others inconsistent</b> .	<b>Strong parent-teacher collaboration</b> , ensuring smooth implementation of accommodations.
<b>Teacher Training and Special Educators</b>	<b>Not mandatory</b> , varies widely across schools.	No compulsory training, depends on individual schools.	<b>Mandatory teacher training</b> on inclusive education, ensuring proper handling of

<b>Accommodation</b>	<b>CBSE</b>	<b>CISCE (ICSE &amp; ISC)</b>	<b>IB</b>
			dyslexic students.
<b>Monitoring and Compliance</b>	Schools are expected to comply, but <b>monitoring is weak.</b>	No standardized oversight mechanism; <b>schools have discretionary power.</b>	<b>Well-regulated compliance system</b> with regular evaluations.
<b>Flexibility in Curriculum</b>	<b>Rigid curriculum,</b> with a fixed structure for assessments.	Some flexibility, but <b>subject choices are limited.</b>	<b>Highly flexible curriculum,</b> allowing students to choose subjects based on strengths.
<b>Global Recognition of Accommodations</b>	Recognized in Indian universities but <b>not widely accepted internationally.</b>	Recognized within India but <b>varies globally.</b>	Fully recognized worldwide, with <b>accommodations universally accepted.</b>

**Table No 4.2 : Comparative Table of Concessions and Accommodations for Dyslexic Students in CBSE, CISCE, and IB**

**Key Insights from the Comparative Analysis.**

(a) IB offers the most structured, technologically advanced, and flexible accommodations for dyslexic students, ensuring personalized support, alternative assessment formats, and extensive teacher training.

(b) CBSE provides a broad framework for inclusion, but implementation is inconsistent, and many schools do not actively inform students about available accommodations.

(c) CISCE (ICSE & ISC) offers accommodations, but they are discretionary, meaning students must actively request exemptions, leading to inconsistent support.

(d) CBSE and CISCE lack mandated teacher training, while IB ensures teachers are trained in handling dyslexic students effectively.

(e) Use of assistive technology is strongest in IB, with CBSE having some provisions and CISCE lagging in technological integration.

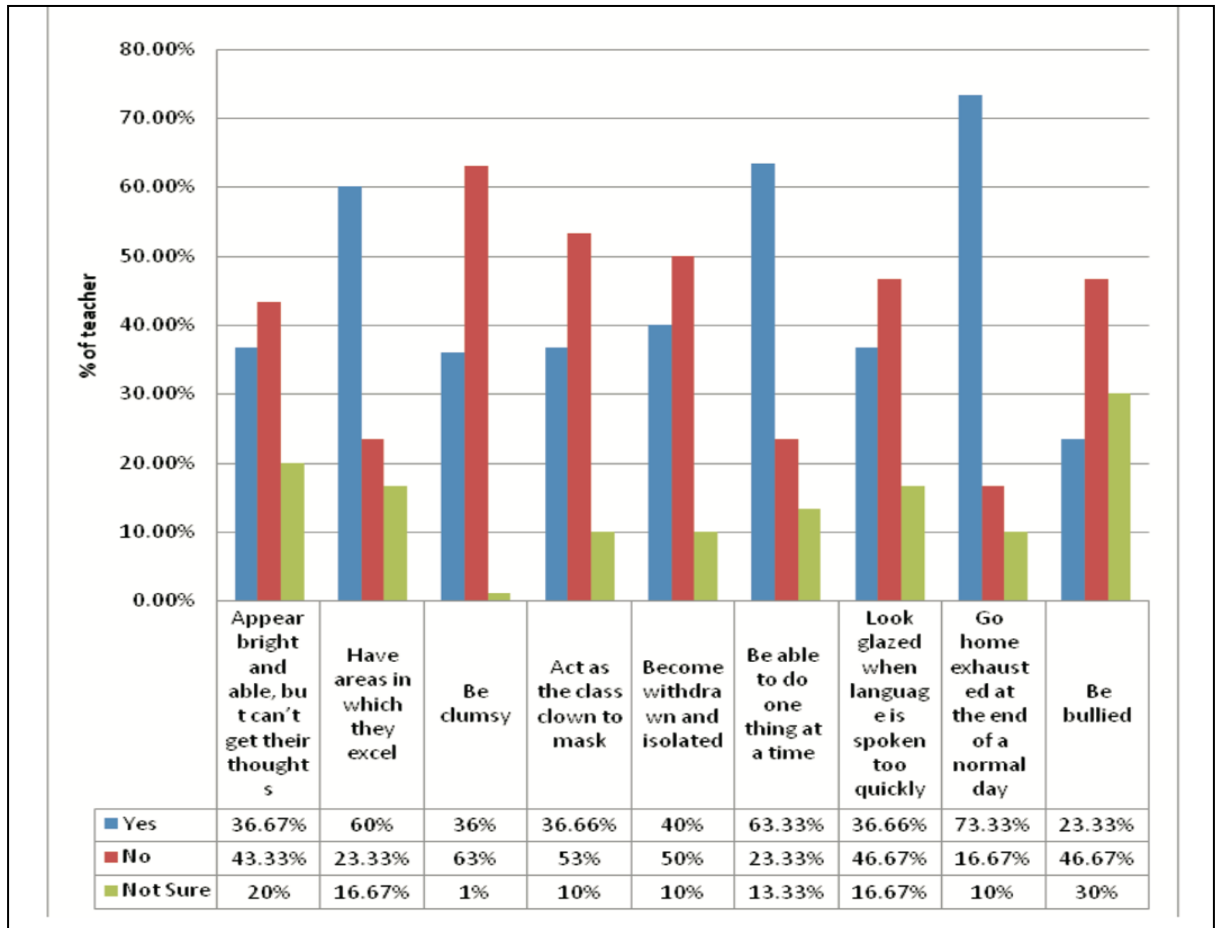
### **DYSLEXIA IN DELHI NCR: SURVEY & DATA ANALYSIS**

Understanding teachers' perceptions of dyslexic students is crucial for designing effective intervention strategies. This section analyzes a study conducted in Delhi NCR, highlighting educators' awareness of dyslexia, their recognition of learning difficulties, and their opinions on necessary support mechanisms. The findings are structured under three main aspects: -

- (a) Teachers' perception of traits that help identify dyslexic students.
- (b) Teachers' perception of the difficulties faced by dyslexic students in school.
- (c) Teachers' views on the need for dyslexic students to receive specialized support.
- (d) Teachers Perception of which board is more aligned to support for dyslexic children.

#### **Teachers' Perception of Traits That Allow Identification of Children with Dyslexia**

The study conducted by School of Education IGNOU in 2014 revealed a mixed level of awareness among teachers regarding the behavioral and cognitive characteristics of dyslexic students, The graph in Figure 4.5 below shows the findings of the study (Basu et al., 2014a).



**Figure 4.5 : Teacher’s View on the Manifestations in the Child with Dyslexia to Identify the Disability**

**Findings.**

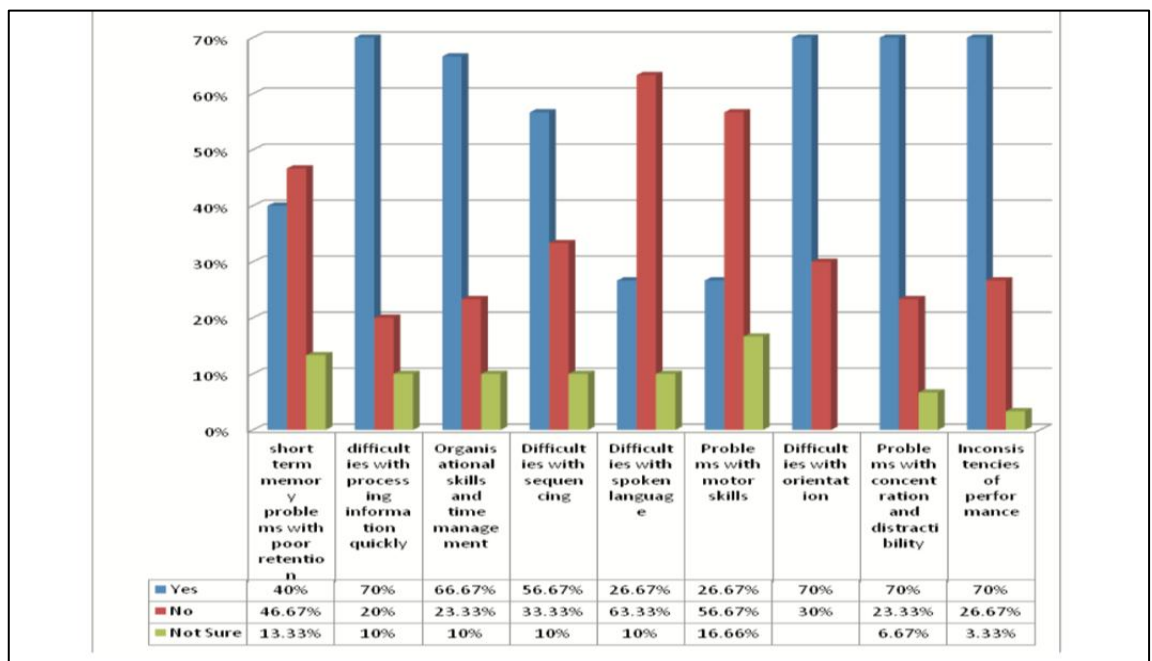
- (a) 60% of teachers identified that dyslexic students excel in creative fields such as drama, art, and debating.
- (b) Only 37% recognized that dyslexic students might be intellectually capable but struggle with writing their thoughts.
- (c) 40% observed signs of withdrawal and isolation among dyslexic students in the classroom, suggesting social-emotional challenges.

- (d) 63% acknowledged that dyslexic students find it easier to focus on one task at a time but struggle when dealing with multi-step instructions.
- (e) 73% believed that dyslexic students exert excessive effort in learning and return home exhausted.
- (f) 23% of teachers believed that dyslexic children are frequently bullied, whereas 46% disagreed.

**Key Takeaway.** While teachers recognize some common traits of dyslexia, there is a gap in understanding the broader challenges these students face, particularly in verbal and motor skills.

**Teachers' Perception of the Difficulties Dyslexic Children Face in School**

The same study collected Teachers' perception on what difficulties dyslexic students experience specific to learning. The findings of the study or survey is shown in a graph at Figure 4.6 below: -



**Fig. 4.6 Teacher’s View on Area of Difficulties faced by Children with Dyslexia**

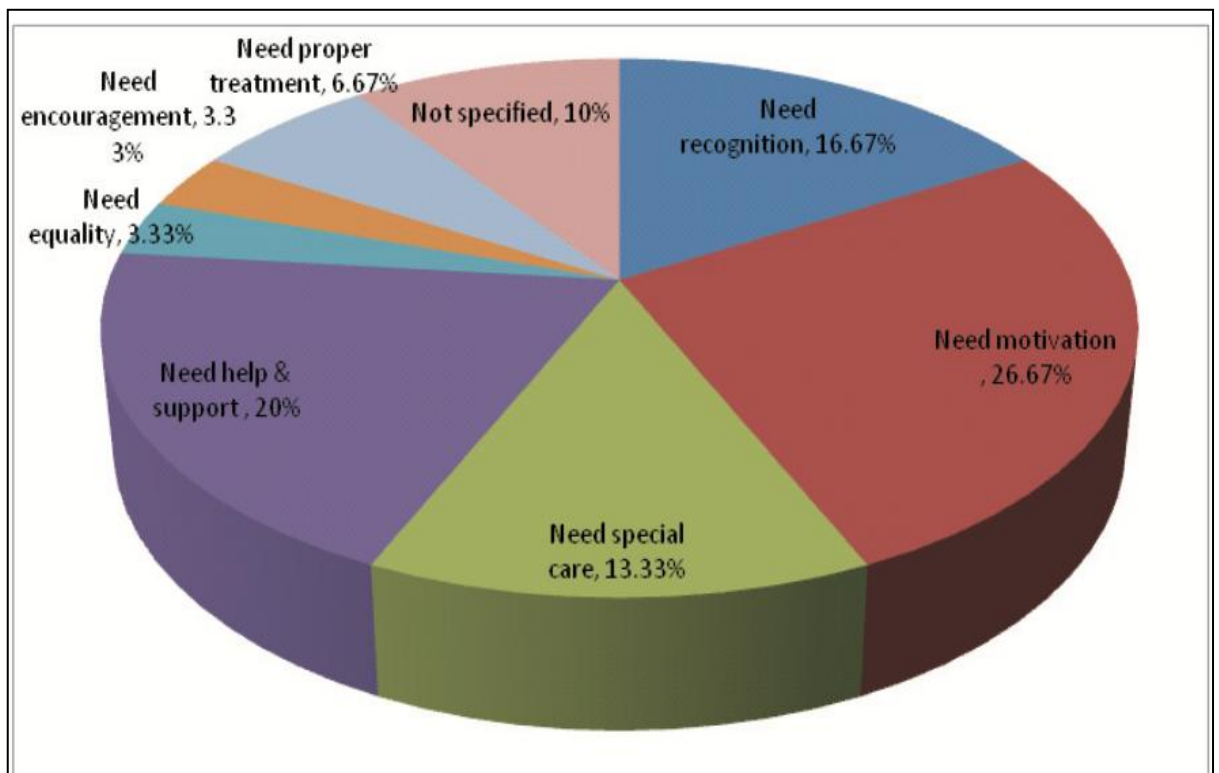
## **Findings.**

- (a) 70% agreed that dyslexic students struggle with information processing speed and are easily distracted.
- (b) 47% acknowledged short-term memory issues, while 40% did not recognize this as a common problem.
- (c) 67% identified difficulties in time management and organization, which impact their ability to meet academic deadlines.
- (d) 57% recognized sequencing difficulties, which affect reading comprehension and fluency.
- (e) Only 27% acknowledged speech and language difficulties, suggesting a lack of awareness regarding verbal challenges associated with dyslexia.
- (f) 70% stated that dyslexic students struggle with orientation and exhibit inconsistent academic performance.

**Key Takeaway.** While teachers generally recognize issues related to attention, organization, and sequencing, fewer understand the impact of dyslexia on speech and verbal processing.

## **Teachers' Perception on Whether Dyslexic Children Need Support**

The study also investigated teachers' opinions on the necessity of intervention for dyslexic students. The graph at Figure 8 below shows the findings of the study (Basu et al., 2014a):-



**Fig. 4.7 : Teacher’s view on Support and Differentiation to Children with Dyslexia**

**Findings.**

- (a) 27% of teachers believed that dyslexic students primarily need motivation.
- (b) 20% felt that structured academic support should be provided.
- (c) 17% emphasized the need for formal diagnosis and recognition of dyslexia.
- (d) 13% stated that dyslexic students require specialized care in the classroom.
- (e) Only 3% highlighted the need for equal treatment and encouragement, indicating a limited understanding of the importance of inclusive classroom practices.

**Key Takeaway.** Although most teachers agree that dyslexic students require support, there is no consensus on what form of intervention is most effective, highlighting the need for teacher training on dyslexia-specific strategies.

## **Teachers Perception of which board is more Aligned to Support for Dyslexic**

### **Children**

Based on the questionnaire at Annexure B. An online Questionnaire form was circulated with the Boards for teachers to fill the questionnaire. This was aimed to assess teachers' perceptions of dyslexia support mechanisms across CBSE, CISCE (ICSE & ISC), and IB schools in Delhi NCR. The responses provide insights into early screening availability, assessment frequency, teacher preparedness, assistive technology usage, and accommodations for dyslexic students. The report of this study is attached at **Annexure C** and the summary of responses generated is discussed in subsequent paragraphs.

**Early Screening and Assessment for Dyslexia.** The study assessed the availability and effectiveness of early screening programs across CBSE, CISCE (ICSE & ISC), and IB schools. The responses indicate IB schools are the most structured, with 50% of teachers rating screening programs positively (3.0/5). In contrast, CISCE scored 2.9/5, with 60% rating it as average, indicating somewhat better early screening compared to CBSE. CBSE scored the lowest at 2.6/5, with 50% of teachers rating it below 3, signifying a lack of a systematic screening process.

**Frequency of Evaluations of Dyslexic Children.** Similarly, in dyslexia assessments, IB schools performed the best with a score of 3.2/5, indicating higher frequency of evaluations. CBSE (2.4/5) and CISCE (2.3/5) showed rare or inconsistent assessments, with 60% of teachers from both boards stating that assessments rarely take place.

**Parental Involvement in the Diagnosis of Dyslexia.** Parental engagement is crucial in dyslexia interventions, yet responses indicate varying degrees of involvement across the three boards. IB schools had the highest parental engagement at 2.9/5, with more structured communication mechanisms. CISCE followed closely at 2.9/5, reflecting a moderate level of engagement, though not as structured as IB. CBSE schools scored the lowest at 2.2/5, with 66% of teachers stating that parental involvement is minimal or lacking altogether. This suggests CBSE institutions need better parental awareness programs.

**Availability of Individualized Education Plans (IEPs).** Teachers were asked about the availability of Individualized Education Plans (IEPs) for dyslexic students. IB schools had the highest score at 3.6/5, with 70% of teachers stating that structured IEPs were in place. CISCE received a moderate rating of 3.0/5, with 60% of teachers agreeing that IEPs were somewhat accessible. CBSE performed the worst (2.6/5), with 60% of teachers stating that access to IEPs was limited or non-existent.

**Availability of Special Educators for Dyslexic Students.** The presence of trained special educators plays a critical role in inclusive education. IB schools ranked the highest (3.9/5), with 75% of teachers confirming the availability of trained educators. CISCE (3.1/5) had moderate access, but only 12.5% of teachers stated that all schools had special educators. CBSE schools scored 3.0/5, indicating inconsistent availability, with most teachers confirming that only a few schools have dedicated special educators.

**Effectiveness of Assistive Technology for Dyslexic Students.** Assistive technology, such as speech-to-text software, audiobooks, and digital learning tools, was evaluated for effectiveness. IB schools scored 3.8/5, with 80% of teachers confirming high

integration of assistive tools. CISCE had a moderate score of 3.4/5, with 55% of teachers agreeing that assistive technology was available. CBSE was the weakest in this category, scoring 2.4/5, with 50% of teachers stating that assistive technology is either unavailable or underutilized.

**Teacher Training and Preparedness.** The frequency of teacher training on dyslexia was evaluated. IB had the best structured professional development programs (3.6/5), with 70% of teachers confirming that training occurs regularly. CISCE lagged at 2.4/5, with only 40% of teachers stating that training is provided occasionally. CBSE performed the worst (2.6/5), with 44% of teachers confirming that training is rare or absent. When asked about teacher preparedness, IB again scored the highest (3.3/5), with 65% of teachers feeling adequately prepared to handle dyslexic students. CISCE scored 2.7/5, showing a lack of confidence among teachers. CBSE was the lowest at 2.4/5, with only 35% of teachers stating they felt prepared to support dyslexic students.

**Use of Multi-Sensory Teaching Methods.** The use of multi-sensory learning (e.g., visual, auditory, kinesthetic methods) was also assessed. IB schools had the highest adoption rate (3.4/5), with 70% of teachers confirming its use. CISCE and CBSE both scored 2.2/5, with only 40% of teachers stating that multi-sensory learning was incorporated in classrooms.

**Effectiveness of Accommodations in Improving Academic Performance.** The effectiveness of accommodations such as extra time, flexible assessments, and modified coursework was rated across the three boards. IB had the best rating (3.5/5), with 75% of teachers agreeing that accommodations significantly improved student performance. CISCE scored 2.6/5, with only 50% agreeing that accommodations were effective. CBSE

ranked the lowest (2.7/5), indicating that while accommodations exist, their impact is inconsistent.

**Dyslexic Students' Confidence in Classroom Participation.** Student confidence was measured based on participation in class discussions, peer interactions, and overall engagement. IB students showed the highest confidence levels (3.7/5), with 72% of teachers stating that dyslexic students felt included. CISCE students had a moderate score of 2.7/5, with 55% agreeing that students felt confident. CBSE had the lowest confidence rating (2.5/5), with only 45% of teachers stating that students participated confidently.

**Peer Support for Dyslexic Students.** The availability of structured peer support programs was evaluated. IB ranked the highest (3.4/5), with 68% of teachers stating that students received peer assistance. CISCE scored 2.4/5, indicating moderate peer support. CBSE had the lowest score (2.1/5), with only 40% of teachers confirming any form of peer mentorship.

**Tracking and Monitoring the Progress of Dyslexic Students.** Teachers were asked about the monitoring mechanisms for dyslexic students' academic progress. IB schools scored 3.6/5, with 70% of teachers stating that student progress was tracked regularly. CISCE and CBSE both scored 2.4/5, showing weak monitoring systems.

**Communication Between Schools and Parents on Dyslexia Support.** IB schools had the strongest communication mechanisms (3.6/5), with 72% of teachers confirming regular school-parent engagement. CISCE had a moderate score of 2.9/5, while CBSE had the lowest score (2.7/5), indicating weak parental communication.

**Stakeholder Satisfaction with Dyslexia Support Systems.** Teachers, parents, and students were asked to rate their satisfaction with existing dyslexia support. IB schools had

<b>Key Findings</b>	<b>Summary</b>
<b>Early Screening &amp; Assessments</b>	IB schools have structured screening, CISCE performs slightly better than CBSE, which lacks consistency.
<b>Parental Involvement</b>	Weakest in CBSE, moderate in CISCE, and highest in IB schools where engagement is structured.
<b>Special Educators Availability</b>	IB schools have trained special educators, while CBSE and CISCE have inconsistent support.
<b>Assistive Technology Use</b>	IB has the most integrated assistive technology, CBSE

the highest satisfaction score (3.7/5), with 78% of stakeholders expressing confidence in support mechanisms. CISCE scored 2.4/5, showing moderate satisfaction, while CBSE scored the lowest (2.2/5), indicating widespread dissatisfaction.

**Findings of the Survey.** The findings of the survey conducted is summarized in the Table 4.3 below.

	lags significantly behind, CISCE is moderate.
<b>Teacher Training &amp; Preparedness</b>	Mandatory in IB, inconsistent in CISCE, and rare in CBSE schools.
<b>Use of Multi-Sensory Learning</b>	Strong in IB, weak in both CBSE and CISCE schools.
<b>Accommodations &amp; Modifications</b>	More effective in IB, CBSE and CISCE offer limited accommodations but lack uniformity.
<b>Student Confidence &amp; Participation</b>	Dyslexic students feel most confident in IB schools due to structured support.
<b>Peer Support Programs</b>	Structured in IB, weak in CBSE and CISCE.
<b>Monitoring &amp; Compliance</b>	IB tracks dyslexic student progress regularly, CBSE and CISCE lack monitoring mechanisms.
<b>Communication with Parents</b>	Stronger in IB, moderate in CISCE, weak in CBSE.
<b>Stakeholder Satisfaction</b>	IB schools have the highest satisfaction rate, CBSE the lowest, and CISCE falls in between.

**Table No 4.3 : Key Findings of Survey**

. **Key Takeaways.** The study underscores the need for targeted professional development programs to improve teachers' understanding of dyslexia. Based on the findings: -

- (a) There is an urgent need for structured training programs that educate teachers on identifying dyslexic traits beyond just academic struggles.
- (b) Awareness campaigns should be conducted to bridge knowledge gaps regarding verbal and motor difficulties.
- (c) Standardized intervention strategies should be introduced, ensuring that teachers have a unified approach to supporting dyslexic students.
- (d) Stronger policies should be implemented at the board level (CBSE, CISCE, and IB) to ensure effective accommodations and teacher preparedness in dealing with dyslexia.

. **Aligning the Hypothesis of the Thesis with the Findings of Surveys & Research.** The hypothesis stated of the research in this thesis states that ‘While both CBSE and ICSE frameworks incorporate dyslexia support under NEP 2020, their

implementation strategies vary in effectiveness compared to IB due to differences in resource allocation, teacher training and curriculum adaptations'. The "Key Findings" of the studies and surveys carried out in this chapter of the thesis proves the hypothesis as TRUE.

## **CHAPTER 5**

### **RECOMMENDATIONS**

#### **Introduction**

Dyslexia, a specific learning disability affecting reading, writing, and comprehension, continues to be an underdiagnosed and inadequately supported condition in Indian schools. Despite legislative advancements, such as the inclusion of Specific Learning Disabilities (SLD) in the Rights of Persons with Disabilities Act, 2016, and provisions under the National Education Policy (NEP) 2020, the implementation of dyslexia support across educational boards in India remains inconsistent (*Ministry of Education / Government of India, Ministry of Education, n.d.-a*). This chapter provides a comprehensive set of recommendations aimed at bridging the gaps identified in Chapter IV, ensuring that students with dyslexia receive structured, evidence-based interventions.

Need for Stronger Dyslexia Interventions. Data from international studies indicate that early intervention plays a critical role in supporting dyslexic students. Research by Snowling and Hulme (2021) highlights that systematic and early phonics-based interventions significantly improve reading fluency in dyslexic learners (*Dyslexia as a Phonological Deficit: Evidence and Implications - Snowling - 1998 - Child Psychology a, n.d.*). However, in India, early identification mechanisms remain weak, with many students diagnosed only after experiencing academic difficulties (Dyslexia Association Of India, n.d.). Findings from the current study highlight three major challenges in the Indian education system: -

(a) **Lack of Standardized Screening Mechanisms.** CBSE and CISCE schools largely rely on teachers' subjective observations rather than validated dyslexia screening tools such as the Dyslexia Screening Test (DST) or the DALI framework (Understanding Dyslexia In Indian Children: Identification And Intervention Strategies | Journal of P, n.d.).

(b) **Limited Access to Special Educators.** While IB schools have structured support systems with trained specialists, CBSE and CISCE institutions lack mandatory provisions for employing special educators.

(c) **Inconsistent Implementation of Inclusive Policies.** Although CBSE and CISCE have issued circulars regarding accommodations for students with dyslexia, many schools fail to adhere to these guidelines due to administrative and logistical constraints.

**The Role of Policy, Schools, and Educators.** A structured approach involving policy enhancement, school-level interventions, and teacher training is essential to provide dyslexic students with a supportive learning environment. Several countries, such as the UK and the US, have implemented mandatory teacher training on dyslexia, ensuring that educators are equipped to identify and support dyslexic students effectively (International Dyslexia Association, n.d.). In India, NEP 2020 recognizes the need for inclusive education but lacks specific directives on dyslexia-focused training modules (*Ministry of Education | Government of India, Ministry of Education, n.d.-b*) Additionally, international best practices from IB schools in India show that personalized learning plans, use of assistive technology, and structured peer-support programs can significantly improve learning outcomes for dyslexic students (IB and Inclusion: An Update Jayne

Petser Curriculum Manager for Inclusive Education, n.d.). Such models need to be adapted across CBSE and CISCE schools to ensure equitable education for students with dyslexia.

**Purpose of This Chapter.** This chapter proposes a multi-tiered recommendation framework targeting three key areas: -

- (a) **Policy Recommendations for CBSE and CISCE.** Addressing structural gaps in screening, accommodations, and teacher training.
- (b) **Best Practices from IB.** Adapting successful strategies from IB schools to enhance inclusivity in CBSE and CISCE institutions.
- (c) **Recommendations for Schools.** Strengthening early intervention mechanisms, increasing teacher training, and promoting the use of assistive technologies.

In the subsequent sections, these recommendations will be discussed in detail, with a focus on evidence-based approaches and practical implementation strategies to improve dyslexia support in Indian schools.

### **Policy Recommendations for CBSE and CISCE Boards**

To ensure structured dyslexia support in CBSE and CISCE-affiliated schools, there is a need for standardized policies and consistent implementation. The following

recommendations focus on bridging the identified gaps in screening, accommodations, teacher training, and assistive technology integration: -

(a) **Standardizing Dyslexia Identification & Screening**. One of the major concerns in CBSE and CISCE schools is the absence of a standardized dyslexia identification protocol. Unlike IB schools, which implement structured screening mechanisms, CBSE and CISCE schools largely depend on teacher observations, which can be subjective and inconsistent (Dyslexia Association Of India, n.d.). In view of the above following is recommended: -

(i) Mandate annual dyslexia screenings for all students in early grades (Grade 1-3) using validated tools such as the Dyslexia Screening Test (DST) and DALI framework (*Early Intervention in Dyslexia Can Narrow Achievement Gap, UC Davis Study Says / UC Davis, n.d.*).

(ii) Require certified special educators to conduct assessments and guide teachers in identifying at-risk students.

(iii) Ensure that every CBSE and CISCE school submits annual reports on screening outcomes and interventions taken.

(b) **Mandating Individualized Education Plans (IEPs) for Dyslexic Students**. While IB schools require customized learning plans, CBSE and CISCE schools lack structured Individualized Education Plans (IEPs) for dyslexic students (*Equity and Inclusive Education in the IB - International Baccalaureate®*, n.d.-a).

In view of the above following is recommended: -

(i) Make IEPs mandatory for dyslexic students, outlining personalized learning strategies and accommodations.

(ii) Require collaboration between teachers, special educators, and parents to ensure the effective execution of IEPs.

(iii) Introduce an IEP review process every six months to assess student progress and modify interventions accordingly.

(c) **Enhancing Teacher Training on Dyslexia and Inclusive Education.** A major limitation in CBSE and CISCE schools is the lack of dyslexia-specific teacher training. Studies indicate that only 35% of CBSE teachers feel prepared to support dyslexic students (Basu et al., 2014b). In view of the above following is recommended: -

(i) Introduce compulsory dyslexia training modules in teacher certification programs.

(ii) Require annual workshops on inclusive education conducted by certified dyslexia specialists.

(iii) Provide digital resources and toolkits for teachers to access on-demand training.

(d) **Ensuring Access to Special Educators.** CBSE and CISCE schools do not mandate the hiring of special educators, leaving dyslexic students without professional support. In view of the above following is recommended: -

(i) Mandate the presence of at least one special educator per school with expertise in learning disabilities.

(ii) Develop partnerships with dyslexia advocacy organizations to provide external support where necessary.

(iii) Establish a helpline for teachers to consult dyslexia specialists for guidance.

(d) **Integrating Assistive Technology & Alternative Learning Strategies.** CBSE and CISCE schools lack structured policies on the use of assistive technology to support dyslexic students. In view of the above following is recommended: -

(i) Introduce policies allowing the use of assistive technology such as speech-to-text software, audiobooks, and AI-based learning tools.

(ii) Encourage digital note-taking tools and customized learning applications for dyslexic students.

(iii) Provide funding and subsidies to schools for acquiring assistive technologies.

These recommendations, if implemented effectively, can bridge the gaps in CBSE and CISCE dyslexia accommodations, ensuring that students receive structured, personalized, and technology-enhanced learning support.

### **Best Practices from IB that CBSE and CISCE can Adopt**

The International Baccalaureate (IB) curriculum has been recognized for its structured approach to inclusive education, ensuring that students with dyslexia receive personalized learning support (*Equity and Inclusive Education in the IB - International Baccalaureate*®, n.d.-b). Unlike CBSE and CISCE, which lack standardized implementation, IB schools offer a comprehensive framework that integrates teacher training, technological accommodations, and student-specific interventions. The following best practices from IB can be adapted by CBSE and CISCE: -

- (a) **Structured Implementation of Inclusive Education Policies.** IB schools operate under a well-defined inclusion policy that mandates individualized support for students with learning disabilities (*Equity and Inclusive Education in the IB - International Baccalaureate*®, n.d.-a). CBSE and CISCE should adopt a similar structured inclusion policy, ensuring that every school has clear guidelines on dyslexia interventions.
- (b) **Teacher Training and Certification in Learning Disabilities.** In IB schools, teacher training on dyslexia is mandatory, with continuous professional development programs (*Equity and Inclusive Education in the IB - International Baccalaureate*®, n.d.-a). CBSE and CISCE should introduce compulsory teacher

certification programs in collaboration with organizations like the British Dyslexia Association to improve educator preparedness.

(c) **Personalized Accommodations and Alternative Assessment Strategies.**

IB schools provide personalized accommodations such as extra time in exams, alternative assessment methods, and modified coursework (*Equity and Inclusive Education in the IB - International Baccalaureate®*, n.d.-b). CBSE and CISCE should standardize accommodations, ensuring that students receive tailored learning support based on their specific challenges.

(d) **Technology-Based Learning Support.**

IB schools integrate assistive technology, such as speech-to-text software, audiobooks, and AI-based tools, to assist dyslexic students (Oakridge International School, 2021). CBSE and CISCE should introduce structured policies for integrating assistive technology, ensuring that all affiliated schools have access to these tools.

(e) **Monitoring and Progress Tracking.**

IB schools conduct regular progress assessments to monitor the effectiveness of accommodations and interventions (*Equity and Inclusive Education in the IB - International Baccalaureate®*, n.d.-a). CBSE and CISCE should implement quarterly progress tracking systems for dyslexic students, ensuring accountability and continuous improvement in support mechanisms.

By adopting these best practices, CBSE and CISCE can enhance their dyslexia support frameworks, ensuring a more inclusive, student-centered approach to education.

## **Recommendations for Schools to Strengthen Dyslexia Support**

Schools play a pivotal role in the early identification, intervention, and support of dyslexic students. While policies at the board level are essential, their implementation at the school level is critical to ensuring inclusive education. The following recommendations focus on practical strategies schools can adopt to create an effective learning environment for students with dyslexia.

(a) **Early Intervention Strategies and Structured Screening**. Early diagnosis is crucial in addressing dyslexia effectively. Studies indicate that children who receive intervention before the age of eight show significant improvements in reading and comprehension skills. However, many Indian schools lack a structured screening process, delaying essential support for affected students. In view of the above following is recommended: -

- (i) Implement standardized screening tests for all students in early grades (Grades 1-3) using tools such as the Dyslexia Early Screening Test (DEST-2), DALI, and the Phonological Awareness Screening Test (PAST).
- (ii) Train teachers in early dyslexia identification to recognize early warning signs, such as difficulty with phonemic awareness and delayed speech development.
- (iii) Ensure a referral system is in place, where students identified undergo further assessment by special educators or psychologists.

(iv) Regular progress monitoring should be mandated, where students identified with dyslexia receive personalized intervention plans reviewed bi-annually.

(b) **Professional Development for Teachers**. Many educators lack specialized training in handling dyslexic students, leading to ineffective classroom support. A mandatory teacher training framework should be implemented to ensure that teachers are equipped with evidence-based strategies for supporting dyslexic learners. In view of the above following is recommended: -

(i) Integrate dyslexia-specific training modules into teacher certification programs.

(ii) Conduct bi-annual workshops led by experts from institutions such as the British Dyslexia Association and Dyslexia Association of India.

(iii) Develop an online learning platform where teachers can access training materials, best practices, and case studies.

(c) **Flexible Classroom Accommodations**. Dyslexic students often struggle in traditional learning environments. Schools must introduce multi-sensory learning approaches that cater to diverse learning needs. In view of the above following is recommended: -

(i) Use visual aids, audiobooks, and speech-to-text software in classrooms.

(ii) Allow alternative assessment formats, such as oral examinations and project-based evaluations.

(iii) Encourage peer-assisted learning, where students work collaboratively in supportive groups.

(d) Strengthening Parent-Teacher Collaboration. Parental involvement is key to the success of dyslexia interventions. Schools should foster open communication between teachers and parents to ensure consistent support at home and in school.

In view of the above following is recommended: -

(i) Organize regular parent workshops on dyslexia awareness.

(ii) Encourage the formation of parent support groups where experiences and strategies can be shared.

(iii) Develop an individual progress-tracking system that allows parents to monitor their child's progress online.

By implementing these strategies, schools can significantly improve the educational outcomes for dyslexic students, ensuring a more inclusive and supportive learning environment.

**Policy-Level Recommendations to the Ministry of Education (NEP 2020)**

The National Education Policy (NEP) 2020 marks a significant step forward in ensuring inclusive education for children with learning disabilities, including dyslexia. NEP 2020 recognizes the need for specialized interventions, teacher training, and technological integration to support students with disabilities. Key provisions under NEP 2020 relevant to dyslexic students include:-

(a) **Early Identification and Intervention.** NEP 2020 emphasizes early diagnosis of learning disabilities and recommends the establishment of specialized assessment centers in schools (*Ministry of Education | Government of India, Ministry of Education, n.d.-b*).

(b) **Teacher Training and Sensitization.** The policy mandates teacher training in inclusive education, ensuring that educators can recognize and support students with dyslexia (*National Education Policy 2020 Ministry of Human Resource Development Government of India, n.d.-a*).

(c) **Use of Assistive Technology.** NEP 2020 promotes the integration of assistive technology to support students with learning difficulties, including AI-based learning tools, audiobooks, and speech-to-text software.

(d) **Flexible Assessments and Curriculum Modifications.** The policy recommends providing alternative learning formats, modified assessment strategies, and extended exam durations for students with disabilities (*National Education Policy 2020 Ministry of Human Resource Development Government of India, n.d.-a*).

- (e) **Involvement of Parents and Community.** NEP 2020 encourages a collaborative approach, ensuring parents, teachers, and special educators work together in supporting dyslexic students.

**Recommendations to Ministry of Education.** While NEP 2020 sets the right framework, effective implementation remains a challenge. The following recommendations aim to strengthen and operationalize dyslexia support under NEP 2020:-

- (a) Establishing National Dyslexia Screening and Intervention Program: -
- (i) Mandate universal screening for dyslexia in all government and private schools by Grade 1.
  - (ii) Introduce government-funded assessment centers for dyslexia diagnosis in every district.
  - (iii) Standardize screening tools such as DALI, DST, and Phonological Awareness Screening Tests across all schools (Chatterjee Singh et al., 2018).
- (b) Strengthening Teacher Training Programs:-
- (i) Include dyslexia-focused training modules in all teacher certification courses.

- (ii) Mandate annual workshops on inclusive education, led by specialized organizations such as the Dyslexia Association of India.
  - (iii) Develop online training programs accessible to all educators.
- (c) Expanding the Role of Assistive Technology in Learning:-
- (i) Ensure the provision of assistive learning tools in all schools, including text-to-speech software, audiobooks, and AI-driven reading tools.
  - (ii) Provide funding and subsidies for the integration of assistive technologies in low-income schools.
  - (iii) Develop a national digital repository of educational resources for dyslexic students.
- (d) Strengthening Parent and Community Involvement: -
- (i) Mandate parental training programs to help families understand and support dyslexic children.
  - (ii) Encourage the formation of parent support groups within schools.
  - (iii) Ensure that schools hold bi-annual meetings with parents to track student progress.

By implementing these policy-level changes, the Ministry of Education can bridge the gap between NEP 2020's vision and actual execution, ensuring that dyslexic students receive the support they need to succeed in Indian schools.

## CONCLUSION

The implementation of inclusive education policies for dyslexic students in India remains a challenge despite significant policy developments such as NEP 2020 and accommodations introduced by CBSE, CISCE, and IB boards. The recommendations outlined in this chapter seek to provide a comprehensive, structured, and actionable framework to bridge the gap between policy provisions and practical execution in schools.

A critical aspect of supporting dyslexic students is early identification and intervention. Without standardized screening mechanisms, many dyslexic students remain undiagnosed, leading to academic struggles and decreased self-confidence. The recommendation to mandate universal dyslexia screening in all primary schools aims to ensure that no child is left without the necessary support.

Another major challenge is the lack of trained educators who can effectively support dyslexic students. While IB schools have established rigorous training programs, CBSE and CISCE have inconsistent teacher training provisions. A key recommendation is the integration of dyslexia-focused training into pre-service teacher education programs and mandatory annual professional development workshops for in-service teachers.

Technology also presents unparalleled opportunities for making learning more accessible to dyslexic students. Assistive tools such as text-to-speech software, audiobooks, and AI-driven learning platforms have proven to enhance comprehension and engagement for dyslexic learners. The Ministry of Education must ensure that all schools have access to assistive technologies, particularly those in underprivileged areas.

The effectiveness of accommodations in academic assessments is another crucial factor in ensuring that dyslexic students receive a fair evaluation. CBSE, CISCE, and IB offer varied accommodations, yet their implementation remains non-uniform and largely dependent on individual schools. It is recommended that the Ministry of Education legally mandate accommodations, including extra time, scribes, alternative assessment formats, and flexible curriculum modifications to level the playing field for dyslexic students.

A holistic approach to dyslexia support cannot be achieved without strong collaboration between teachers, parents, and policymakers. Schools must establish regular parent-teacher meetings and support groups for parents, ensuring that dyslexic students receive guidance both at home and in school. Community engagement and awareness initiatives can help reduce stigma associated with dyslexia and encourage an inclusive learning culture.

In conclusion, dyslexic students in India require a well-structured, policy-backed, and practically implementable support system to thrive academically and socially. The recommendations presented in this chapter offer a multi-tiered approach, focusing on policy-level changes, school-based interventions, and the integration of best practices from international models. By implementing these recommendations, India can take a significant step toward ensuring that no dyslexic student is left behind, fulfilling the broader vision of inclusive education under NEP 2020.

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(Refers to Paragraph 107 of the Dissertation)

**DETAILED QUESTIONNAIRES FOR INTERVIEW OF NOMINATED PERSONS  
OF BOARDS**

**Objective:** To assess policies, implementation strategies, resource allocations and accommodations for dyslexic students across different boards.

**Section 1: Policy and Implementation**

1. How clearly are the board's policies on dyslexia inclusion defined?
2. How effectively are these policies implemented in schools?
3. How compliant are schools in implementing the board's dyslexia-related regulations?
4. How well does the board monitor schools' adherence to dyslexia support policies?

**Section 2: Curriculum and Accommodations**

5. How flexible is the curriculum in adapting to the needs of dyslexic students?
6. How effective are special assessment provisions for dyslexic students?
7. How accessible are alternative learning materials (e.g., audiobooks, simplified texts) for dyslexic students?
8. How well are examination accommodations (e.g., extra time, oral exams) implemented?

**Section 3: Teacher Training and Resources**

9. How frequently are teacher training programs conducted on dyslexia awareness

and intervention?

10. How effective are these training programs in equipping teachers with necessary skills?

11. How well does the board ensure schools have access to trained special educators?

12. How available are assistive technologies for dyslexic students in schools?

#### **Section 4: Monitoring and Evaluation**

13. How often does the board update policies based on student performance and feedback?

14. How effective are mechanisms for tracking the progress of dyslexic students?

15. How well does the board communicate with schools regarding dyslexia-related updates?

**Annexure B**

(Refers to Paragraph 108 of the Dissertation)

**DETAILED QUESTIONNAIRES FOR TEACHERS / SPECIAL EDUCATORS IN  
SCHOOL**

**Objective.** To assess school-level execution of board policies, available support systems, and student performance metrics.

**Section 1: Identification and Diagnosis of Dyslexia**

1. How available are early screening programs for dyslexia in your school? (1 = Not available, 5 = Fully available)
2. How frequently are students assessed for dyslexia? (1 = Rarely, 5 = Very frequently)
3. How well are parents involved in the diagnosis process? (1 = Not involved, 5 = Highly involved)

**Section 2: Support Systems for Dyslexic Students**

4. How accessible are Individualized Education Plans (IEPs) for dyslexic students? (1 = Not accessible, 5 = Fully accessible)
5. How well does your school provide special educators and therapists for dyslexic students? (1 = Not at all, 5 = Fully provided)
6. How effective is the use of assistive technology (e.g., audiobooks, speech-to-text software) for dyslexic students? (1 = Not effective, 5 = Highly effective)

**Section 3: Teacher Training and Awareness**

7. How frequently do teachers receive training on handling dyslexic students? (1 =

Rarely, 5 = Very frequently)

8. How well-prepared do teachers feel to support dyslexic students in their classrooms? (1 = Not prepared, 5 = Fully prepared)

9. How effectively do teachers implement multi-sensory teaching methods? (1 = Not effective, 5 = Highly effective)

#### **Section 4: Academic and Emotional Support**

10. How effective are the accommodations provided for dyslexic students in improving academic performance? (1 = Not effective, 5 = Highly effective)

11. How confident do dyslexic students feel in participating in classroom activities? (1 = Not confident, 5 = Very confident)

12. How well does your school provide peer support programs for dyslexic students? (1 = Not at all, 5 = Fully provided)

#### **Section 5: Monitoring and Feedback**

13. How effectively does your school track the progress of dyslexic students? (1 = Not effective, 5 = Highly effective)

14. How well does the school communicate with parents about dyslexia support plans? (1 = Poorly, 5 = Very well)

15. How satisfied are stakeholders (teachers, parents, students) with the dyslexia support system in your school? (1 = Not satisfied, 5 = Highly satisfied.)

**Annexure C**

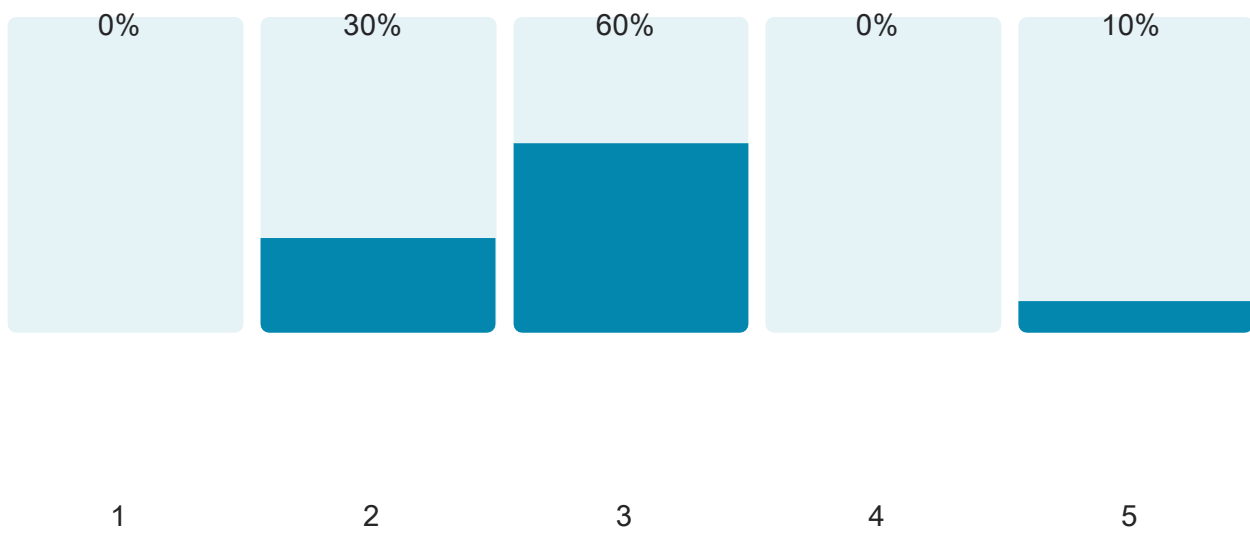
(Refers to Paragraph 147 of the Dissertation)

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**REPORT ON QUESTIONNAIRES FOR TEACHERS / SPECIAL EDUCATORS IN SCHOOL**

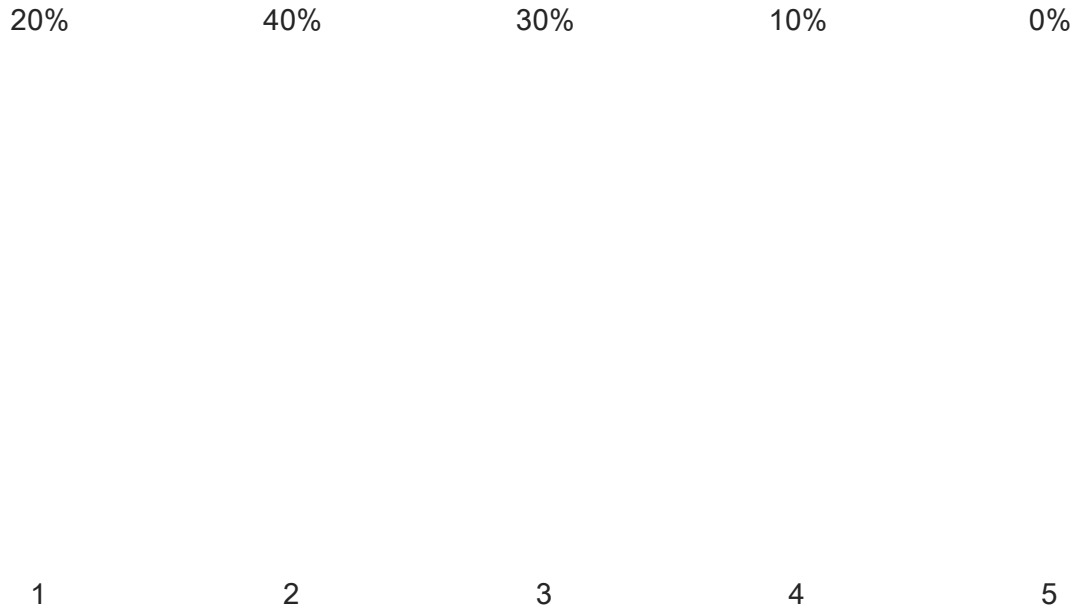
How available are early screening programs for dyslexia in ICSE schools? (1 = Not available, 5 = Fully available)

### 2.9 Average rating



How frequently are students assessed for dyslexia in ICSE schools? (1 = Rarely, 5 = Very frequently)

### 2.3 Average rating



How well are parents involved in the diagnosis process? (1 = Not involved, 5 = Highly involved)

### 2.9 Average rating



1

2

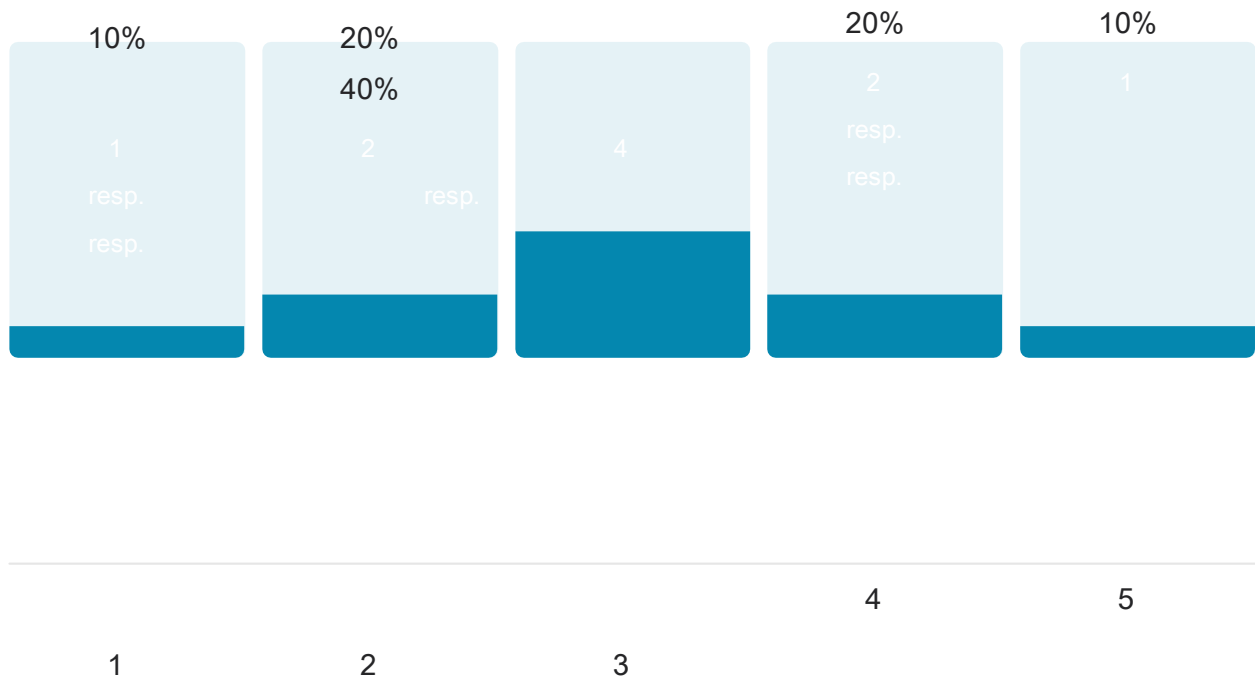
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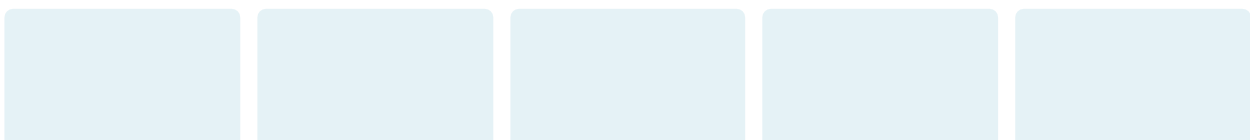
How accessible are Individualized Education Plans (IEPs) for dyslexic students in ICSE schools? (1 = Not accessible, 5 = Fully accessible)

### 3.0 Average rating



How well does ICSE schools provide special educators and therapists for dyslexic students? (1 = Not at all, 5 = Fully provided)

### 3.1 Average rating



0%

50%

12.5%

12.5%

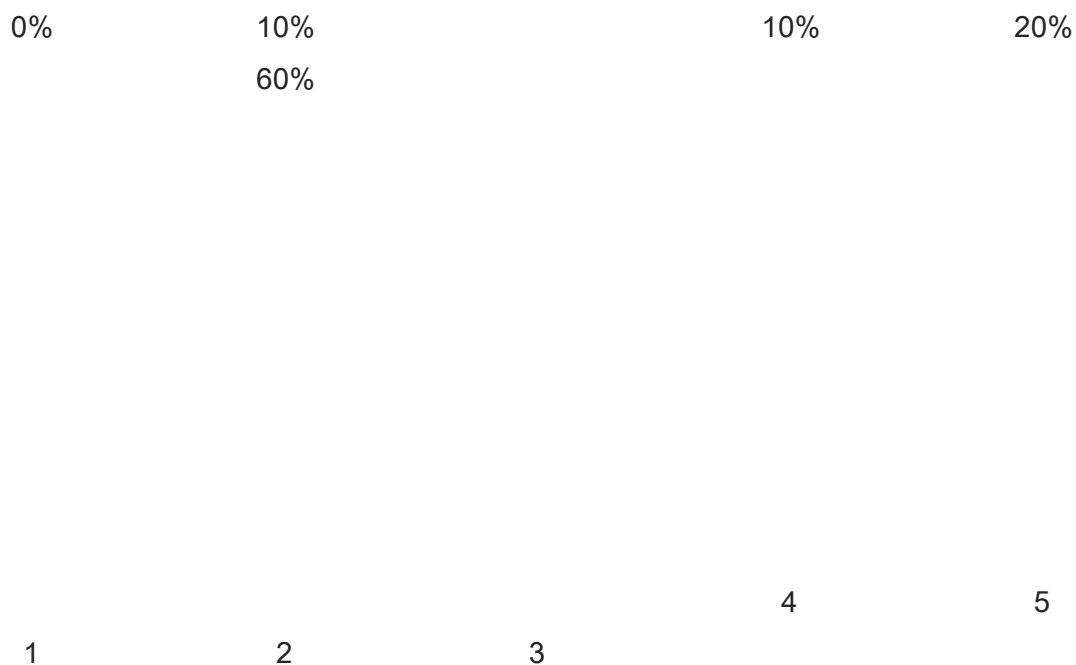
25

%

1 2 3 4 5

How elective is the use of assistive technology (e.g., audiobooks, speech-to-text software) for dyslexic students? (1 = Not elective, 5 = Highly elective)

### 3.4 Average rating

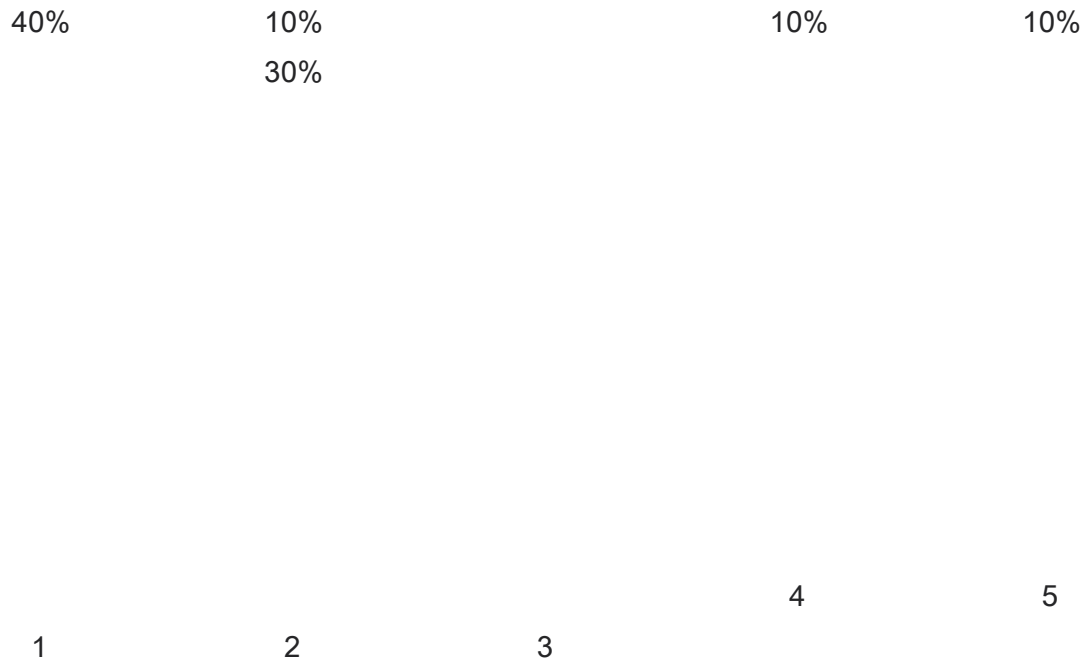


How frequently do teachers receive training on handling dyslexic students? (1 = Rarely, 5 = Very frequently)

## 2.4 Average rating

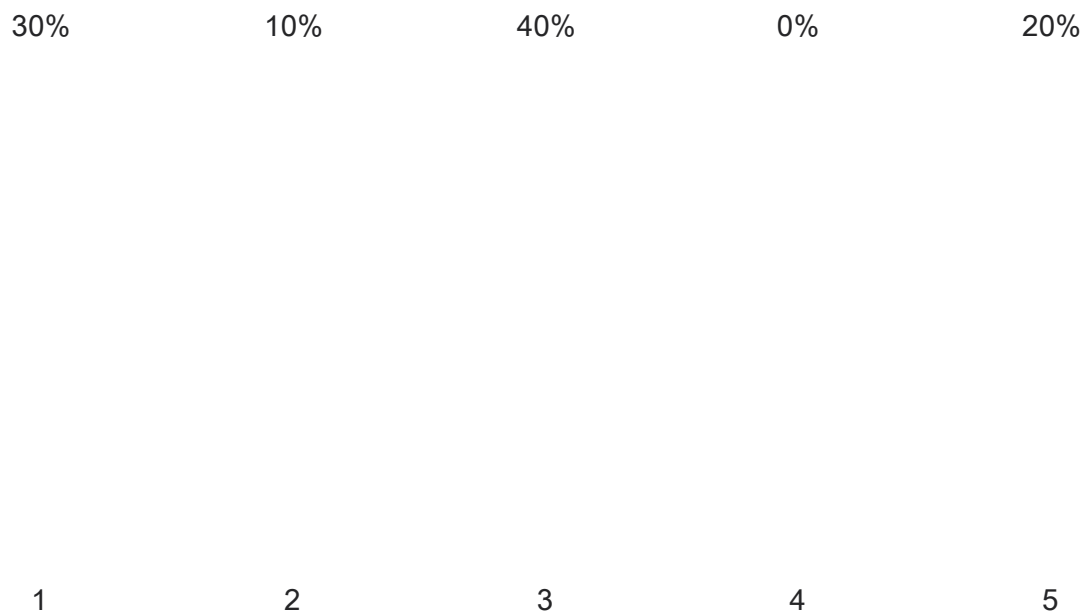
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How well-prepared do teachers feel to support dyslexic students in their classrooms? (1 = Not prepared, 5 = Fully prepared)

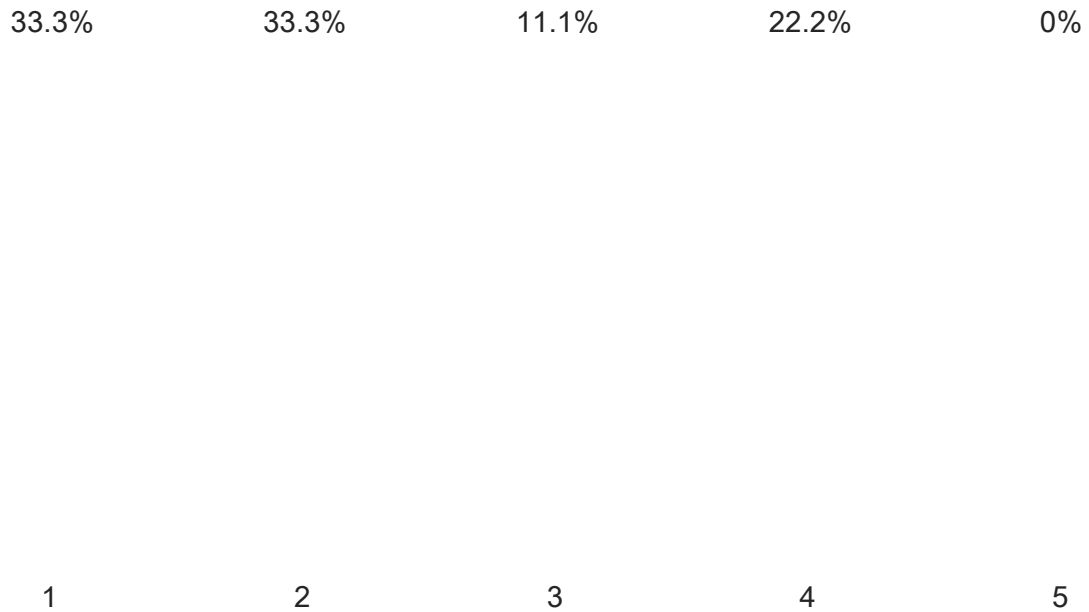
### 2.7 Average rating





How electively do teachers implement multi-sensory teaching methods? (1 = Not elective, 5 = Highly elective)

### 2.2 Average rating



How elective are the accommodations provided for dyslexic students in improving academic performance in ICSE Schools? (1 = Not elective, 5 = Highly elective)

### 2.6 Average rating



0%	11.1%	resp.
0	1 resp.	

1 2 3 4 5

How confident do dyslexic students feel in participating in classroom activities? (1 = Not confident, 5 = Very confident)

### 2.7 Average rating

10% 30% 50% 0% 10%

1 2 3 4 5

How well does ICSE schools provide peer support programs for dyslexic students? (1 = Not at all, 5 = Fully provided)

## 2.4 Average rating

[https://form.typeform.com/report/EltUiKEp/qHKqSbr6WFFzrwpc?view\\_mode=print](https://form.typeform.com/report/EltUiKEp/qHKqSbr6WFFzrwpc?view_mode=print)

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20%                      40%                      30%                      0%                      10%

1                      2                      3                      4                      5

How electively does ICSE schools track the progress of dyslexic students? (1 = Not elective, 5 = Highly elective)

### 2.4 Average rating

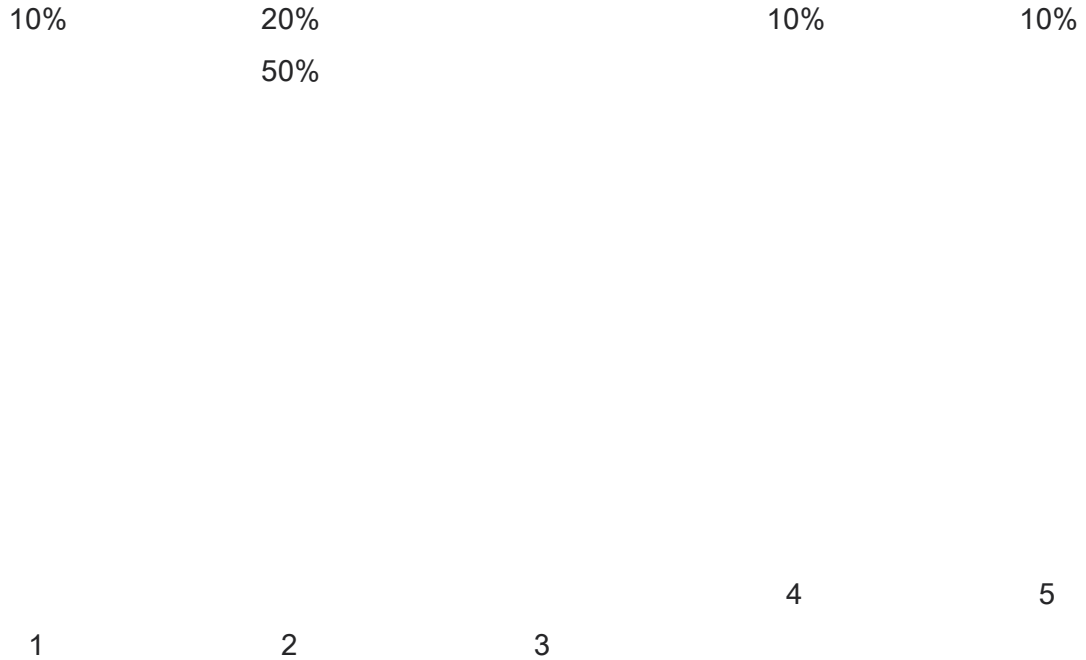
30%                      20%                      40%                      0%                      10%

1                      2                      3                      4                      5



How well does ICSE school communicate with parents about dyslexia support plans? (1 = Poorly, 5 = Very well)

### 2.9 Average rating



How satisfied are stakeholders (teachers, parents, students) with the dyslexia support system in ICSE schools? (1 = Not satisfied, 5 = Highly satisfied)

9 out of 10 answered

### 2.4 Average rating



11.1%

11.1%

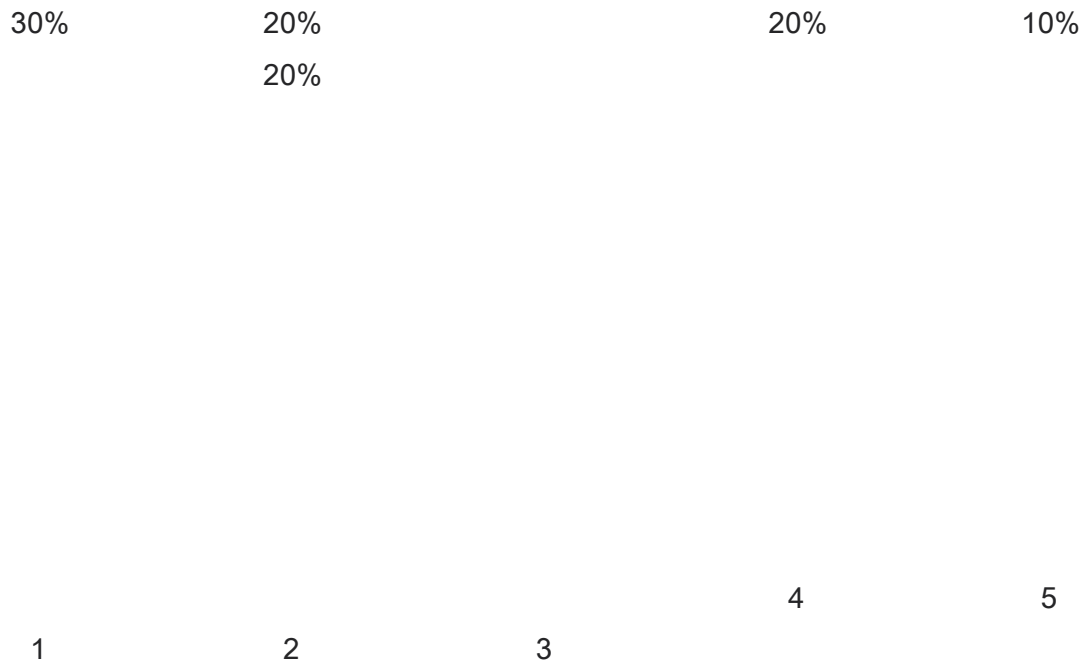
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1 2 3 4 5

How available are early screening programs for dyslexia in CBSE schools? (1 = Not available, 5 = Fully available)

### 2.6 Average rating



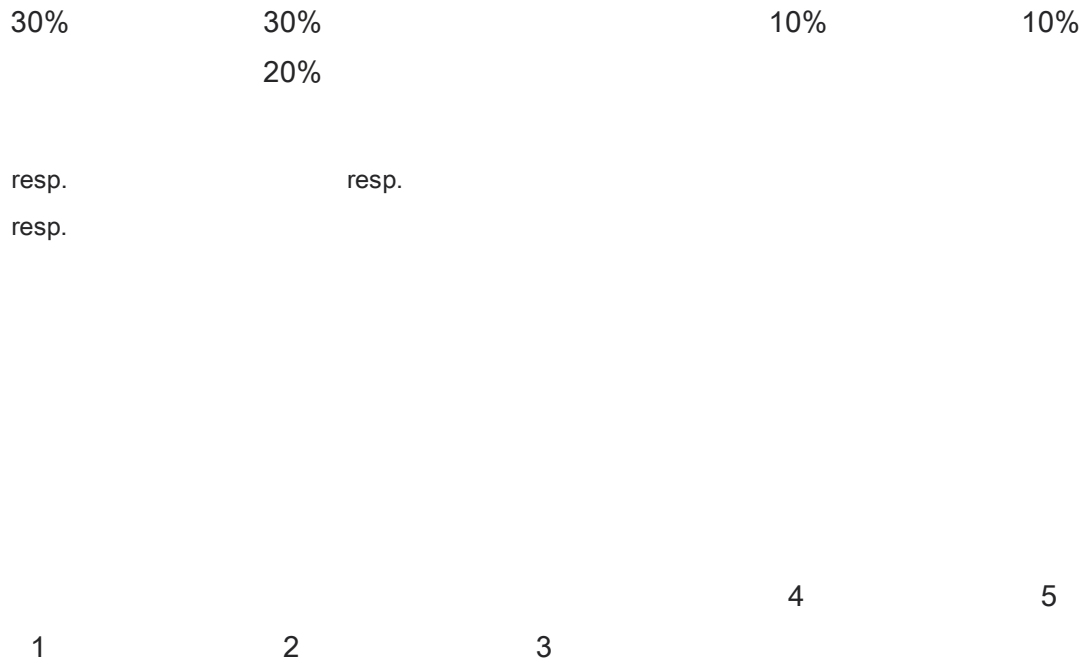
How frequently are students assessed for dyslexia? (1 = Rarely, 5 = Very frequently)

10 out of 10 answered

## 2.4 Average rating

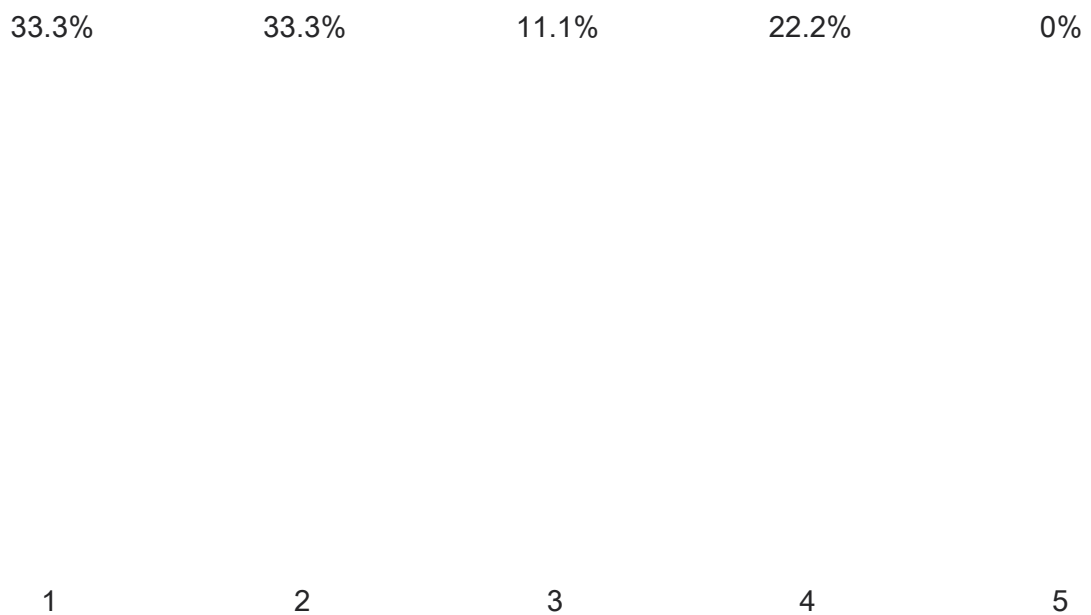
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How well are parents involved in the diagnosis process? (1 = Not involved, 5 = Highly involved)

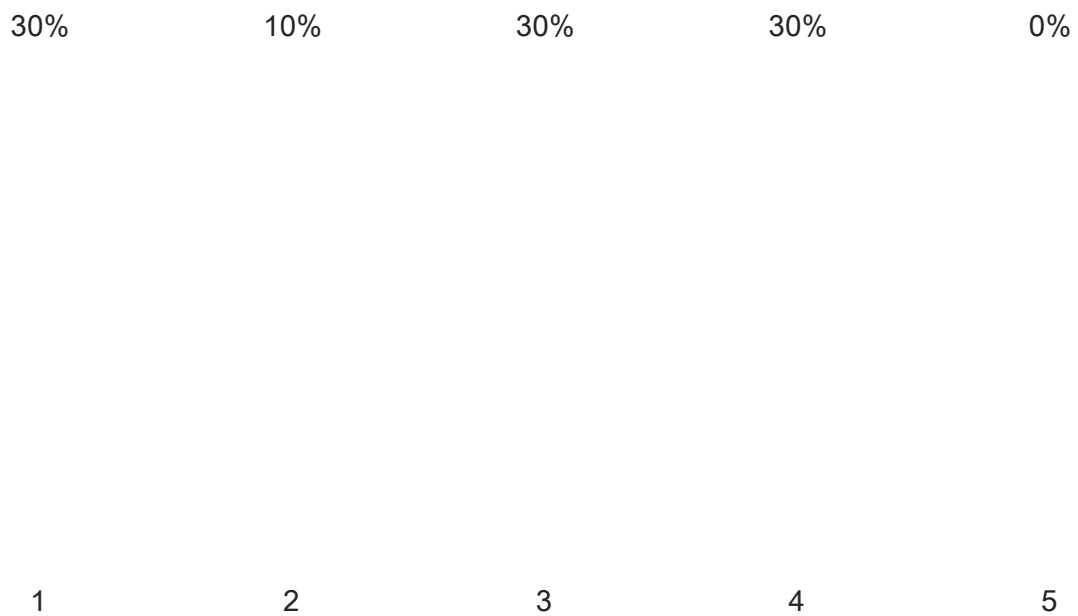
### 2.2 Average rating





How accessible are Individualized Education Plans (IEPs) for dyslexic students? (1 = Not accessible, 5 = Fully accessible)

### 2.6 Average rating



How well does CBSE school provide special educators and therapists for dyslexic students? (1 = Not at all, 5 = Fully provided)

### 3.0 Average rating



50%

20%

10%

[https://form.typeform.com/report/EltUiKEp/qHKqSbr6WFFzrwpc?view\\_mode=print](https://form.typeform.com/report/EltUiKEp/qHKqSbr6WFFzrwpc?view_mode=print)

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1 2 3 4 5

How elective is the use of assistive technology (e.g., audiobooks, speech-to-text software) for dyslexic students? (1 = Not elective, 5 = Highly elective)

### 2.4 Average rating

10% 50% 30% 10% 0%

1 2 3 4 5

How frequently do teachers receive training on handling dyslexic students? (1 = Rarely, 5 = Very frequently)



## 2.6 Average rating

22.2%                      22.2%                      33.3%                      22.2%                      0%

1                                      2                                      3                                      4                                      5

How well-prepared do teachers feel to support dyslexic students in their classrooms? (1 = Not prepared, 5 = Fully prepared)

## 2.4 Average rating

30%                                      10%                                      50%                                      10%                                      0%

1

2

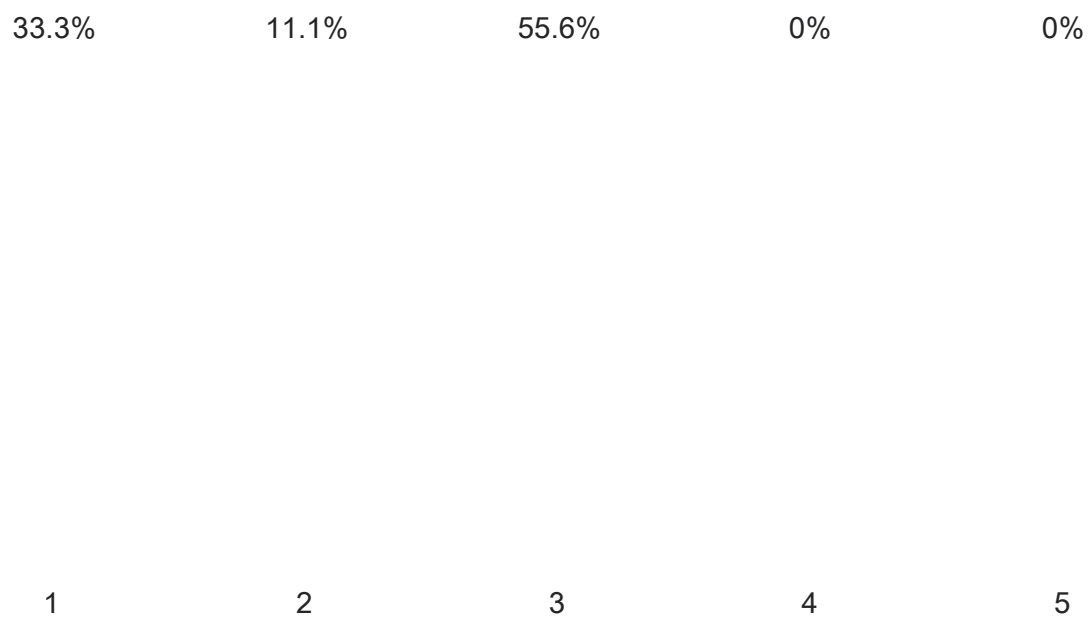
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4

5

How electively do teachers implement multi-sensory teaching methods? (1 = Not elective, 5 = Highly elective)

### 2.2 Average rating



How elective are the accommodations provided for dyslexic students in improving academic performance in CBSE schools? (1 = Not elective, 5 = Highly elective)

### 2.7 Average rating



%

20%

10%

[https://form.typeform.com/report/EltUiKEp/qHKqSbr6WFFzrwpc?view\\_mode=print](https://form.typeform.com/report/EltUiKEp/qHKqSbr6WFFzrwpc?view_mode=print)

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## 2.1 Average rating

30%                      40%                      20%                      10%                      0%

1                              2                              3                              4                              5

How effectively does CBSE school track the progress of dyslexic students? (1 = Not effective, 5 = Highly effective)

## 2.4 Average rating

30%                      10%                      50%                      10%                      0%

1

2

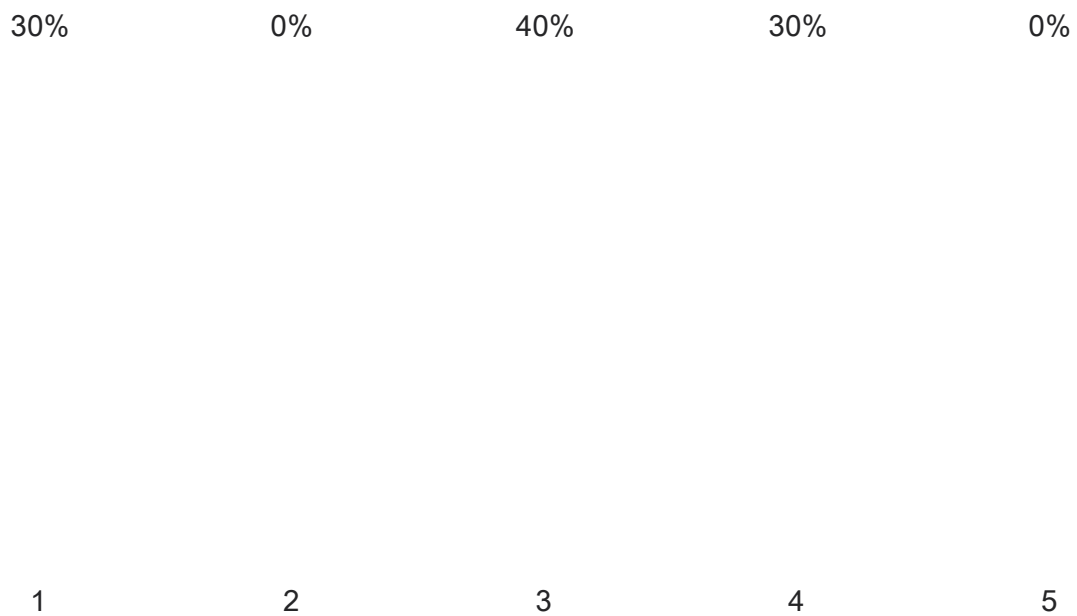
3

4

5

How well does the CBSE school communicate with parents about dyslexia support plans? (1 = Poorly, 5 = Very well)

### 2.7 Average rating



How satisfied are stakeholders (teachers, parents, students) with the dyslexia support system in CBSE schools? (1 = Not satisfied, 5 = Highly satisfied)

9 out of 10 answered

### 2.2 Average rating



44.4%

11.1%

0%

[https://form.typeform.com/report/EltUiKEp/qHKqSbr6WFFzrwpc?view\\_mode=print](https://form.typeform.com/report/EltUiKEp/qHKqSbr6WFFzrwpc?view_mode=print)

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1 2 3 4 5

How available are early screening programs for dyslexia in IB schools? (1 = Not available, 5 = Fully available)

10 out of 10 answered

### 3.0 Average rating

0% 30% 50% 10% 10%

1 2 3 4 5

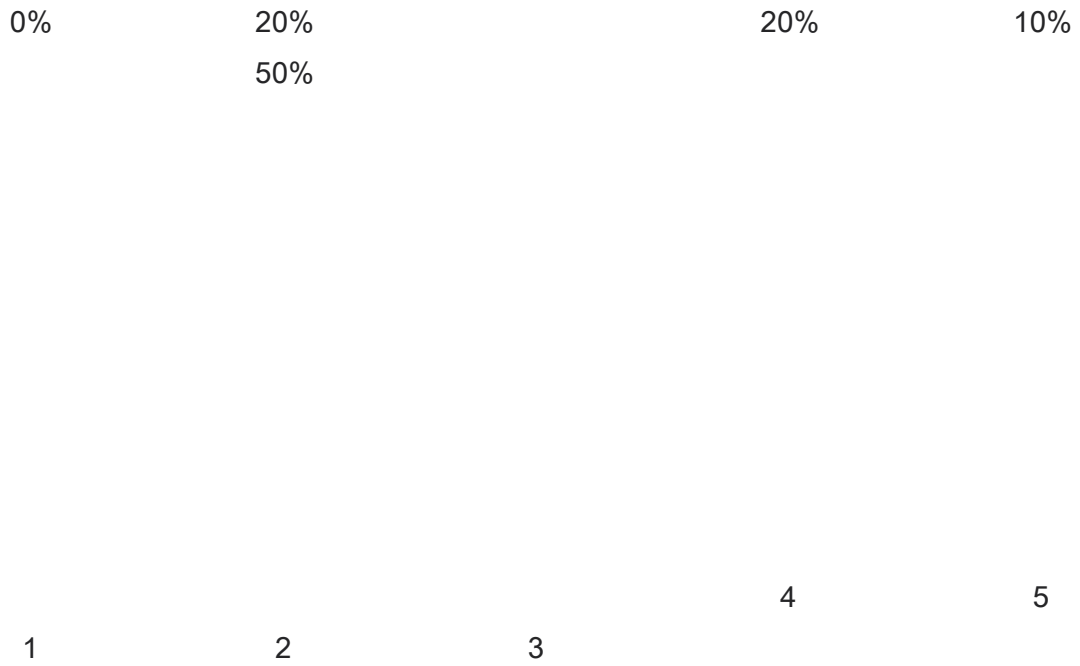
How frequently are students assessed for dyslexia? (1 = Rarely, 5 = Very frequently)

10 out of 10 answered

[https://form.typeform.com/report/EltUiKEp/qHKqSbr6WFFzrwpc?view\\_mode=print](https://form.typeform.com/report/EltUiKEp/qHKqSbr6WFFzrwpc?view_mode=print)

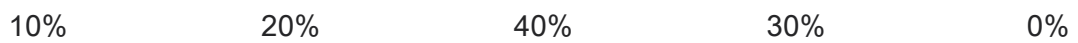
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### 3.2 Average rating



How well are parents involved in the diagnosis process? (1 = Not involved, 5 = Highly involved)

### 2.9 Average rating



1

2

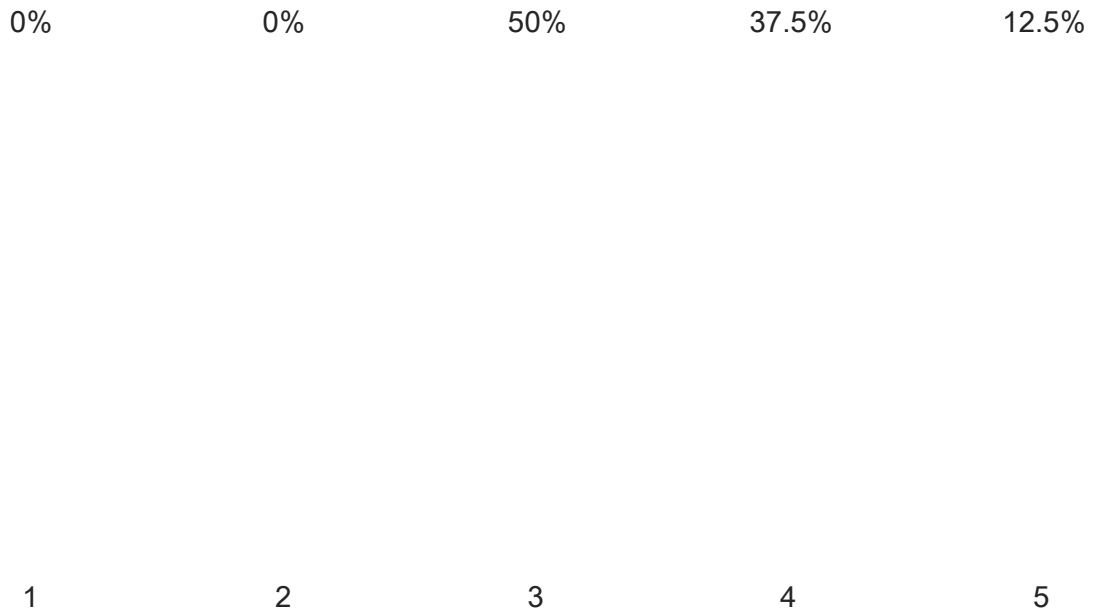
3

4

5

How accessible are Individualized Education Plans (IEPs) for dyslexic students? (1 = Not accessible, 5 = Fully accessible)

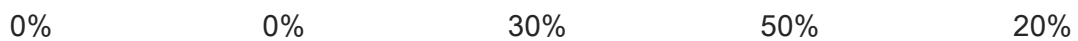
### 3.6 Average rating



How well does IB schools provide special educators and therapists for dyslexic students? (1 = Not at all, 5 = Fully provided)

10 out of 10 answered

### 3.9 Average rating

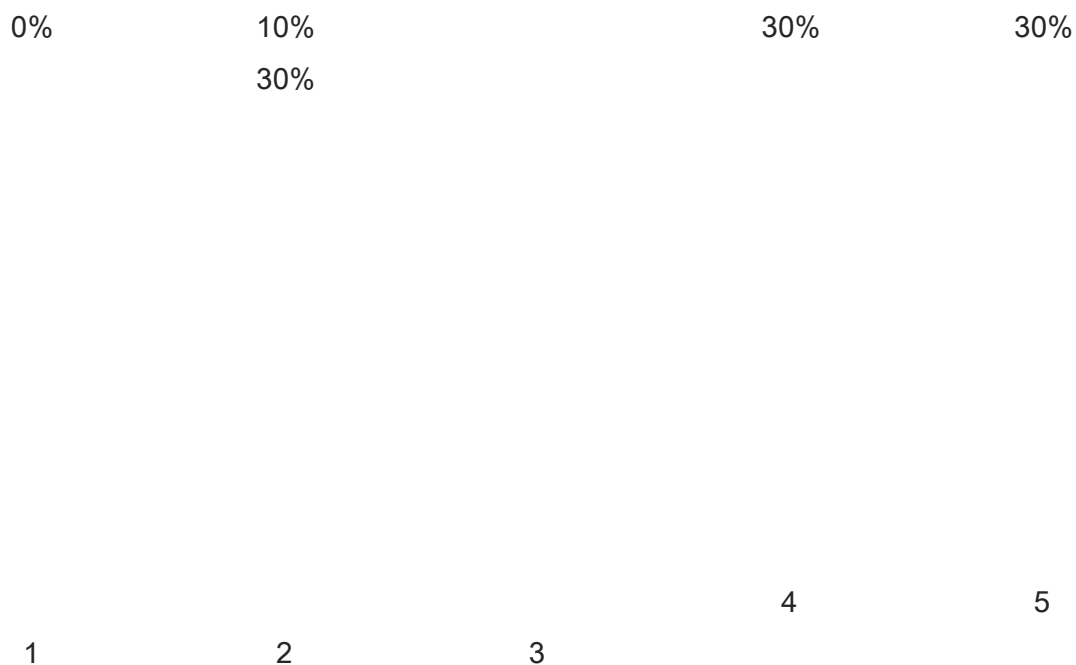




1 2 3 4 5

How elective is the use of assistive technology (e.g., audiobooks, speech-to-text software) for dyslexic students? (1 = Not elective, 5 = Highly elective)

### 3.8 Average rating

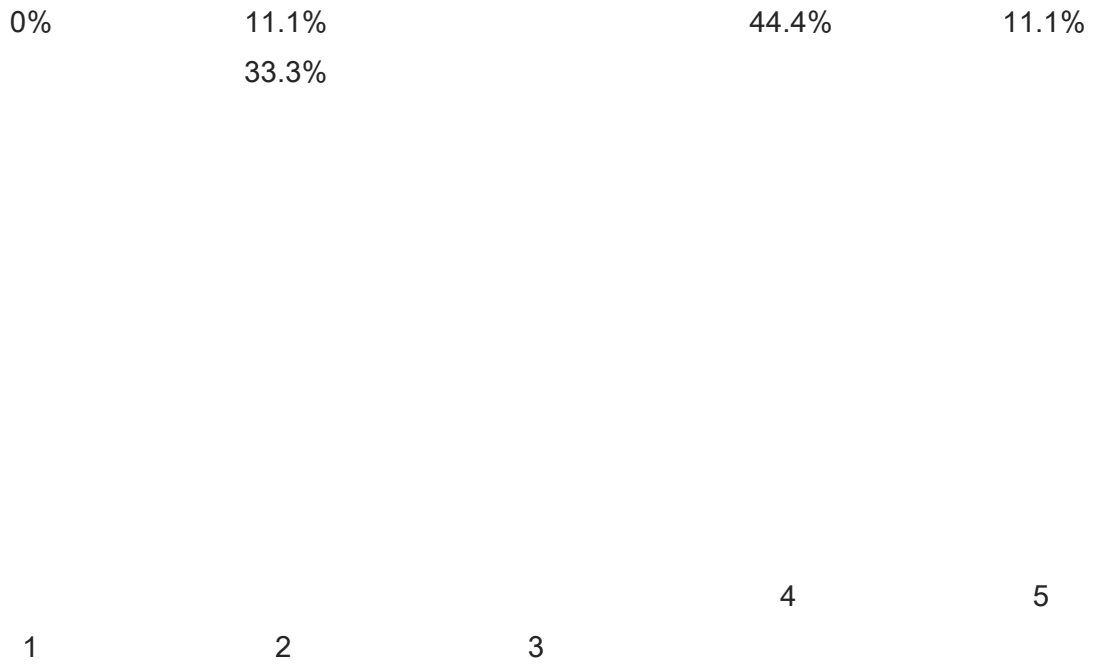


How frequently do teachers receive training on handling dyslexic students? (1 = Rarely, 5 = Very frequently)

## 3.6 Average rating

[https://form.typeform.com/report/EltUiKEp/qHKqSbr6WFFzrwpc?view\\_mode=print](https://form.typeform.com/report/EltUiKEp/qHKqSbr6WFFzrwpc?view_mode=print)

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How well-prepared do teachers feel to support dyslexic students in their classrooms? (1 = Not prepared, 5 = Fully prepared)

10 out of 10 answered

### 3.3 Average rating



20%

10%

4

5

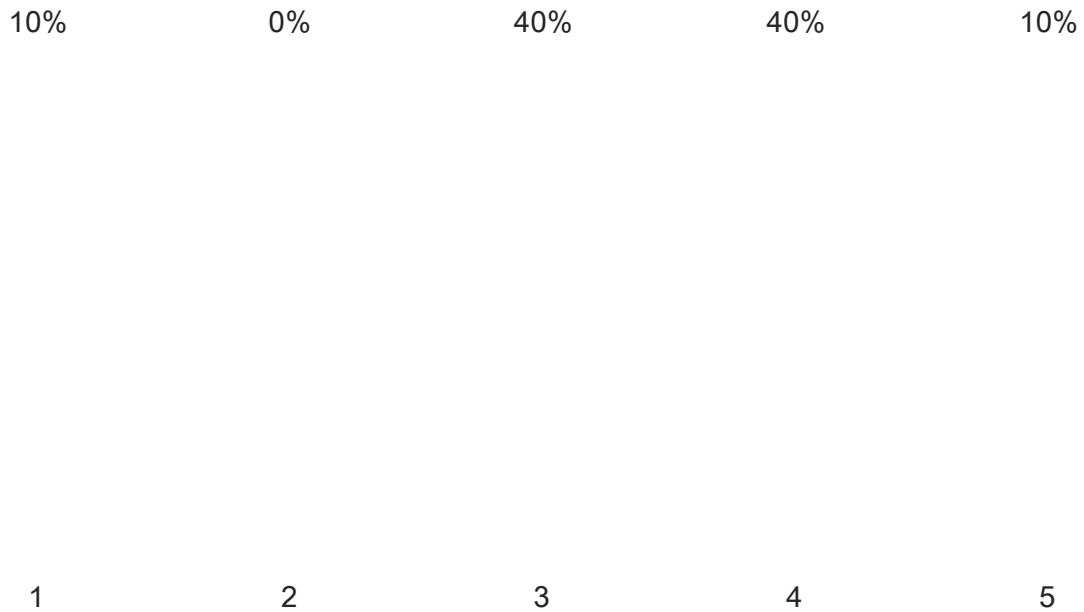
[https://form.typeform.com/report/EltUiKEp/qHKqSbr6WFFzrwpc?view\\_mode=print](https://form.typeform.com/report/EltUiKEp/qHKqSbr6WFFzrwpc?view_mode=print)

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How electively do teachers implement multi-sensory teaching methods? (1 = Not elective, 5 = Highly elective)

10 out of 10 answered

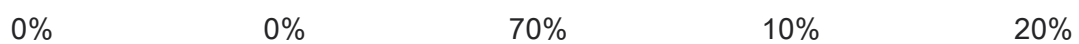
### 3.4 Average rating



How elective are the accommodations provided for dyslexic students in improving academic performance in IB schools? (1 = Not elective, 5 = Highly elective)

10 out of 10 answered

### 3.5 Average rating





1 2 3 4 5

How confident do dyslexic students feel in participating in classroom activities? (1 = Not confident, 5 = Very confident)

9 out of 10 answered

### 3.7 Average rating

0%	11.1%	33.3%	22.2%
	33.3%		

1 2 3 4 5

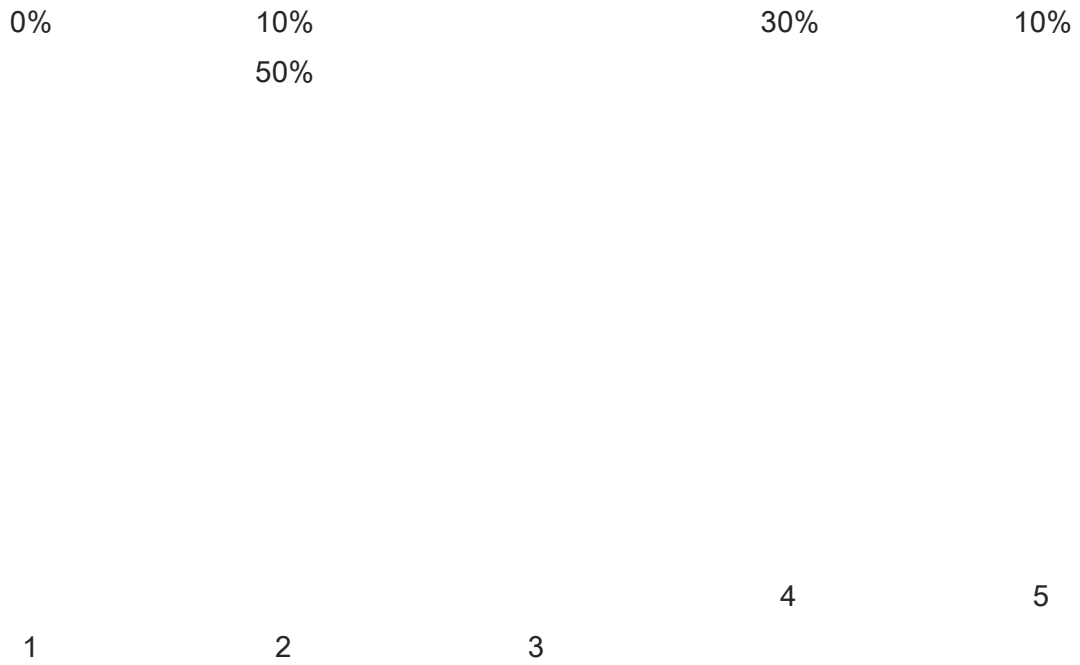
How well does IB school provide peer support programs for dyslexic students? (1 = Not at all, 5 = Fully provided)

10 out of 10 answered

## 3.4 Average rating

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How electively does IB school track the progress of dyslexic students? (1 = Not elective, 5 = Highly elective)

9 out of 10 answered

### 3.6 Average rating



44.4%

11.1%

4

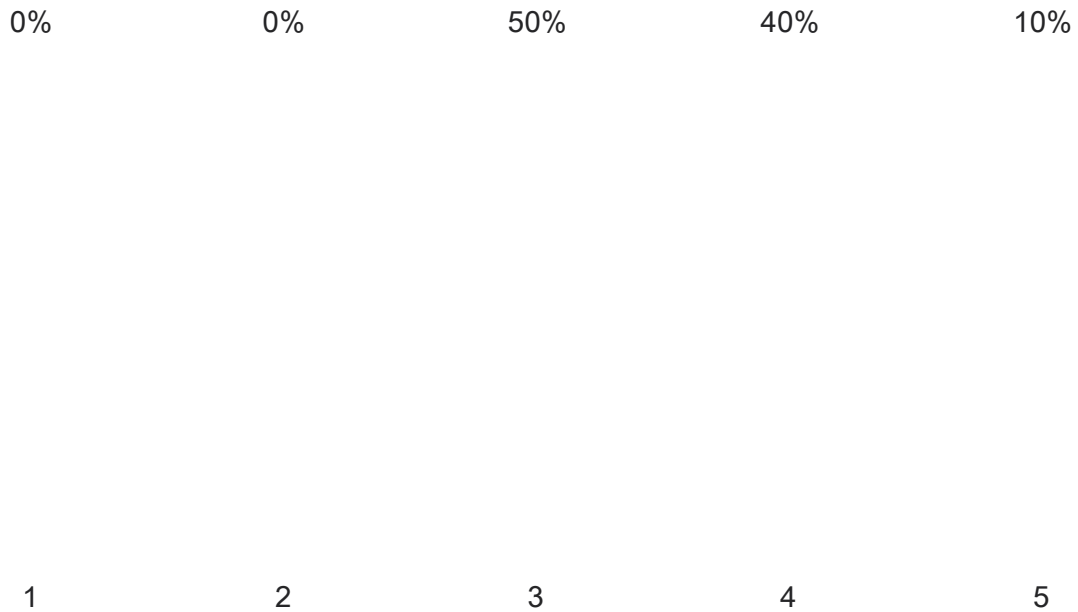
5

[https://form.typeform.com/report/EltUiKEp/qHKqSbr6WFFzrwpc?view\\_mode=print](https://form.typeform.com/report/EltUiKEp/qHKqSbr6WFFzrwpc?view_mode=print)

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How well does the IB school communicate with parents about dyslexia support plans? (1 = Poorly, 5 = Very well)

### 3.6 Average rating



How satisfied are stakeholders (teachers, parents, students) with the dyslexia support system in IB schools? (1 = Not satisfied, 5 = Highly satisfied)

10 out of 10 answered

### 3.7 Average rating





1

2

3

4

5